TOSHIBA

MOSFETs

Contents

I Small Signal MOSFETs

1. Over 500mA Series MOSFETs (Semi-Power Type)

Package Dimensions (unit: mm)

CST3C	CST3 (SOT-883)	VESM (SOT-723)	UFM (SOT-323F)	ES6 (SOT-563)	UF6 (SOT-363F)	WCSP6C
Bottom View  0.8 x 0.6	Bottom View  1.0 x 0.6	 1.2 x 1.2	 2.0 x 2.1	 1.6 x 1.6	 2.0 x 2.1	Bottom View  1.5 x 1.0

P-Channel Single MOSFET

Package	Part Number		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$R_{DS(ON)}$ max (mΩ)							Qg typ. (nC)	Ciss typ. (pF)	Note
						V_{GS}= -1.2 V	V_{GS}= -1.5 V	V_{GS}= -1.8 V	V_{GS}= -2.5 V	V_{GS}= -4 V	V_{GS}= -4.5 V	V_{GS}= -10 V			
CST3C	SSM3J64CTC	$	-12	+/-10	-1.0	11300	1310	890	560	-	370	-	-	50	
	SSM3J65CTC	$	-20	+/-10	-0.7	11300	1550	1070	700	-	500	-	-	48	
CST3	SSM3J56ACT	$	-20	+/-8	-1.4	4000	900	660	480	-	390	-	1.6	100	
VESM	SSM3J66MFV	# $	-20	+6/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
	SSM3J56MFV	$	-20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
WCSP6C	SSM6J771G	$	-20	+/-12	-5.0	-	-	-	47.5	-	35	34.7 (@-8 V) 31 (@-8.5 V)	9.8	870	
ES6	SSM6J216FE	$	-12	+/-8	-4.8	-	88.1	56	39.3	-	32	-	12.7	1040	
	SSM6J213FE	$	-20	+/-8	-2.6	-	250	178	133	-	103	-	4.7	290	
	SSM6J215FE	$	-20	+/-8	-3.4	-	154	104	79	-	59	-	10.4	630	
	SSM6J212FE	$	-20	+/-8	-4.0	-	94	65.4	49	-	40.7	-	14.1	970	
	SSM6J207FE	$	-30	+/-20	-1.4	-	-	-	-	491	-	251	-	137	
	SSM6J214FE	$	-30	+/-12	-3.6	-	-	149.6	77.6	-	57	50	7.9	560	
UFM	SSM3J132TU	$	-12	+/-6	-5.4	94	39	29	21	-	17	-	33	2700	
	SSM3J135TU	$	-20	+/-8	-3.0	-	260	180	132	-	103	-	4.6	270	
	SSM3J145TU	# $	-20	+6/-8	-3.0	-	260	180	132	-	103	-	4.6	270	
	SSM3J134TU	$	-20	+/-8	-3.2	-	240	168	123	-	93	-	4.7	290	
	SSM3J144TU	# $	-20	+6/-8	-3.2	-	240	168	123	-	93	-	4.7	290	
	SSM3J120TU ●	$	-20	+/-8	-4.0	-	140	78	49	38	-	-	22.3	1484	⇒ SSM3J133TU
	SSM3J130TU	$	-20	+/-8	-4.4	-	63.2	41.1	31	-	25.8	-	24.8	1800	
	SSM3J140TU	# $	-20	+6/-8	-4.4	-	63.2	41.1	31	-	25.8	-	24.8	1800	
	SSM3J133TU	$	-20	+/-8	-5.5	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J143TU	# $	-20	+6/-8	-5.5	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J112TU	# $	-30	+/-20	-1.1	-	-	-	-	790	-	390	-	86	
	SSM3J118TU	# $	-30	+/-20	-1.4	-	-	-	-	480	-	240	-	137	
	SSM3J117TU	# $	-30	+/-20	-2.0	-	-	-	-	225	-	117	-	280	
UF6	SSM6J50TU	$	-20	+/-10	-2.5	-	-	205 (@-2 V)	100	-	64	-	-	800	
	SSM6J422TU	# $	-20	+6/-8	-4.0	-	99.6	67.8	51.4	-	42.7	-	12.8	840	
	SSM6J412TU	$	-20	+/-8	-4.0	-	99.6	67.8	51.4	-	42.7	-	12.8	840	
	SSM6J424TU	# $	-20	+6/-8	-6.0	-	54	36	26	-	22.5	-	23.1	1650	
	SSM6J414TU	$	-20	+/-8	-6.0	-	54	36	26	-	22.5	-	23.1	1650	
	SSM6J402TU	# $	-30	+/-20	-2.0	-	-	-	-	225	-	117	5.3	280	
	SSM6J410TU	# $	-30	+/-20	-2.1	-	-	-	-	393	-	216	2.9	120	
	SSM6J401TU	# $	-30	+/-20	-2.5	-	-	-	-	145	-	73	16	730	

● Recommend Another New Product
AEC-Q101 qualified, $ With protection Zener diode between gate and source

Package Dimensions (unit: mm)

UDFN6B (SOT-1220)	SOT-23F	S-Mini (SOT-346)	TSOP6F
Bottom View 			
2.0 x 2.0	2.9 x 2.4	2.9 x 2.5	2.9 x 2.8

P-Channel Single MOSFET

Package	Part Number		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$R_{DS(ON)}$ max (mΩ)							Qg typ. (nC)	Ciss typ. (pF)	Note
						V_{GS}= -1.2 V	V_{GS}= -1.5 V	V_{GS}= -1.8 V	V_{GS}= -2.5 V	V_{GS}= -4 V	V_{GS}= -4.5 V	V_{GS}= -10 V			
UDFN6B	SSM6J512NU	$	-12	+/-10	-10.0	-	-	40.1	25.7	20.5 (@-3.6 V)	18.7	16.2 (@-8 V)	19.5	1400	
	SSM6J505NU	$	-12	+/-6	-12.0	61	30	21	16	-	12	-	37.6	2700	
	SSM6J511NU	$	-12	+/-10	-14.0	-	-	19.2	13.5	11.5 (@-3.6 V)	10	9.1 (@-8 V)	47	3350	
	SSM6J503NU	$	-20	+/-8	-6.0	-	89.6	57.9	41.7	-	32.4	-	12.8	840	
	SSM6J502NU	$	-20	+/-8	-6.0	-	60.5	38.4	28.3	-	23.1	-	24.8	1800	
	SSM6J501NU	$	-20	+/-8	-10.0	-	43	26.5	19	-	15.3	-	29.9	2600	
	SSM6J507NU	$	-30	+20/-25	-10.0	-	-	-	-	32	28	20	13.6	1150	
SOT-23F	SSM3J338R	$	-12	+/-10	-6.0	-	-	45.3	27.9	21.9 (@-3.6 V)	20.2	17.6 (@-8 V)	19.5	1400	
	SSM3J327R	$	-20	+/-8	-3.9	-	240	168	123	-	93	-	4.6	290	
	SSM3J377R	# $	-20	+6/-8	-3.9	-	240	168	123	-	93	-	4.6	290	
	SSM3J331R	$	-20	+/-8	-4.0	-	150	100	75	-	55	-	10.4	630	
	SSM3J371R	# $	-20	+6/-8	-4.0	-	150	100	75	-	55	-	10.4	630	
	SSM3J328R	$	-20	+/-8	-6.0	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J378R	# $	-20	+6/-8	-6.0	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J355R	$	-20	+/-10	-6.0	-	-	52.3	38.8	-	30.1	-	16.6	1030	
	SSM3J358R	$	-20	+/-10	-6.0	-	-	49.3	32.8	27.7 (@-3.6 V)	25.3	22.1 (@-8 V)	38.5	1331	
	SSM3J334R	$	-30	+/-20	-4.0	-	-	-	-	136	105	71	5.9	280	
	SSM3J374R	# $	-30	+10/-20	-4.0	-	-	-	-	136	105	71	5.9	280	
	SSM3J340R	$	-30	+20/-25	-4.0	-	-	-	-	86	73	45	6.2	492	
	SSM3J332R	$	-30	+/-12	-6.0	-	-	144	72	-	50	42	8.2	560	
	SSM3J372R	# $	-30	+6/-12	-6.0	-	-	144	72	-	50	42	8.2	560	
	SSM3J356R	# $	-60	+10/-20	-2.0	-	-	-	-	400	360	300	8.3	330	
	SSM3J351R	# $	-60	+10/-20	-3.5	-	-	-	-	184	164	134	15.1	660	
S-Mini	SSM3J325F	$	-20	+/-8	-2.0	-	311	231	179	-	150	-	4.6	270	
	SSM3J375F	# $	-20	+6/-8	-2.0	-	311	231	179	-	150	-	4.6	270	
	SSM3J352F	$	-20	+/-12	-2.0	-	-	443	199	-	136	110	5.1	210	
	SSM3J353F	$	-30	+20/-25	-2.0	-	-	-	-	274	232	150	3.4	159	
TSOP6F	SSM6J801R	$	-20	+6/-8	-6.0	-	88.4	56	39.7	-	32.5	-	12.8	840	
	SSM6J825R	☆ $	-30	+10/-20	-4.0	-	-	-	-	86	73	45	6.2	492	
	SSM6J808R	#	-40	+10/-20	-7.0	-	-	-	-	52	48	35	24.2	1020	

☆ New Products
AEC-Q101 qualified, $ With protection Zener diode between gate and source

Package Dimensions (unit: mm)

CST3 (SOT-883)	VESM (SOT-723)	SSM (SOT-416)	UFM (SOT-323F)	ES6 (SOT-563)	UF6 (SOT-363F)	WCSP6C
Bottom View 						Bottom View 
1.0 x 0.6	1.2 x 1.2	1.6 x 1.6	2.0 x 2.1	1.6 x 1.6	2.0 x 2.1	1.5 x 1.0

N-Channel Single MOSFET

Package	Part Number	V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$R_{DS(ON)}$ max (mΩ)							Qg typ. (nC)	Ciss typ. (pF)	Note
					V_{GS}= 1.2 V	V_{GS}= 1.5 V	V_{GS}= 1.8 V	V_{GS}= 2.5 V	V_{GS}= 4 V	V_{GS}= 4.5 V	V_{GS}= 10 V			
CST3	SSM3K56CT $	20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55	
	SSM3K56ACT $	20	+/-8	1.4	-	840	480	300	-	235	-	1.0	55	
VESM	SSM3K36MFV # $	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5 V)	1.23	46	
	SSM3K56MFV $	20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55	
WCSP6C	SSM6K781G	12	+/-8	7.0	-	124	47.4	23.2	-	18	-	5.4	600	
SSM	SSM3K36FS # $	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5 V)	1.23	46	
	SSM3K43FS ● $	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5 V)	1.23	46	⇒ SSM3K56FS
	SSM3K56FS $	20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55	
ES6	SSM6K204FE $	20	+/-10	2.0	-	307	214	164	126	-	-	3.4	195	
	SSM6K211FE $	20	+/-10	3.2	-	118	82	59	-	47	-	10.8	510	
	SSM6K24FE $	30	+/-12	0.5	-	-	-	180	-	145	-	-	245	
	SSM6K208FE $	30	+/-12	1.9	-	-	296	177	133	-	-	1.9	123	
	SSM6K202FE $	30	+/-12	2.3	-	-	145	101	85	-	-	-	270	
	SSM6K217FE $	40	+/-12	1.8	-	-	400	248	218 (@3.6 V) 211 (@4.2 V)	208	195 (@8 V)	1.1	130	
UFM	SSM3K36TU # $	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5 V)	1.23	46	
	SSM3K62TU # $	20	+/-8	0.8	432	139	89	68	-	57	-	2.0	177	
	SSM3K122TU # $	20	+/-10	2.0	-	304	211	161	123	-	-	3.4	195	
	SSM3K121TU # $	20	+/-10	3.2	-	140	93	63	48	-	-	5.9	400	
	SSM3K123TU # $	20	+/-10	4.2	-	66	43	32	28	-	-	13.6	1010	
	SSM3K127TU # $	30	+/-12	2.0	-	-	286	167	123	-	-	1.5	123	
	SSM3K116TU # $	30	+/-12	2.2	-	-	-	135	-	100	-	-	245	
	SSM3K131TU #	30	+/-20	6.0	-	-	-	-	-	41.5	27.6	10.1	450	
	SSM3H137TU # $	34	+/-20	2.0	-	-	-	-	295	280	240	3.0	119	Built-in Active Clamp Zener
	SSM3K2615TU # $	60	+/-20	2.0	-	-	-	580 (@3.3 V)	440	-	300	6.0	150	
	SSM3K341TU # $	60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550	Tch=175 °C
	SSM3K361TU # $	100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	Tch=175 °C
UF6	SSM6K405TU $	20	+/-10	2.0	-	307	214	164	126	-	-	3.4	195	
	SSM6K404TU # $	20	+/-10	3.0	-	147	100	70	55	-	-	5.9	400	
	SSM6K403TU # $	20	+/-10	4.2	-	66	43	32	28	-	-	16.8	1050	
	SSM6K406TU # $	30	+/-20	4.4	-	-	-	-	-	38.5	25	12.4	490	
	SSM6K407TU # $	60	+/-20	2.0	-	-	-	-	440	-	300	6.0	150	

● Recommend Another New Product
AEC-Q101 qualified, $ With protection Zener diode between gate and source

Package Dimensions (unit: mm)

SOT-23F	TSOP6F	UDFN6B (SOT-1220)
		Bottom View 
2.9 x 2.4	2.9 x 2.8	2.0 x 2.0

N-Channel Single MOSFET

Package	Part Number	V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$R_{DS(ON)}$ max (mΩ)							Qg typ. (nC)	Ciss typ. (pF)	Note
					V_{GS}= 1.2 V	V_{GS}= 1.5 V	V_{GS}= 1.8 V	V_{GS}= 2.5 V	V_{GS}= 4 V	V_{GS}= 4.5 V	V_{GS}= 10 V			
UDFN6B	SSM6K518NU ☆	20	+/-8	6.0	-	108	74	45	-	33	-	3.6	410	
	SSM6K517NU ☆	30	+12/-8	6.0	-	-	82	53	-	39.1	-	3.2	310	
	SSM6K504NU # $	30	+/-20	9.0	-	-	-	-	-	26	19.5	4.8	620	
	SSM6K513NU	30	+/-20	15.0	-	-	-	-	-	12	8.9	7.5	1130	
	SSM6K516NU ☆	30	+20/-12	6.0	-	-	-	-	-	64	46	2.5	280	
	SSM6K514NU	40	+/-20	12.0	-	-	-	-	-	17.3	11.6	7.5	1110	
	SSM6K341NU $	60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550	
	SSM6K361NU $	100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	
SOT-23F	SSM3K344R $	20	+/-8	3.0	-	232	139	91	-	71	-	2.0	153	
	SSM3K345R $	20	+/-8	4.0	-	108	74	45	-	33	-	3.6	410	
	SSM3K329R $	30	+/-12	3.5	-	-	289	170	126	-	-	1.5	123	
	SSM3K324R $	30	+/-12	4.0	-	-	109	72	-	56	-	2.2	200	
	SSM3K376R # $	30	+12/-8	4.0			109	72	-	56	-	2.2	200	
	SSM3K336R # $	30	+/-20	3.0	-	-	-	-	-	140	95	1.7	126	
	SSM3K333R #	30	+/-20	6.0	-	-	-	-	-	42	28	3.4	436	
	SSM3K335R # $	30	+/-20	6.0	-	-	-	-	-	56	38	2.7	340	
	SSM3K347R # $	38	+/-20	2.0	-	-	-	-	480	410	340	2.5	86	Built-in Active Clamp Zener
	SSM3K337R # $	38	+/-20	2.0	-	-	-	-	200	176	150	3.0	120	Built-in Active Clamp Zener
	SSM3K339R $	40	+/-12	2.0	-	-	390	238	208 (@3.6 V) 201 (@4.2 V)	198	185 (@8 V)	1.1	130	
	SSM3K357R # $	60	+/-12	0.65	-	-	-	2400 (@3 V)	-	1800 (@5 V)	-	1.5	43	Built-in Gate-Drain Zener
	SSM3K2615R # $	60	+/-20	2.0	-	-	-	580 (@3.3 V)	440	-	300	6.0	150	
	SSM3K318R # $	60	+/-20	2.5	-	-	-	-	-	145	107	7.0	235	
	SSM3K341R # $	60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550	Tch=175 °C
	SSM3K361R # $	100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	Tch=175 °C
TSOP6F	SSM6K824R ☆ $	20	+/-8	6.0	-	108	74	45	-	33	-	3.6	410	
	SSM6K818R ☆ #	30	+/-20	15.0	-	-	-	-	-	12	8.9	7.5	1130	
	SSM6K804R ☆ #	40	+/-20	12.0	-	-	-	-	-	18	12	7.5	1110	
	SSM6K809R ☆ # $	60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550	Tch=175 °C
	SSM6K810R # $	100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	Tch=175 °C
	SSM6K819R ☆ # $	100	+/-20	10.0	-	-	-	-	-	36.4	25.8	8.5	1110	Tch=175 °C

☆ New Products
AEC-Q101 qualified, $ With protection Zener diode between gate and source

Package Dimensions (unit: mm)

ES6 (SOT-563)	UF6 (SOT-363F)	UDFN6 (SOT-1118)	DFN2020(WF)
		Bottom View 	Bottom View 
1.6 x 1.6	2.0 x 2.1	2.0 x 2.0	2.0 x 2.0

Dual MOSFET

Package	Polarity	Part Number	V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$R_{DS(ON)}$ max (mΩ) $\lvert V_{GS}\rvert$= 1.2 V	$\lvert V_{GS}\rvert$= 1.5 V	$\lvert V_{GS}\rvert$= 1.8 V	$\lvert V_{GS}\rvert$= 2.5 V	$\lvert V_{GS}\rvert$= 4 V	$\lvert V_{GS}\rvert$= 4.5 V	$\lvert V_{GS}\rvert$= 10 V	Qg typ. (nC)	Ciss typ. (pF)	Note
ES6	P-ch x 2	SSM6P41FE $	-20	+/-8	-0.72	-	1040	670	440	-	300	-	1.76	110	
		SSM6P56FE ☆ $	-20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
	N-ch x 2	SSM6N36FE # $	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5 V)	1.23	46	
		SSM6N56FE $	20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55	
	N-ch + P-ch	SSM6L14FE $	20	+/-10	0.8	-	600	450	330	-	240	-	2.0	90	
			-20	+/-8	-0.72	-	1040	670	440	-	300	-	1.76	110	
		SSM6L56FE ☆ $	20	+/-8	0.8	-	840	480	300	-	235	-	1	55	
			-20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
UDFN6	P-ch x 2	SSM6P47NU $	-20	+/-8	-4.0	-	242	170	125	-	95	-	4.6	290	
		SSM6P69NU # $	-20	+6/-12	-4.0	-	-	157	76	-	56	45	6.74	480	
		SSM6P49NU $	-20	+/-12	-4.0	-	-	157	76	-	56	45	6.74	480	
	N-ch x 2	SSM6N61NU # $	20	+/-8	4.0	-	108	74	45	-	33	-	3.6	410	
		SSM6N55NU $	30	+/-20	4.0	-	-	-	-	-	64	46	2.5	280	
		SSM6N67NU # $	30	+12/-8	4.0	-	-	82	53	-	39.1	-	3.2	310	
		SSM6N68NU # $	30	+12/-8	4.0	-	-	180	117	-	84	-	1.8	129	
		SSM6N57NU $	30	+/-12	4.0	-	-	82	53	-	39.1	-	3.2	310	
		SSM6N58NU $	30	+/-12	4.0	-	-	180	117	-	84	-	1.8	129	
	N-ch + P-ch	SSM6L61NU $	20	+/-8	4.0	-	108	74	45	-	33	-	3.6	410	
			-20	+/-12	-4.0	-	-	157	76	-	56	45	6.74	480	
DFN2020 (WF)	N-ch x 2	XSM6N65NW ★ # $	30	+20/-12	4.0	-	-	-	-	-	64	-	2.5	280	Automotive equipment
		XSM6N67NW ★ # $	30	+12/-8	4.0	-	-	82	53	-	39.1	-	3.2	310	
UF6	P-ch x 2	SSM6P54TU $	-20	+/-8	-1.2	-	555	350	228	-	-	-	7.7	331	
		SSM6P39TU # $	-20	+/-8	-1.5	-	-	430	294	213	-	-	6.4	250	
		SSM6P40TU # $	-30	+/-20	-1.4	-	-	-	-	403	-	226	2.9	120	
	N-ch x 2	SSM6N36TU # $	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5 V)	1.23	46	
		SSM6N62TU # $	20	+/-8	0.8	456	173	120	98	-	85	-	2.0	177	
		SSM6N39TU # $	20	+/-10	1.6	-	247	190	139	119	-	-	7.5	260	
		SSM6N24TU # $	30	+/-12	0.5	-	-	-	180	-	145	-	-	245	
		SSM6N40TU # $	30	+/-20	1.6	-	-	-	-	182	-	122	5.1	180	
	N-ch + P-ch	SSM6L39TU # $	20	+/-10	1.6	-	247	190	139	119	-	-	7.5	260	
			-20	+/-8	-1.5	-	-	430	294	213	-	-	6.4	250	
		SSM6L12TU # $	30	+/-12	0.5	-	-	-	180	-	145	-	-	245	
			-20	+/-12	-0.5	-	-	-	430	260	-	-	-	218	
		SSM6L40TU # $	30	+/-20	1.6	-	-	-	-	182	-	122	5.1	180	
			-30	+/-20	-1.4	-	-	-	-	403	-	226	2.9	120	

☆ New Products
★ Under Development (The specification is subject to change without notice.)
AEC-Q101 qualified, $ With protection Zener diode between gate and source

Package Dimensions (unit: mm)

US6 (SOT-363)	TSOP6F	TCSP6A-172101	TCSPAC-153001	TCSPED-302701
		Bottom View 	Bottom View 	Bottom View 
2.0 x 2.1	2.0 x 2.0	2.14 x 1.67	2.98 x 1.49	2.74 x 3.00

Dual MOSFET

Package	Polarity	Part Number	V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$R_{DS(ON)}$ max or $R_{SS(ON)}$ max (mΩ)							Qg typ. (nC)	Ciss typ. (pF)	Note
						$\|V_{GS}\|$= 1.2 V	$\|V_{GS}\|$= 1.5 V	$\|V_{GS}\|$= 1.8 V	$\|V_{GS}\|$= 2.5 V	$\|V_{GS}\|$= 4 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 10 V			
US6	N-ch x 2	SSM6N43FU # $	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5 V)	1.23	46	
TSOP6F	N-ch x 2	SSM6N357R # $	60	+/-12	0.65	-	-	-	2400 (@3 V)	-	1800 (@5 V)	-	1.5	43	Built-in Gate-Drain Zener
		SSM6N815R $	100	+/-20	2.0	-	-	-	-	180	142	103	3.1	290	
		SSM6N813R # $	100	+/-20	3.5	-	-	-	-	-	154	112	3.6	242	T_j=175 °C
	P-ch x 2	SSM6P816R $	-20	+/-10	-6.0	-	-	52.3	38.8	-	30.1	-	16.6	1030	
	N-ch + P-ch	SSM6L807R $	30	+/-12	4.0	-	-	82	53	-	39.1	-	3.2	310	
			-20	+/-12	-4.0	-	-	157	76	-	56	45	6.74	480	
		SSM6L820R # $	30	+12/-8	4.0	-	-	82	53	-	39.1	-	3.2	310	
			-20	+6/-12	-4.0	-	-	157	76	-	56	45	6.7	480	
TCSP6A-172101	N-ch x 2	SSM6N951L ☆ $	12	+/-8	8.0	-	-	-	10	5.5 (@3.8 V)	5.1	-	26	-	Drain common
TCSPAC-153001	N-ch x 2	SSM10N954L ☆ $	12	+/-8	13.5	-	-	-	6.1	2.85 (@3.8 V)	2.75	-	25	-	Drain common
TCSPED-302701	N-ch x 2	SSM14N956L ★ $	12	+/-8	20	-	-	-	3.2	1.5 (@3.8 V)	1.35	-	76	-	Drain common

☆ New Products
AEC-Q101 qualified, $ With protection Zener diode between gate and source
★ Under Development (The specification is subject to change without notice.)

2. Less than 500mA Series MOSFETs (Standard Type)

Package Dimensions (unit: mm)

CST3C	CST3 (SOT-883)	VESM (SOT-723)	SSM (SOT-416)	UFM (SOT-323F)	USM (SOT-323)	S-Mini (SOT-346)
Bottom View	Bottom View					
						
0.8 x 0.6	1.0 x 0.6	1.2 x 1.2	1.6 x 1.6	2.0 x 2.1	2.0 x 2.1	2.9 x 2.5

P-Channel Single MOSFET

Package	Part Number	V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$R_{DS(ON)}$ max (Ω)							Note
					V_{GS}= -1.2 V	V_{GS}= -1.5 V	V_{GS}= -1.8 V	V_{GS}= -2.5 V	V_{GS}= -4 V	V_{GS}= -4.5 V	V_{GS}= -10 V	
CST3C	SSM3J35CTC $	-20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
CST3	SSM3J35CT $	-20	+/-10	-0.1	44	22	-	11	8	-	-	
	SSM3J16CT ● $	-20	+/-10	-0.1	-	45	-	12	8	-	-	⇒ SSM3J35CT
	SSM3J15CT $	-30	+/-20	-0.1	-	-	-	32	12	-	-	
VESM	SSM3J35MFV ● # $	-20	+/-10	-0.1	44	22	-	11	8	-	-	⇒ SSM3J35AMFV (General purpose) ⇒ SSM3J35MFV,L3XGF(T (Automotive equipment)
	SSM3J36MFV ● $	-20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8 V)	-	1.31	-	⇒ SSM3J56MFV
	SSM3J16FV ● $	-20	+/-10	-0.1	-	45	-	12	8	-	-	⇒ SSM3J35AMFV
	SSM3J35AMFV $	-20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
	SSM3J15FV # $	-30	+/-20	-0.1	-	-	-	32	12	-	-	
SSM	SSM3J35FS ● # $	-20	+/-10	-0.1	44	22	-	11	8	-	-	⇒ SSM3J35AFS (General purpose) ⇒ SSM3J35FS,L3XGF(T (Automotive equipment)
	SSM3J35AFS $	-20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
	SSM3J36FS # $	-20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8 V)	-	1.31	-	
	SSM3J16FS ● $	-20	+/-10	-0.1	-	45	-	12	8	-	-	⇒ SSM3J35AFS
	SSM3J15FS # $	-30	+/-20	-0.1	-	-	-	32	12	-	-	
UFM	SSM3J36TU # $	-20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8 V)	-	1.31	-	
USM	SSM3J16FU $	-20	+/-10	-0.1	-	45	-	12	8	-	-	
	SSM3J15FU # $	-30	+/-20	-0.1	-	-	-	32	12	-	-	
	SSM3J09FU $	-30	+/-20	-0.2	-	-	-	6 (@-3.3 V)	4.2	-	2.7	
S-Mini	SSM3J15F # $	-30	+/-20	-0.1	-	-	-	32	12	-	-	
	2SJ305 $	-30	+/-20	-0.2	-	-	-	4	-	-	-	
	2SJ168 ● $	-60	+/-20	-0.2	-	-	-	-	-	-	2	⇒ SSM3J168F
	SSM3J168F # $	-60	+10/-20	-0.4	-	-	-	-	2	1.9	1.55	

● Recommend Another New Product, # AEC-Q101 qualified, $ With protection Zener diode between gate and source

Package Dimensions (unit: mm)

CST3C	CST3 (SOT-883)	VESM (SOT-723)	SSM (SOT-416)	USM (SOT-323)	SOT23 (SOT-23)	S-Mini (SOT-346)
Bottom View 	Bottom View 					
0.8 x 0.6	1.0 x 0.6	1.2 x 1.2	1.6 x 1.6	2.0 x 2.1	2.9 x 2.4	2.9 x 2.5

N-Channel Single MOSFET

Package	Part Number	V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$R_{DS(ON)}$ max (Ω)								Note
					V_{GS}= 1.2 V	V_{GS}= 1.5 V	V_{GS}= 1.8 V	V_{GS}= 2.5 V	V_{GS}= 4 V	V_{GS}= 4.5 V	V_{GS}= 5 V	V_{GS}= 10 V	
CST3C	SSM3K16CTC $	20	+/-10	0.2	-	5.6	4	3	-	2.2	-	-	
	SSM3K35CTC $	20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
	SSM3K15ACTC $	30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K72CTC $	60	+/-20	0.15	-	-	-	5.7 (typ.)	-	4.7	4.4	3.9	
CST3	SSM3K16CT $	20	+/-10	0.1	-	15	-	4	3	-	-	-	
	SSM3K35CT $	20	+/-10	0.18	20	8	-	4	3	-	-	-	
	SSM3K37CT $	20	+/-10	0.2	-	5.6	4.05	3.02	-	2.2	-	-	
	SSM3K15CT ● $	30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM3K15ACT
	SSM3K15ACT $	30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K72KCT $	60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	
VESM	SSM3K16FV $	20	+/-10	0.1	-	15	-	4	3	-	-	-	
	SSM3K35MFV ● # $	20	+/-10	0.18	20	8	-	4	3	-	-	-	⇒ SSM3K35AMFV (General purpose) ⇒ SSM3K35MFV,L3XGF(T (Automotive equipment)
	SSM3K37MFV $	20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-	
	SSM3K35AMFV $	20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
	SSM3K15AMFV $	30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K44MFV # $	30	+/-20	0.1	-	-	-	7	4	-	-	-	
SSM	SSM3K16FS ● $	20	+/-10	0.1	-	15	-	4	3	-	-	-	⇒ SSM3K37FS
	SSM3K35FS ● # $	20	+/-10	0.18	20	8	-	4	3	-	-	-	⇒ SSM3K35AFS (General purpose) ⇒ SSM3K35FS,LXGF(T (Automotive equipment)
	SSM3K37FS $	20	+/-10	0.2	-	5.6	4.05	3.02	-	2.2	-	-	
	SSM3K35AFS $	20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
	SSM3K15FS ● # $	30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM3K15AFS
	SSM3K44FS # $	30	+/-20	0.1	-	-	-	7	4	-	-	-	
	SSM3K15AFS $	30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K72CFS $	60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9	
	SSM3K72KFS # $	60	+/-20	0.3	-	-	-	-	-	1.75	1.65	1.5	
USM	SSM3K16FU $	20	+/-10	0.1	-	15	-	4	3	-	-	-	
	SSM3K15FU ● # $	30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM3K15AFU (General purpose) ⇒ SSM3K15FU,LXGF(T (Automotive equipment)
	SSM3K15AFU $	30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
	SSM3K48FU $	30	+/-20	0.1	-	-	-	5.4	3.2	-	-	-	
	SSM3K09FU $	30	+/-20	0.4	-	-	-	1.7 (@3.3 V)	1.2	-	-	0.7	
	SSM3K17FU # $	50	+/-7	0.1	-	-	-	40	20	-	-	-	
	SSM3K7002CFU $	60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9	
	SSM3K7002KFU # $	60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	
SOT23	T2N7002AK $	60	+/-20	0.2	-	-	-	-	-	4.7	4.4	3.9	
	T2N7002BK $	60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	
S-Mini	SSM3K15F # $	30	+/-20	0.1	-	-	-	7	4	-	-	-	
	2SK2009 $	30	+/-20	0.2	-	-	-	2	-	-	-	-	
	SSM3K7002KF # $	60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5	

● Recommend Another New Product, # AEC-Q101 qualified, $ With protection Zener diode between gate and source

ESV (SOT-553)	ES6 (SOT-563)	USV (SOT-353)	UF6 (SOT-363F)
			
1.6 x 1.6	1.6 x 1.6	2.0 x 2.1	2.0 x 2.1

Dual MOSFET

Package	Polarity	Part Number	V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$R_{DS(ON)}$ max (Ω)								Note
						$\|V_{GS}\|$= 1.2 V	$\|V_{GS}\|$= 1.5 V	$\|V_{GS}\|$= 1.8 V	$\|V_{GS}\|$= 2.5 V	$\|V_{GS}\|$= 4 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 5 V	$\|V_{GS}\|$= 10 V	
ESV	P-ch x 2	SSM5P16FE $	-20	+/-10	-0.1	-	45	-	12	8	-	-	-	
	N-ch x 2	SSM5N16FE $	20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM5N15FE $	30	+/-20	0.1	-	-	-	7	4	-	-	-	
ES6	P-ch x 2	SSM6P35FE ● # $	-20	+/-10	-0.1	44	22	-	11	8	-	-	-	⇒ SSM6P35AFE (General purpose) ⇒ SSM6P35FE,L3XGM(T (Automotive equipment)
		SSM6P35AFE $	-20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	-	
		SSM6P36FE # $	-20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8 V)	-	1.31	-	-	
		SSM6P16FE ● $	-20	+/-10	-0.1	-	45	-	12	8	-	-	-	⇒ SSM6P35AFE
		SSM6P15FE # $	-30	+/-20	-0.1	-	-	-	32	12	-	-	-	
	N-ch x 2	SSM6N16FE $	20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM6N35FE ● # $	20	+/-10	0.18	20	8	-	4	3	-	-	-	⇒ SSM6N35AFE (General purpose) ⇒ SSM6N35FE,LXGM(T (Automotive equipment)
		SSM6N37FE $	20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-	
		SSM6N35AFE $	20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
		SSM6N44FE # $	30	+/-20	0.1	-	-	-	7	4	-	-	-	
		SSM6N15AFE $	30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
		SSM6N7002BFE $	60	+/-20	0.2	-	-	-	-	-	3.3	2.6	2.1	
	N-ch + P-ch	SSM6L35FE # $	20	+/-10	0.18	20	8	-	4	3	-	-	-	
			-20	+/-10	-0.1	44	22	-	11	8	-	-	-	
		SSM6L36FE # $	20	+/-10	0.5	-	1.52	1.14	0.85	-	0.66	0.63	-	
			-20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8 V)	-	1.31	-	-	
USV	P-ch x 2	SSM5P15FU $	-30	+/-20	-0.1	-	-	-	32	12	-	-	-	
	N-ch x 2	SSM5N16FU $	20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM5N15FU $	30	+/-20	0.1	-	-	-	7	4	-	-	-	
UF6	P-ch x 2	SSM6P36TU # $	-20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8 V)	-	1.31	-	-	
	N-ch + P-ch	SSM6L36TU # $	20	+/-10	0.5	-	1.52	1.14	0.85	-	0.66	0.63	-	
			-20	+/-8	-0.33	-	3.6	2.7	1.6 (@-2.8 V)	-	1.31	-	-	

● Recommend Another New Product, # AEC-Q101 qualified, $ With protection Zener diode between gate and source

US6
(SOT-363)

2.0 x 2.1

Dual MOSFET

Package	Polarity	Part Number	V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$R_{DS(ON)}$ max (Ω)								Note
						$\|V_{GS}\|$= 1.2 V	$\|V_{GS}\|$= 1.5 V	$\|V_{GS}\|$= 1.8 V	$\|V_{GS}\|$= 2.5 V	$\|V_{GS}\|$= 4 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 5 V	$\|V_{GS}\|$= 10 V	
US6	P-ch x 2	SSM6P35FU ● # $	-20	+/-10	-0.1	44	22	-	11	8	-	-	-	⇒ SSM6P35AFU (General purpose) ⇒ SSM6P35FU,LXGF(T (Automotive equipment)
		SSM6P35AFU $	-20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	-	
		SSM6P16FU ● $	-20	+/-10	-0.1	-	45	-	12	8	-	-	-	⇒ SSM6P35AFU
		SSM6P15FU # $	-30	+/-20	-0.1	-	-	-	32	12	-	-	-	
	N-ch x 2	SSM6N16FU $	20	+/-10	0.1	-	15	-	4	3	-	-	-	
		SSM6N35FU ● # $	20	+/-10	0.18	20	8	-	4	3	-	-	-	⇒ SSM6N35AFU (General purpose) ⇒ SSM6N35FU,LXGF(T (Automotive equipment)
		SSM6N35AFU $	20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-	
		SSM6N37FU $	20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-	
		SSM6N48FU $	30	+/-20	0.1	-	-	-	5.4	3.2	-	-	-	
		SSM6N44FU # $	30	+/-20	0.1	-	-	-	7	4	-	-	-	
		SSM6N15FU ● $	30	+/-20	0.1	-	-	-	7	4	-	-	-	⇒ SSM6N15AFU
		SSM6N15AFU $	30	+/-20	0.1	-	-	-	6	3.6	-	-	-	
		SSM6N09FU $	30	+/-20	0.4	-	-	-	1.7 (@3.3 V)	1.2	-	-	0.7	
		SSM6N17FU # $	50	+/-7	0.1	-	-	-	40	20	-	-	-	
		SSM6N7002CFU $	60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9	
		SSM6N7002KFU # $	60	+/-20	0.3	-	-	-	-	-	1.75	1.65	1.5	
	N-ch + P-ch	SSM6L35FU # $	20	+/-10	0.18	20	8	-	4	3	-	-	-	
			-20	+/-10	-0.1	44	22	-	11	8	-	-	-	
		SSM6L09FU $	30	+/-20	0.4	-	-	-	1.7 (@3.3 V)	1.2	-	-	0.7	
			-30	+/-20	-0.2	-	-	-	6 (@-3.3 V)	4.2	-	-	2.7	

● Recommend Another New Product, # AEC-Q101 qualified, $ With protection Zener diode between gate and source

3. MOSFET with Diode

Package Dimensions (unit: mm)

ESV (SOT-553)	UFV (SOT-353F)	UDFN6 (SOT-1118)
		Bottom View 
1.6 x 1.6	2.0 x 2.1	2.0 x 2.0

Package	Polarity	Part Number	V_{DSS} (V)	V_{GSS} (V)	I_D (A)	MOSFET $R_{DS(ON)}$ max (mΩ) $\lvert V_{GS}\rvert$= 1.5 V	$\lvert V_{GS}\rvert$= 1.8 V	$\lvert V_{GS}\rvert$= 2.5 V	$\lvert V_{GS}\rvert$= 4 V	$\lvert V_{GS}\rvert$= 4.5 V	$\lvert V_{GS}\rvert$= 5 V	$\lvert V_{GS}\rvert$= 10 V	MOSFET Ciss typ. (pF)	Diode V_R (V)	Diode I_O (A)	Diode V_F max (V)	Diode V_F max (V) @I_F (A)	Note
ESV	P-ch + SBD	SSM5G06FE $	-20	+/-10	-0.1	45000	-	12000	8000	-	-	-	11	12	0.1	0.5	0.1	
	N-ch + SBD	SSM5H06FE $	20	+/-10	0.1	15000	-	4000	3000	-	-	-	9.3	12	0.1	0.5	0.1	
UFV	P-ch + SBD	SSM5G02TU $	-12	+/-12	-1.0	-	-	240	160	-	-	-	310	12	0.5	0.43	0.5	
		SSM5G09TU $	-12	+/-8	-1.5	-	-	200	130	-	-	-	550	12	0.5	0.43	0.5	
		SSM5G11TU $	-30	+/-20	-1.4	-	-	-	403	-	-	226	120	30 (¥)	0.7 (¥¥)	0.44	0.7 (¥¥)	
	N-ch + SBD	SSM5H08TU $	20	+/-12	1.5	-	-	220	160	-	-	-	125	20	0.5	0.43 (typ.)	0.5	
		SSM5H01TU $	30	+/-20	1.4	-	-	-	450	-	-	200	106	20	0.5	0.43 (typ.)	0.5	
		SSM5H11TU $	30	+/-20	1.6	-	-	-	182	-	-	122	180	30 (¥)	0.7 (¥¥)	0.44	0.7	
		SSM5H16TU $	30	+/-12	1.9	-	296	177	133	-	-	-	123	30	0.8	0.55	0.8	
	N-ch + Switching Diode	SSM5H90ATU $	20	+/-10	2.4	-	-	89	65	-	-	-	200	80	0.1	1.2	0.1	
UDFN6	P-ch + SBD	SSM6G18NU $	-20	+/-8	-2.0	261	185	143	-	112	-	-	270	30	1	0.58	1	
	N-ch + SBD	SSM6H19NU $	40	+/-12	2.0	-	390	238	208 (@3.6 V) 201 (@4.2 V)	198	-	185 (@8 V)	130	40	0.5	0.57	0.5	

$ With protection Zener diode between gate and source, ¥ V_{RRM}, ¥¥ $I_{F(AV)}$

4. Part Naming Conventions

Small Signal MOSFET　SSM / XSM Series

Ex) SSM 3 K 329 _ R
① ② ③ ④ ⑤ ⑥

① Small-Signal MOSFET
SSM: Initial of “Small-Signal MOSFET”
XSM: Initial of “Automotive Small-Signal MOSFET”

② Pin count

③ Polarity and internal configuration
K: N-channel, single
J : P-channel, single
N: N-channel, dual
P: P-channel, dual
L : N-channel and P-channel (dual)
E : N-channel and P-channel (pre-wired as a load switch)
H: N-channel and SBD (or Switching diode)
G: P-channel and SBD

④ Serial number of the products

⑤ There may be a symbol that indicates chip change etc.

⑥ Package

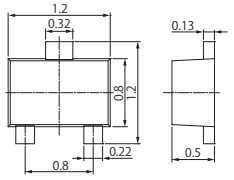
3-pin	F : S-Mini	5-pin	F : SMV
	FU : USM		FU : USV
	FS : SSM		FE : ESV
	FV : VESM		TU : UFV
	TU : UFM	6-pin	G : WCSP6C
	CT : CST3		L : Chip LGA (TCSP6A-172101)
	CTB : CST3B		R : TSOP6F
	CTC : CST3C		FU : US6
	R : SOT-23F		FE : ES6
			TU : UF6
			NU : UDFN6 / UDFN6B
			NW : DFN2020(WF)
		10-pin	L : Chip LGA (TCSPAC-153001)
		14-pin	L : Chip LGA (TCSPED-302701)

5. Device Packages

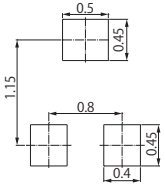
Surface Mount Type (Lead Type)

VESM (SOT-723) (1.2 x 1.2)

Package dimension unit : mm

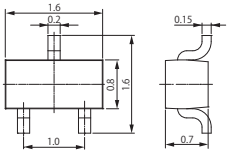


Land pattern example unit : mm

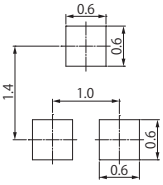


SSM (SOT-416) (1.6 x 1.6)

Package dimension unit : mm

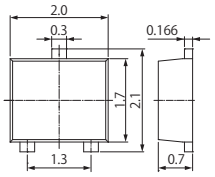


Land pattern example unit : mm

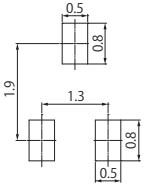


UFM (SOT-323F) (2.0 x 2.1)

Package dimension unit : mm

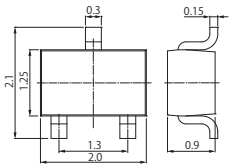


Land pattern example unit : mm

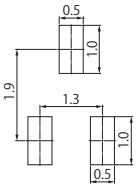


USM (SOT-323) (2.0 x 2.1)

Package dimension unit : mm

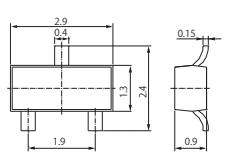


Land pattern example unit : mm

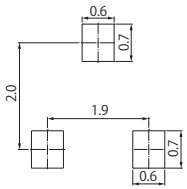


SOT23 (SOT-23) (2.9 x 2.4)

Package dimension unit : mm

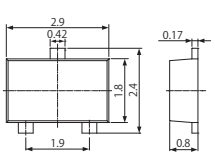


Land pattern example unit : mm

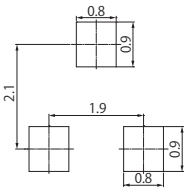


SOT-23F (2.9 x 2.4)

Package dimension unit : mm

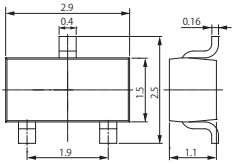


Land pattern example unit : mm

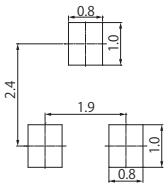


S-Mini (SOT-346) (2.9 x 2.5)

Package dimension unit : mm

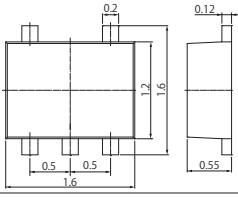


Land pattern example unit : mm

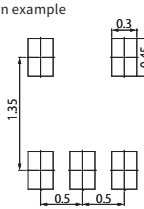


ESV (SOT-553) (1.6 x 1.6)

Package dimension unit : mm

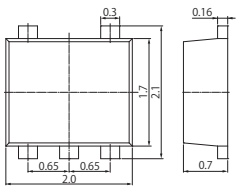


Land pattern example unit : mm

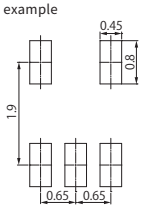


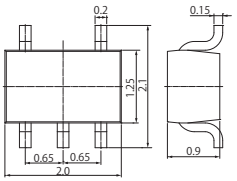
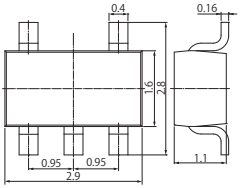
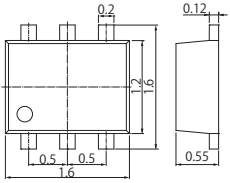
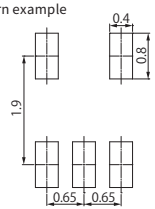
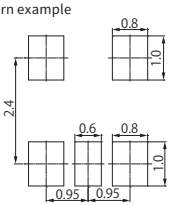
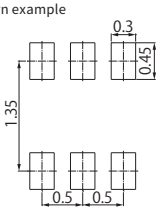
UFV (SOT-353F) (2.0 x 2.1)

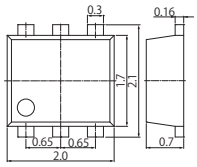
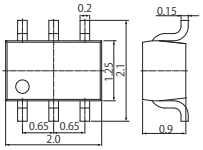
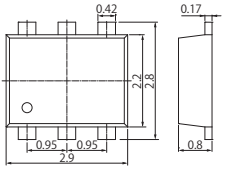
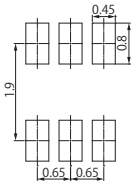
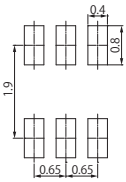
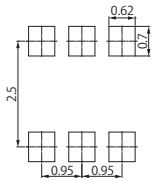
Package dimension unit : mm



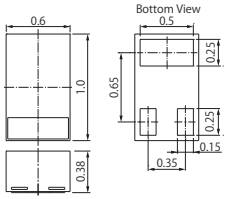
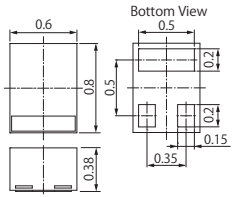
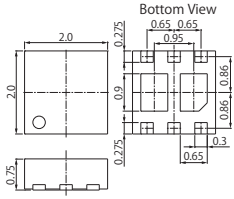
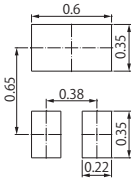
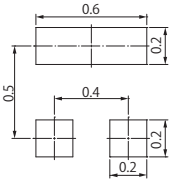
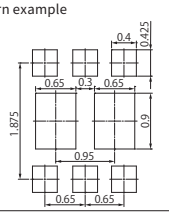
Land pattern example unit : mm



USV (SOT-353) (2.0 x 2.1)	SMV (SOT-25) (2.9 x 2.8)	ES6 (SOT-563) (1.6 x 1.6)
Package dimension unit : mm	Package dimension unit : mm	Package dimension unit : mm
		
Land pattern example unit : mm	Land pattern example unit : mm	Land pattern example unit : mm
		

UF6 (SOT-363F) (2.0 x 2.1)	US6 (SOT-363) (2.0 x 2.1)	TSOP6F (2.9 x 2.8)
Package dimension unit : mm	Package dimension unit : mm	Package dimension unit : mm
		
Land pattern example unit : mm	Land pattern example unit : mm	Land pattern example unit : mm
		

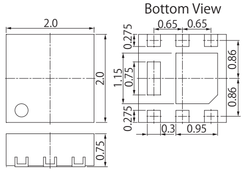
Surface Mount Type (Leadless Type)

CST3 (SOT-883) (1.0 x 0.6)	CST3C (0.8 x 0.6)	UDFN6 (SOT-1118) (2.0 x 2.0)
Package dimension unit : mm	Package dimension unit : mm	Package dimension unit : mm
		
Land pattern example unit : mm	Land pattern example unit : mm	Land pattern example unit : mm
		

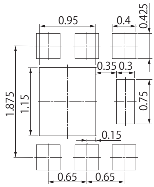
UDFN6B (SOT-1220) (2.0 x 2.0)	WCSP6C (1.5 x 1.0)	DFN2020(WF) (2.0 x 2.0)

UDFN6B (SOT-1220) (2.0 x 2.0)

Package dimension unit : mm

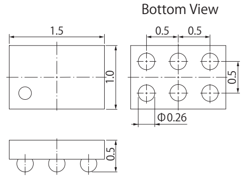


Land pattern example unit : mm

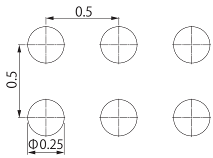


WCSP6C (1.5 x 1.0)

Package dimension unit : mm

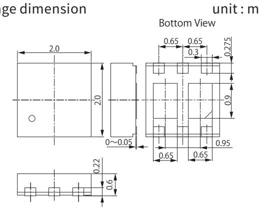


Land pattern example unit : mm

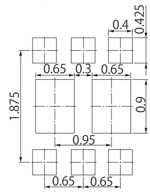


DFN2020(WF) (2.0 x 2.0)

Package dimension unit : mm



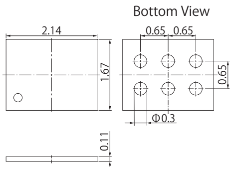
Land pattern example unit : mm



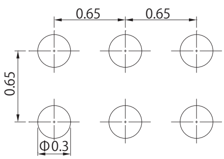
TCSP6A-172101 (2.14 x 1.67)	TCSPAC-153001 (2.98 x 1.49)	TCSPED-302701 (2.74 x 3.0)

TCSP6A-172101 (2.14 x 1.67)

Package dimension unit : mm

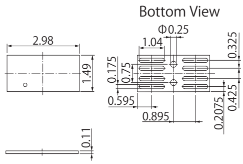


Land pattern example unit : mm

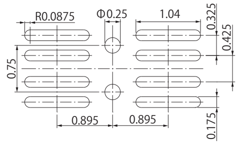


TCSPAC-153001 (2.98 x 1.49)

Package dimension unit : mm

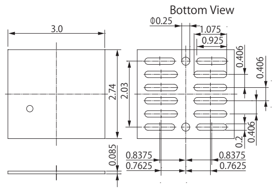


Land pattern example unit : mm

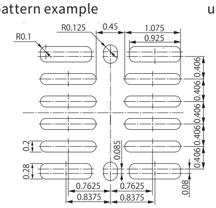


TCSPED-302701 (2.74 x 3.0)

Package dimension unit : mm



Land pattern example unit : mm



II Power MOSFETs

1. Low-Voltage MOSFETs Series

TSON Advance (3.3 x 3.3)

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)								Q_g typ. (nC)		C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 8 V	$\|V_{GS}\|$= 6.5 V	$\|V_{GS}\|$= 6 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 2.5 V	$\|V_{GS}\|$= 2 V	$\|V_{GS}\|$= 1.8 V	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 4.5 V		
N-ch Note(1)	TPN11003NL	30	+/-20	31[SL]	11	-	-	-	16	-	-	-	7.5	3.3	510	U-MOSVIII-H
	TPN8R903NL	30	+/-20	37[SL]	8.9	-	-	-	12.7	-	-	-	9.8	4.4	630	U-MOSVIII-H
	TPN6R003NL	30	+/-20	56[SL]	6	-	-	-	8.3	-	-	-	17	8.2	1050	U-MOSVIII-H
	TPN5R203PL	30	+/-20	76[SL]	5.2	-	-	-	6.4	-	-	-	22	10	1520	U-MOSIX-H
	TPN4R303NL	30	+/-20	63[SL]	4.3	-	-	-	6.3	-	-	-	14.8	6.8	1110	U-MOSVIII-H
	TPN2R903PL	30	+/-20	122[SL]	2.9	-	-	-	4.1	-	-	-	26	12	1780	U-MOSIX-H
	TPN2R703NL	30	+/-20	90[SL]	2.7	-	-	-	4.1	-	-	-	21	9.5	1600	U-MOSVIII-H
	TPN1R603PL	30	+/-20	188[SL]	1.6	-	-	-	2.5	-	-	-	41	20	2970	U-MOSIX-H
	TPN7R504PL	40	+/-20	68[SL]	7.5	-	-	-	10	-	-	-	24	12	1570	U-MOSIX-H
	TPN3R704PL	40	+/-20	92[SL]	3.7	-	-	-	6	-	-	-	27	13.3	1910	U-MOSIX-H
	TPN2R304PL	40	+/-20	100[SL]	2.3	-	-	-	4	-	-	-	41	19.4	2750	U-MOSIX-H
	TPN2R805PL	45	+/-20	139[SL]	2.8	-	-	-	5	-	-	-	39	19	2450	U-MOSIX-H
	TPN22006NH	60	+/-20	21[SL]	22	-	64	-	-	-	-	-	12	-	710	U-MOSVIII-H
	TPN14006NH	60	+/-20	33[SL]	14	-	41	-	-	-	-	-	15	-	1000	U-MOSVIII-H
	TPN11006PL	60	+/-20	54[SL]	11.4	-	-	-	18.1	-	-	-	17	9	1250	U-MOSIX-H
	TPN11006NL	60	+/-20	37[SL]	11.4	-	-	-	17	-	-	-	23	11.2	1500	U-MOSVIII-H
	TPN7R506NH	60	+/-20	53[SL]	7.5	-	16	-	-	-	-	-	22	-	1410	U-MOSVIII-H
	TPN7R006PL	60	+/-20	76[SL]	7	-	-	-	13.5	-	-	-	20	9.8	1440	U-MOSIX-H
	TPN4R806PL	60	+/-20	105[SL]	4.8	-	-	-	9.1	-	-	-	29	14	2130	U-MOSIX-H
	TPN30008NH	80	+/-20	22[SL]	30	-	-	-	-	-	-	-	11	-	710	U-MOSVIII-H
	TPN19008QM	80	+/-20	38[SL]	19	-	-	28	-	-	-	-	16	9.7 (@6 V)	1020	U-MOSX-H
	TPN13008NH	80	+/-20	40[SL]	13.3	-	-	-	-	-	-	-	18	-	1230	U-MOSVIII-H
	TPN12008QM	80	+/-20	60[SL]	12.3	-	-	17.7	-	-	-	-	22	13.9 (@6 V)	1280	U-MOSX-H
	TPN8R408QM	80	+/-20	77[SL]	8.4	-	-	12.4	-	-	-	-	28	17 (@6 V)	1750	U-MOSX-H
	TPN3300ANH	100	+/-20	21[SL]	33	-	-	-	-	-	-	-	11	-	680	U-MOSVIII-H
	TPN1600ANH	100	+/-20	36[SL]	16	-	-	-	-	-	-	-	19	-	1230	U-MOSVIII-H
	TPN1200APL $	100	+/-20	66[SL]	11.5	-	-	-	20	-	-	-	24	12	1425	U-MOSIX-H
	TPN5900CNH	150	+/-20	18[SL]	59	-	-	-	-	-	-	-	7	-	460	U-MOSVIII-H
	TPN4800CQH☆	150	+/-20	29[SL]	48	59	-	-	-	-	-	-	11	9 (@8 V)	800	U-MOSX-H
	TPN1110ENH	200	+/-20	13[SL]	114	-	-	-	-	-	-	-	7	-	460	U-MOSVIII-H
	TPN2010FNH	250	+/-20	9.9[SL]	198	-	-	-	-	-	-	-	7	-	460	U-MOSVIII-H
N-ch	TPN6R303NC	30	+/-20	43[SL]	6.3	-	-	-	8.4	-	-	-	24	-	1370	U-MOSVIII
	TPN4R203NC	30	+/-20	53[SL]	4.2	-	-	-	6.4	-	-	-	24	-	1370	U-MOSVIII
	TPN2R203NC	30	+/-20	100[SL]	2.2	-	-	-	3.6	-	-	-	34	-	2230	U-MOSVIII
P-ch	TPCC8136	-20	+/-12	-9.4	-	-	-	-	16	22	37	60	-	36 (@5 V)	2350	U-MOSVI
	TPCC8137	-20	+/-12	-13	-	-	-	-	10	16	30	52	-	43 (@5 V)	2990	U-MOSVI
	TPCC8138	-20	+/-12	-18	-	-	-	-	7.5	11	21	42	-	63 (@5 V)	4165	U-MOSVI
	TPN4R712MD	-20	+/-12	-36	-	-	-	-	4.7	8.1	-	-	-	65 (@5 V)	4300	U-MOSVI
	TPCC8131	-30	+20/-25	-10	17.6	-	-	-	23	-	-	-	40	-	1700	U-MOSVI
	TPCC8104	-30	+20/-25	-20	8.8	-	-	-	12.4	-	-	-	58	-	2260	U-MOSVI
	TPCC8105	-30	+20/-25	-23	7.8	-	-	-	10.4	-	-	-	76	-	3240	U-MOSVI

☆ New Products, $ With protection Zener diode between gate and source, [SL] $I_{D\ (DC)}$ (Silicon Limit)
Note(1) : High-speed switching type

SOP-8 (5 x 6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)		Q_g typ. (nC)		C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 4.5 V		
N-ch Note(1)	TP89R103NL	30	+/-20	15[SL]	9.1	12.9	9.8	4.4	630	U-MOSVIII-H
	TP86R203NL	30	+/-20	19[SL]	6.2	8.5	17	8.2	1050	U-MOSVIII-H
P-ch	TPC8129	-30	+20/-25	-9	22	28	39	-	1650	U-MOSVI
	TPC8125	-30	+20/-25	-10	13	17	64	-	2580	U-MOSVI
	TPC8134	-40	+20/-25	-5	52	66	20	-	890	U-MOSVI
	TPC8132	-40	+20/-25	-7	25	33	34	-	1580	U-MOSVI
	TPC8133	-40	+20/-25	-9	15	18	64	-	2900	U-MOSVI

SOP Advance (5 x 6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)						Q_g typ. (nC)		C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 8 V	$\|V_{GS}\|$= 6.5 V	$\|V_{GS}\|$= 6 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 2.5 V	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 4.5 V		
N-ch Note(1)	TPH11003NL	30	+/-20	32[SL]	11	-	-	-	16	-	7.5	3.3	510	U-MOSVIII-H
	TPH8R903NL	30	+/-20	38[SL]	8.9	-	-	-	12.7	-	9.8	4.4	630	U-MOSVIII-H
	TPH6R003NL	30	+/-20	57[SL]	6	-	-	-	8.3	-	17	8.2	1050	U-MOSVIII-H
	TPH4R803PL	30	+/-20	90[SL]	4.8	-	-	-	6.2	-	22	10	1520	U-MOSIX-H
	TPH4R003NL	30	+/-20	68[SL]	4	-	-	-	6.2	-	14.8	6.8	1110	U-MOSVIII-H
	TPH3R203NL	30	+/-20	84[SL]	3.2	-	-	-	4.7	-	21	9.5	1600	U-MOSVIII-H
	TPH3R003PL	30	+/-20	134[SL]	3	-	-	-	4.2	-	50	24	2940	U-MOSIX-H
	TPH2R903PL	30	+/-20	124[SL]	2.9	-	-	-	4.1	-	26	12	1780	U-MOSIX-H
	TPH2R003PL	30	+/-20	180[SL]	2	-	-	-	2.6	-	86	41	4930	U-MOSIX-H
	TPH1R403NL ¥	30	+/-20	150[SL]	1.4	-	-	-	2.1	-	46	20	3400	U-MOSVIII-H
	TPHR9203PL ¥	30	+/-20	280[SL]	0.92	-	-	-	1.29	-	81	38	5800	U-MOSIX-H
	TPHR9003NL ¥	30	+/-20	220[SL]	0.9	-	-	-	1.4	-	74	32	5300	U-MOSVIII-H
	TPHR6503PL ¥	30	+/-20	393[SL]	0.65	-	-	-	0.89	-	110	52	7700	U-MOSIX-H
	TPH7R204PL	40	+/-20	72[SL]	7.2	-	-	-	9.7	-	24	12	1570	U-MOSIX-H
	TPH6R004PL	40	+/-20	87[SL]	6	-	-	-	8.4	-	30	15	2100	U-MOSIX-H
	TPH3R704PL	40	+/-20	92	3.7	-	-	-	6	-	27	13.3	1910	U-MOSIX-H
	TPH3R704PC	40	+/-20	118[SL]	3.7	-	-	-	5.8	-	47	23	2780	U-MOSIX-H
	TPH2R104PL	40	+/-20	180[SL]	2.1	-	-	-	3.1	-	78	37	4790	U-MOSIX-H
	TPH1R204PL ¥	40	+/-20	246[SL]	1.24	-	-	-	2.1	-	74	34	5500	U-MOSIX-H
	TPH1R204PB	40	+/-20	240[SL]	1.2	-	-	1.96	-	-	62	-	4400	U-MOSIX-H (Low Spike)
	TPHR8504PL ¥	40	+/-20	340[SL]	0.85	-	-	-	1.4	-	103	49	7370	U-MOSIX-H
	TPHR7404PU	40	+/-20	400[SL]	0.74	-	-	1.17	-	-	98	62 (@6 V)	6960	U-MOSIX-H (Low Spike)
	TPH2R805PL	45	+/-20	150[SL]	2.8	-	-	-	3.9	-	73	37	3980	U-MOSIX-H
	TPH1R405PL	45	+/-20	232[SL]	1.4	-	-	-	2.3	-	74	36	4830	U-MOSIX-H
	TPH1R005PL ¥	45	+/-20	280[SL]	1.04	-	-	-	1.7	-	122	59	7700	U-MOSIX-H
	TPH14006NH	60	+/-20	34[SL]	14	-	33	-	-	-	16	-	1000	U-MOSVIII-H

☆ New Products, [SL] $I_{D\,(DC)}$ (Silicon Limit)
¥ The package can be selected according to your preference. For details, please contact your TOSHIBA sales representative.
Note(1) : High-speed switching type

SOP Advance (5 x 6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)						Q_g typ. (nC)		C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 8 V	$\|V_{GS}\|$= 6.5 V	$\|V_{GS}\|$= 6 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 2.5 V	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 4.5 V		
N-ch Note(1)	TPH11006NL	60	+/-20	40[SL]	11.4	-	-	-	17	-	23	11.2	1500	U-MOSVIII-H
	TPH9R506PL	60	+/-20	68[SL]	9.5	-	-	-	15	-	21	11	1470	U-MOSIX-H
	TPH7R506NH	60	+/-20	55[SL]	7.5	-	19	-	-	-	31	-	1785	U-MOSVIII-H
	TPH7R006PL	60	+/-20	79[SL]	7	-	-	-	13.5	-	22	11	1440	U-MOSIX-H
	TPH5R906NH	60	+/-20	71[SL]	5.9	-	14	-	-	-	38	-	2340	U-MOSVIII-H
	TPH4R606NH	60	+/-20	85[SL]	4.6	-	11	-	-	-	49	-	3050	U-MOSVIII-H
	TPH3R506PL	60	+/-20	135[SL]	3.5	-	-	-	6.7	-	55	27	3400	U-MOSIX-H
	TPH2R506PL ¥	60	+/-20	160[SL]	2.5	-	-	-	4.4	-	60	32	4180	U-MOSIX-H
	TPH2R306NH ¥	60	+/-20	130[SL]	2.3	-	4.7	-	-	-	72	-	4700	U-MOSVIII-H
	TPH1R306PL ¥	60	+/-20	260[SL]	1.34	-	-	-	2.3	-	91	44	6250	U-MOSIX-H
	TPH1R306P1	60	+/-20	260[SL]	1.28	-	-	-	2.3	-	91	44	6250	U-MOSIX-H (Low Spike)
	TPH2R608NH	75	+/-20	168[SL]	2.6	-	-	-	-	-	72	-	4600	U-MOSVIII-H
	TPH12008NH	80	+/-20	44[SL]	12.3	-	-	-	-	-	22	-	1490	U-MOSVIII-H
	TPH8R008NH	80	+/-20	63[SL]	8	-	-	-	-	-	35	-	2300	U-MOSVIII-H
	TPH4R008NH ¥	80	+/-20	100[SL]	4	-	-	-	-	-	59	-	4100	U-MOSVIII-H
	TPH2R408QM ¥	80	+/-20	200[SL]	2.43	-	-	3.5	-	-	87	55 (@6 V)	5870	U-MOSX-H
	TPH1400ANH	100	+/-20	42[SL]	13.6	-	-	-	-	-	22	-	1440	U-MOSVIII-H
	TPH8R80ANH	100	+/-20	59[SL]	8.8	-	-	-	-	-	33	-	2180	U-MOSVIII-H
	TPH6R30ANL $	100	+/-20	66[SL]	6.3	-	-	-	10.3	-	55	27	3300	U-MOSVIII-H
	TPH5R60APL	100	+/-20	110[SL]	5.6	-	-	-	9.5	-	52	26	3300	U-MOSIX-H
	TPH4R50ANH ¥	100	+/-20	93[SL]	4.5	-	-	-	-	-	58	-	4000	U-MOSVIII-H
	TPH4R10ANL	100	+/-20	92[SL]	4.1	-	-	-	6.6	-	75	37	4850	U-MOSVIII-H
	TPH3R70APL ¥	100	+/-20	150[SL]	3.7	-	-	-	6.2	-	67	33	4850	U-MOSIX-H
	TPH5900CNH	150	+/-20	18[SL]	59	-	-	-	-	-	7	-	460	U-MOSVIII-H
	TPH3300CNH	150	+/-20	29[SL]	33	-	-	-	-	-	10.6	-	810	U-MOSVIII-H
	TPH1500CNH ¥	150	+/-20	50[SL]	15.4	-	-	-	-	-	22	-	1700	U-MOSVIII-H
	TPH9R00CQH ¥	150	+/-20	108[SL]	9	11	-	-	-	-	44	36 (@8 V)	3500	U-MOSX-H
	TPH9R00CQ5 ☆ ¥	150	+/-20	108[SL]	9	11	-	-	-	-	44	36 (@8 V)	3500	U-MOSX-H (HSD)
	TPH1110ENH	200	+/-20	13[SL]	114	-	-	-	-	-	7	-	460	U-MOSVIII-H
	TPH6400ENH	200	+/-20	21[SL]	64	-	-	-	-	-	11.2	-	810	U-MOSVIII-H
	TPH2900ENH	200	+/-20	36[SL]	29	-	-	-	-	-	22	-	1700	U-MOSVIII-H
	TPH2010FNH	250	+/-20	10[SL]	198	-	-	-	-	-	7	-	460	U-MOSVIII-H
	TPH1110FNH	250	+/-20	15[SL]	112	-	-	-	-	-	11	-	810	U-MOSVIII-H
	TPH5200FNH	250	+/-20	27[SL]	52	-	-	-	-	-	22	-	1700	U-MOSVIII-H
N-ch	TPHR9003NC	30	+/-20	220[SL]	0.9	-	-	-	1.4	-	75	32	5300	U-MOSVIII
P-ch	TPH1R712MD	-20	+/-12	-60	-	-	-	-	1.7	2.7	-	182 (@5 V)	10900	U-MOSVI
	TPCA8131	-30	+20/-25	-13	17	-	-	-	22	-	40	-	1700	U-MOSVI
	TPCA8109	-30	+20/-25	-24	9	-	-	-	13	-	56	-	2400	U-MOSVI
	TPCA8128	-30	+20/-25	-34	4.8	-	-	-	6.7	-	115	-	4800	U-MOSVI
	TPCA8120	-30	+20/-25	-45	3	-	-	-	4	-	190	-	7420	U-MOSVI

☆ New Products, [SL] $I_{D\,(DC)}$ (Silicon Limit)
$ With protection Zener diode between gate and source,
¥ The package can be selected according to your preference. For details, please contact your TOSHIBA sales representative.
Note(1) : High-speed switching type

SOP Advance (N) (4.9 x 6.1)

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)						Q_g typ. (nC)		C_{iss} typ. (pF)	Rth (ch-c) max (°C / W)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 8 V	$\|V_{GS}\|$= 6.5 V	$\|V_{GS}\|$= 6 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 2.5 V	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 4.5 V			
N-ch Note(1)	TPH1R403NL ¥	30	+/-20	150[SL]	1.4	-	-	-	2.1	-	46	20	3400	1.95	U-MOSVIII-H
	TPH1R403NL1	30	+/-20	230[SL]	1.4	-	-	-	2.1	-	46	20	3400	0.88	U-MOSVIII-H
	TPHR9203PL ¥	30	+/-20	280[SL]	0.92	-	-	-	1.29	-	81	38	5800	1.13	U-MOSIX-H
	TPHR9203PL1	30	+/-20	320[SL]	0.92	-	-	-	1.29	-	81	38	5800	0.88	U-MOSIX-H
	TPHR9003NL ¥	30	+/-20	220[SL]	0.9	-	-	-	1.4	-	74	32	5300	1.6	U-MOSVIII-H
	TPHR9003NL1	30	+/-20	320[SL]	0.9	-	-	-	1.4	-	74	32	5300	0.71	U-MOSVIII-H
	TPHR6503PL ¥	30	+/-20	393[SL]	0.65	-	-	-	0.89	-	110	52	7700	0.88	U-MOSIX-H
	TPHR6503PL1	30	+/-20	420[SL]	0.65	-	-	-	0.89	-	110	52	7700	0.71	U-MOSIX-H
	TPH1R204PL ¥	40	+/-20	246[SL]	1.24	-	-	-	2.1	-	74	34	5500	1.13	U-MOSIX-H
	TPH1R204PL1	40	+/-20	270[SL]	1.24	-	-	-	2.1	-	74	34	5500	0.88	U-MOSIX-H
	TPHR8504PL ¥	40	+/-20	340[SL]	0.85	-	-	-	1.4	-	103	49	7370	0.88	U-MOSIX-H
	TPHR8504PL1	40	+/-20	370[SL]	0.85	-	-	-	1.4	-	103	49	7370	0.71	U-MOSIX-H
	TPH1R005PL ¥	45	+/-20	280[SL]	1.04	-	-	-	1.7	-	122	59	7700	0.88	U-MOSIX-H
	TPH2R506PL ¥	60	+/-20	160[SL]	2.5	-	-	-	4.4	-	60	32	4180	1.13	U-MOSIX-H
	TPH2R306PL1	60	+/-20	190[SL]	2.3	-	-	-	4.2	-	60	32	4180	0.88	U-MOSIX-H
	TPH2R306NH ¥	60	+/-20	130[SL]	2.3	-	4.7	-	-	-	72	-	4700	1.6	U-MOSVIII-H
	TPH2R306NH1	60	+/-20	190[SL]	2.3	-	4.7	-	-	-	72	-	4700	0.71	U-MOSVIII-H
	TPH1R306PL ¥	60	+/-20	260[SL]	1.34	-	-	-	2.3	-	91	44	6250	0.88	U-MOSIX-H
	TPH1R306PL1	60	+/-20	280[SL]	1.34	-	-	-	2.3	-	91	44	6250	0.71	U-MOSIX-H
	TPH8R808QM☆	80	+/-20	79[SL]	8.8	-	-	12.5	-	-	26	16 (@6 V)	1750	1.37	U-MOSX-H
	TPH6R008QM☆	80	+/-20	107[SL]	6	-	-	8.4	-	-	38	30 (@6 V)	2500	1.11	U-MOSX-H
	TPH4R008QM	80	+/-20	140[SL]	4	-	-	5.6	-	-	57	35 (@6 V)	3750	0.88	U-MOSX-H
	TPH4R008NH ¥	80	+/-20	100[SL]	4	-	-	-	-	-	59	-	4100	1.6	U-MOSVIII-H
	TPH4R008NH1	80	+/-20	146[SL]	4	-	-	-	-	-	59	-	4100	0.71	U-MOSVIII-H
	TPH3R008QM☆	80	+/-20	170[SL]	3	-	-	4.3	-	-	71	44 (@6 V)	5090	0.8	U-MOSX-H
	TPH2R408QM ¥	80	+/-20	200[SL]	2.43	-	-	3.5	-	-	87	55 (@6 V)	5870	0.71	U-MOSX-H
	TPH4R50ANH ¥	100	+/-20	93[SL]	4.5	-	-	-	-	-	58	-	4000	1.6	U-MOSVIII-H
	TPH4R50ANH1	100	+/-20	138[SL]	4.5	-	-	-	-	-	58	-	4000	0.71	U-MOSVIII-H
	TPH3R70APL ¥	100	+/-20	150[SL]	3.7	-	-	-	6.2	-	67	33	4850	0.88	U-MOSIX-H
	TPH3R70APL1	100	+/-20	170[SL]	3.7	-	-	-	6.2	-	67	33	4850	0.71	U-MOSIX-H
	TPH3R10AQM	100	+/-20	180[SL]	3.1	-	-	6	-	-	83	53 (@6 V)	5180	0.71	U-MOSX-H
	TPH1500CNH ¥	150	+/-20	50[SL]	15.4	-	-	-	-	-	22	-	1700	1.6	U-MOSVIII-H
	TPH1500CNH1	150	+/-20	74[SL]	15.4	-	-	-	-	-	22	-	1700	0.71	U-MOSVIII-H
	TPH1400CQH ☆	150	+/-20	77[SL]	14.1	17.3	-	-	-	-	31	25 (@8 V)	2400	0.88	U-MOSX-H
	TPH9R00CQH ¥	150	+/-20	108[SL]	9	11	-	-	-	-	44	36 (@8 V)	3500	0.71	U-MOSX-H
	TPH9R00CQ5 ☆¥	150	+/-20	108[SL]	9	11	-	-	-	-	44	36 (@8 V)	3500	0.71	U-MOSX-H (HSD)

☆ New Products, [SL] $I_{D\,(DC)}$ (Silicon Limit)
¥ The package can be selected according to your preference. For details, please contact your TOSHIBA sales representative.
Note(1) : High-speed switching type

DSOP Advance （5 x 6）

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)		Q_g typ. (nC)		C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 4.5 V		
N-ch Note(1)	TPWR8503NL	30	+/-20	300[SL]	0.85	1.3	74	32	5300	U-MOSVIII-H
	TPWR6003PL	30	+/-20	412[SL]	0.6	0.84	110	52	7700	U-MOSIX-H
	TPWR8004PL	40	+/-20	340[SL]	0.8	1.35	103	49	7370	U-MOSIX-H
	TPW1R005PL	45	+/-20	300[SL]	0.99	1.65	122	59	7700	U-MOSIX-H
	TPW1R306PL	60	+/-20	260[SL]	1.29	2.3	91	44	6250	U-MOSIX-H
	TPW2R508NH	75	+/-20	170[SL]	2.5	-	72	-	4600	U-MOSVIII-H
	TPW4R008NH	80	+/-20	116	4	-	59	-	4100	U-MOSVIII-H
	TPW4R50ANH	100	+/-20	92	4.5	-	58	-	4000	U-MOSVIII-H
	TPW3R70APL	100	+/-20	150[SL]	3.7	6.2	67	33	4850	U-MOSIX-H
	TPW1500CNH	150	+/-20	50[SL]	15.4	-	22	-	1700	U-MOSVIII-H
	TPW2900ENH	200	+/-20	36[SL]	29	-	22	-	1700	U-MOSVIII-H
	TPW5200FNH	250	+/-20	27[SL]	52	-	22	-	1700	U-MOSVIII-H

DPAK（TO-252）/ New PW-Mold

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)			Q_g typ. (nC)		C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 6 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 4.5 V		
N-ch Note(1)	TK3R1P04PL	40	+/-20	130[SL]	3.1	-	4.3	60	30	4670	U-MOSIX-H
	TK6R7P06PL	60	+/-20	74[SL]	6.7	-	11.1	26	13	1990	U-MOSIX-H
	TK4R4P06PL	60	+/-20	106[SL]	4.4	-	7.1	48.2	23.9	3280	U-MOSIX-H
	TK6R9P08QM	80	+/-20	83[SL]	6.9	9.6	-	39	24 (@6 V)	2700	U-MOSX-H
	TK5R1P08QM	80	+/-20	105[SL]	5.1	7	-	56	34 (@6 V)	3980	U-MOSX-H
	TK110P10PL	100	+/-20	60[SL]	10.6	-	16	33	17	2040	U-MOSIX-H
	TK7R7P10PL	100	+/-20	79[SL]	7.7	-	11.5	44	21	2800	U-MOSIX-H
P-ch	TJ15P04M3	-40	+/-20	-15	36	-	48	26	-	1100	U-MOSVI

[SL] $I_{D\,(DC)}$ (Silicon Limit)
Note(1) : High-speed switching type

TO-220

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)			Q_g typ. (nC)		C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 6 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 4.5 V		
N-ch Note(1)	TK3R1E04PL	40	+/-20	128[SL]	3.1	-	3.8	63.4	29.7	4670	U-MOSIX-H
	TK30E06N1	60	+/-20	43[SL]	15	-	-	16	-	1050	U-MOSVIII-H
	TK40E06N1	60	+/-20	60[SL]	10.4	-	-	23	-	1700	U-MOSVIII-H
	TK8R2E06PL	60	+/-20	75[SL]	8.2	-	11.4	28	15	1990	U-MOSIX-H
	TK58E06N1	60	+/-20	105[SL]	5.4	-	-	46	-	3400	U-MOSVIII-H
	TK5R1E06PL	60	+/-20	98[SL]	5.1	-	8.8	36	18	2380	U-MOSIX-H
	TK4R3E06PL	60	+/-20	106[SL]	4.3	-	7.2	48.2	23.9	3280	U-MOSIX-H
	TK3R2E06PL	60	+/-20	160[SL]	3.2	-	4.7	71	35	5000	U-MOSIX-H
	TK100E06N1	60	+/-20	263[SL]	2.3	-	-	140	-	10500	U-MOSVIII-H
	TK35E08N1	80	+/-20	55	12.2	-	-	25	-	1700	U-MOSVIII-H
	TK46E08N1	80	+/-20	80	8.4	-	-	37	-	2500	U-MOSVIII-H
	TK7R0E08QM	80	+/-20	82[SL]	7	9.7	-	39	24 (@6 V)	2700	U-MOSX-H
	TK5R3E08QM	80	+/-20	126[SL]	5.3	7.3	-	55	33 (@6 V)	3980	U-MOSX-H
	TK72E08N1	80	+/-20	157[SL]	4.3	-	-	81	-	5500	U-MOSVIII-H
	TK3R3E08QM	80	+/-20	200[SL]	3.3	4.2	-	110	67 (@6 V)	7670	U-MOSX-H
	TK100E08N1	80	+/-20	214[SL]	3.2	-	-	130	-	9000	U-MOSVIII-H
	TK2R4E08QM	80	+/-20	290[SL]	2.44	3.2	-	178	109 (@6 V)	13000	U-MOSX-H
	TK22E10N1	100	+/-20	52	13.8	-	-	28	-	1800	U-MOSVIII-H
	TK110E10PL	100	+/-20	64[SL]	10.7	-	16	33	17	2040	U-MOSIX-H
	TK34E10N1	100	+/-20	75	9.5	-	-	38	-	2600	U-MOSVIII-H
	TK40E10N1	100	+/-20	90	8.2	-	-	49	-	3000	U-MOSVIII-H
	TK7R2E10PL	100	+/-20	94[SL]	7.2	-	11	44	21	2800	U-MOSIX-H
	TK6R4E10PL	100	+/-20	112[SL]	6.4	-	9.7	58	30	3455	U-MOSIX-H
	TK65E10N1	100	+/-20	148[SL]	4.8	-	-	81	-	5400	U-MOSVIII-H
	TK3R9E10PL	100	+/-20	180[SL]	3.9	-	5.8	96	49	6320	U-MOSIX-H
	TK100E10N1	100	+/-20	207[SL]	3.4	-	-	140	-	8800	U-MOSVIII-H
	TK2R9E10PL	100	+/-20	240[SL]	2.9	-	4.1	161	83	9500	U-MOSIX-H
	TK32E12N1	120	+/-20	60	13.8	-	-	34	-	2000	U-MOSVIII-H
	TK42E12N1	120	+/-20	88	9.4	-	-	52	-	3100	U-MOSVIII-H
	TK56E12N1	120	+/-20	112[SL]	7	-	-	69	-	4200	U-MOSVIII-H
	TK72E12N1	120	+/-20	179[SL]	4.4	-	-	130	-	8100	U-MOSVIII-H

[SL] $I_{D\,(DC)}$ (Silicon Limit)
Note(1) : High-speed switching type

TO-220SIS

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)			Q_g typ. (nC)		C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 6 V	$\|V_{GS}\|$= 4.5 V	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 4.5 V		
N-ch Note(1)	TK3R1A04PL	40	+/-20	82	3.1	-	3.8	63.4	29.7	4670	U-MOSIX-H
	TK30A06N1	60	+/-20	43[SL]	15	-	-	16	-	1050	U-MOSVIII-H
	TK40A06N1	60	+/-20	60[SL]	10.4	-	-	23	-	1700	U-MOSVIII-H
	TK8R2A06PL	60	+/-20	50	8.2	-	11.4	28	15	1990	U-MOSIX-H
	TK58A06N1	60	+/-20	105[SL]	5.4	-	-	46	-	3400	U-MOSVIII-H
	TK5R3A06PL	60	+/-20	62[SL]	5.3	-	9.3	36	18	2380	U-MOSIX-H
	TK4R3A06PL	60	+/-20	68	4.3	-	7.2	48.2	23.9	3280	U-MOSIX-H
	TK3R3A06PL	60	+/-20	88[SL]	3.3	-	4.9	71	35	5000	U-MOSIX-H
	TK100A06N1	60	+/-20	263[SL]	2.7	-	-	140	-	10500	U-MOSVIII-H
	TK35A08N1	80	+/-20	55[SL]	12.2	-	-	25	-	1700	U-MOSVIII-H
	TK46A08N1	80	+/-20	80[SL]	8.4	-	-	37	-	2500	U-MOSVIII-H
	TK6R8A08QM	80	+/-20	58	6.8	9.5	-	39	23 (@6 V)	2700	U-MOSX-H
	TK5R1A08QM	80	+/-20	71[SL]	5.1	7.1	-	54	32 (@6 V)	3980	U-MOSX-H
	TK72A08N1	80	+/-20	157[SL]	4.5	-	-	81	-	5500	U-MOSVIII-H
	TK3R2A08QM	80	+/-20	92	3.2	4.1	-	102	58 (@6 V)	7670	U-MOSX-H
	TK100A08N1	80	+/-20	214[SL]	3.2	-	-	130	-	9000	U-MOSVIII-H
	TK2R4A08QM	80	+/-20	116[SL]	2.44	3.1	-	179	102 (@6 V)	13000	U-MOSX-H
	TK22A10N1	100	+/-20	52[SL]	13.8	-	-	28	-	1800	U-MOSVIII-H
	TK110A10PL	100	+/-20	41[SL]	10.8	-	16	33	17	2040	U-MOSIX-H
	TK34A10N1	100	+/-20	75[SL]	9.5	-	-	38	-	2600	U-MOSVIII-H
	TK40A10N1	100	+/-20	90[SL]	8.2	-	-	49	-	3000	U-MOSVIII-H
	TK7R4A10PL	100	+/-20	50	7.4	-	11.2	44	21	2800	U-MOSIX-H
	TK6R7A10PL	100	+/-20	56	6.7	-	10.1	58	30	3455	U-MOSIX-H
	TK65A10N1	100	+/-20	148[SL]	4.8	-	-	81	-	5400	U-MOSVIII-H
	TK4R1A10PL	100	+/-20	85[SL]	4.1	-	5.9	104	53	6320	U-MOSIX-H
	TK100A10N1	100	+/-20	207[SL]	3.8	-	-	140	-	8800	U-MOSVIII-H
	TK3R2A10PL	100	+/-20	106[SL]	3.2	-	4.3	161	83	9500	U-MOSIX-H
	TK32A12N1	120	+/-20	60[SL]	13.8	-	-	34	-	2000	U-MOSVIII-H
	TK42A12N1	120	+/-20	88[SL]	9.4	-	-	52	-	3100	U-MOSVIII-H
	TK56A12N1	120	+/-20	112[SL]	7.5	-	-	69	-	4200	U-MOSVIII-H
	TK72A12N1	120	+/-20	179[SL]	4.5	-	-	130	-	8100	U-MOSVIII-H

[SL] $I_{D\,(DC)}$ (Silicon Limit)
Note(1) : High-speed switching type

2. Mid-High Voltage MOSFETs Series

DPAK(TO-252) / New PW-Mold

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK10P50W	500	+/-30	9.7	0.43	20	700	DTMOSIV
	TK12P50W	500	+/-30	11.5	0.34	25	890	DTMOSIV
	TK6P60W	600	+/-30	6.2	0.82	12	390	DTMOSIV
	TK7P60W5 &	600	+/-30	7	0.67	16	490	DTMOSIV(HSD)
	TK7P60W	600	+/-30	7	0.6	15	490	DTMOSIV
	TK560P60Y	600	+/-30	7	0.56	14.5	380	DTMOSV
	TK8P60W5 &	600	+/-30	8	0.56	22	590	DTMOSIV(HSD)
	TK8P60W	600	+/-30	8	0.5	18.5	570	DTMOSIV
	TK10P60W	600	+/-30	9.7	0.43	20	700	DTMOSIV
	TK380P60Y	600	+/-30	9.7	0.38	20	590	DTMOSV
	TK12P60W	600	+/-30	11.5	0.34	25	890	DTMOSIV
	TK290P60Y	600	+/-30	11.5	0.29	25	730	DTMOSV
	TK6P65W	650	+/-30	5.8	1.05	11	390	DTMOSIV
	TK7P65W	650	+/-30	6.8	0.8	15	490	DTMOSIV
	TK8P65W	650	+/-30	7.8	0.67	16	570	DTMOSIV
	TK560P65Y	650	+/-30	7	0.56	14.5	380	DTMOSV
	TK9P65W	650	+/-30	9.3	0.56	20	700	DTMOSIV
	TK11P65W	650	+/-30	11.1	0.44	25	890	DTMOSIV
	TK380P65Y	650	+/-30	9.7	0.38	20	590	DTMOSV
	TK290P65Y	650	+/-30	11.5	0.29	25	730	DTMOSV
N-ch	TK8P25DA	250	+/-20	7.5	0.5	16	550	π-MOSVII
	TK13P25D	250	+/-20	13	0.25	25	1100	π-MOSVII
	TK3P50D	500	+/-30	3	3	7	280	π-MOSVII
	TK4P50D	500	+/-30	4	2	9	380	π-MOSVII
	TK5P50D	500	+/-30	5	1.5	11	490	π-MOSVII
	TK7P50D	500	+/-30	7	1.22	12	600	π-MOSVII
	TK5P53D	525	+/-30	5	1.5	11	540	π-MOSVII
	TK6P53D	525	+/-30	6	1.3	12	600	π-MOSVII
	TK4P55DA	550	+/-30	3.5	2.45	9	380	π-MOSVII
	TK4P55D	550	+/-30	4	1.88	11	490	π-MOSVII
	TK2P60D	600	+/-30	2	4.3	7	280	π-MOSVII
	TK4P60DA	600	+/-30	3.5	2.2	11	490	π-MOSVII
	TK4P60DB	600	+/-30	3.7	2	11	540	π-MOSVII
	TK4P60D	600	+/-30	4	1.7	12	600	π-MOSVII
	TK3P80E	800	+/-30	3	4.9	12	500	π-MOSVIII
	TK2P90E	900	+/-30	2	5.9	12	500	π-MOSVIII

& High Speed Diode type

DFN 8x8

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK10V60W	600	+/-30	9.7	0.38	20	700	DTMOSIV
	TK12V60W	600	+/-30	11.5	0.3	25	890	DTMOSIV
	TK16V60W5 &	600	+/-30	15.8	0.245	43	1350	DTMOSIV(HSD)
	TK16V60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20V60W5 &	600	+/-30	20	0.19	55	1800	DTMOSIV(HSD)
	TK20V60W	600	+/-30	20	0.17	48	1680	DTMOSIV
	TK(165)V60Z1 ★	600	+/-30	(17)	(0.165)	(25)	(1350)	DTMOSVI
	TK25V60X5 &	600	+/-30	25	0.15	60	2400	DTMOSIV-H(HSD)
	TK25V60X	600	+/-30	25	0.135	40	2400	DTMOSIV-H
	TK(130)V60Z1 ★	600	+/-30	(18)	(0.13)	(30)	(1620)	DTMOSVI
	TK31V60W5 &	600	+/-30	30.8	0.109	105	3000	DTMOSIV(HSD)
	TK31V60W	600	+/-30	30.8	0.098	86	3000	DTMOSIV
	TK31V60X	600	+/-30	30.8	0.098	65	3000	DTMOSIV-H
	TK(085)V60Z1 ★	600	+/-30	(32)	(0.085)	(43)	(2510)	DTMOSVI
	TK14V65W	650	+/-30	13.7	0.28	35	1300	DTMOSIV
	TK210V65Z ☆	650	+/-30	15	0.21	25	1370	DTMOSVI
	TK17V65W	650	+/-30	17.3	0.21	45	1800	DTMOSIV
	TK170V65Z ☆	650	+/-30	18	0.17	29	1635	DTMOSVI
	TK22V65X5 &	650	+/-30	22	0.17	50	2400	DTMOSIV-H(HSD)
	TK28V65W5 &	650	+/-30	27.6	0.14	90	3000	DTMOSIV(HSD)
	TK(128)V65Z5 ★ &	650	+/-30	(21)	(0.128)	(40)	(2310)	DTMOSVI(HSD)
	TK125V65Z ☆	650	+/-30	24	0.125	40	2250	DTMOSVI
	TK28V65W	650	+/-30	27.6	0.12	75	3000	DTMOSIV
	TK(105)V65Z5 ★ &	650	+/-30	(27)	(0.105)	(50)	(2880)	DTMOSVI(HSD)
	TK099V65Z ☆	650	+/-30	30	0.099	47	2780	DTMOSVI

D2PAK

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK16G60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16G60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20G60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK14G65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)
	TK14G65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV

TOLL

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK(155)U60Z1 ★	600	+/-30	(17)	(0.155)	(25)	(1350)	DTMOSVI
	TK(125)U60Z1 ★	600	+/-30	(20)	(0.125)	(30)	(1620)	DTMOSVI
	TK(080)U60Z1 ★	600	+/-30	(32)	(0.08)	(43)	(2510)	DTMOSVI
	TK(055)U60Z1 ★	600	+/-30	(40)	(0.055)	(65)	(5270)	DTMOSVI
	TK190U65Z ☆	650	+/-30	15	0.19	25	1370	DTMOSVI
	TK155U65Z ☆	650	+/-30	18	0.155	29	1635	DTMOSVI
	TK(116)U65Z5 ★ &	650	+/-30	(24)	(0.116)	(40)	(2310)	DTMOSVI(HSD)
	TK110U65Z ☆	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK(095)U65Z5 ★ &	650	+/-30	(29)	(0.095)	(50)	(2880)	DTMOSVI(HSD)
	TK090U65Z ☆	650	+/-30	30	0.09	47	2780	DTMOSVI
	TK(068)U65Z5 ★ &	650	+/-30	(37)	(0.068)	(65)	(3750)	DTMOSVI(HSD)
	TK065U65Z ☆	650	+/-30	38	0.065	62	3650	DTMOSVI

☆ New Products, & High Speed Diode type
★ Under Development (The specification is subject to change without notice.)

IPAK / New PW-Mold2

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK6Q60W	600	+/-30	6.2	0.82	12	390	DTMOSIV
	TK7Q60W	600	+/-30	7	0.6	15	490	DTMOSIV
	TK8Q60W	600	+/-30	8	0.5	18.5	570	DTMOSIV
	TK10Q60W	600	+/-30	9.7	0.43	20	700	DTMOSIV
	TK12Q60W	600	+/-30	11.5	0.34	25	890	DTMOSIV
	TK6Q65W	650	+/-30	5.8	1.05	11	390	DTMOSIV
	TK7Q65W	650	+/-30	6.8	0.8	15	490	DTMOSIV
	TK8Q65W	650	+/-30	7.8	0.67	16	570	DTMOSIV
	TK9Q65W	650	+/-30	9.3	0.56	20	700	DTMOSIV
	TK11Q65W	650	+/-30	11.1	0.44	25	890	DTMOSIV
N-ch	TK2Q60D	600	+/-30	2	4.3	7	280	π-MOSVII
	TK4Q60DA	600	+/-30	3.5	2.2	11	490	π-MOSVII
	TK1Q90A $	900	+/-30	1	9	13	320	π-MOSIV

TO-220

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK10E60W	600	+/-30	9.7	0.38	20	700	DTMOSIV
	TK12E60W	600	+/-30	11.5	0.3	25	890	DTMOSIV
	TK16E60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16E60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20E60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)
	TK(155)E60Z1 ★	600	+/-30	(17)	(0.155)	(25)	(1350)	DTMOSVI
	TK20E60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK25E60X5 &	600	+/-30	25	0.14	60	2400	DTMOSIV-H(HSD)
	TK(125)E60Z1 ★	600	+/-30	(20)	(0.125)	(30)	(1620)	DTMOSVI
	TK25E60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H
	TK31E60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV
	TK31E60X	600	+/-30	30.8	0.088	65	3000	DTMOSIV-H
	TK(080)E60Z1 ★	600	+/-30	(32)	(0.08)	(43)	(2510)	DTMOSVI
	TK14E65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)
	TK14E65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV
	TK17E65W	650	+/-30	17.3	0.2	45	1800	DTMOSIV
	TK190E65Z ☆	650	+/-30	15	0.19	25	1370	DTMOSVI
	TK155E65Z ☆	650	+/-30	18	0.155	29	1635	DTMOSVI
	TK(116)E65Z5 ★ &	650	+/-30	(24)	(0.116)	(40)	(2310)	DTMOSVI(HSD)
	TK110E65Z ☆	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK28E65W	650	+/-30	27.6	0.11	75	3000	DTMOSIV
	TK(095)E65Z5 ★ &	650	+/-30	(29)	(0.095)	(50)	(2880)	DTMOSVI(HSD)
	TK090E65Z ☆	650	+/-30	30	0.09	47	2780	DTMOSVI
	TK7E80W	800	+/-20	6.5	0.95	13	700	DTMOSIV
	TK10E80W	800	+/-20	9.5	0.55	19	1150	DTMOSIV
	TK12E80W	800	+/-20	11.5	0.45	23	1400	DTMOSIV
	TK17E80W	800	+/-20	17	0.29	32	2050	DTMOSIV
N-ch	TK13E25D	250	+/-20	13	0.25	25	1100	π-MOSVII

☆ New Products, & High Speed Diode type
★ Under Development (The specification is subject to change without notice.)
$ With protection Zener diode between gate and source

TO-220SIS

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK10A50W	500	+/-30	9.7	0.38	20	700	DTMOSIV
	TK12A50W	500	+/-30	11.5	0.3	25	890	DTMOSIV
	TK19A50W	500	+/-30	18.5	0.19	38	1350	DTMOSIV
	TK6A60W	600	+/-30	6.2	0.75	12	390	DTMOSIV
	TK7A60W5 &	600	+/-30	7	0.65	16	490	DTMOSIV(HSD)
	TK7A60W	600	+/-30	7	0.6	15	490	DTMOSIV
	TK560A60Y	600	+/-30	7	0.56	14.5	380	DTMOSV
	TK8A60W5 &	600	+/-30	8	0.54	22	590	DTMOSIV(HSD)
	TK8A60W	600	+/-30	8	0.5	18.5	570	DTMOSIV
	TK10A60W5 &	600	+/-30	9.7	0.45	25	720	DTMOSIV(HSD)
	TK10A60W	600	+/-30	9.7	0.38	20	700	DTMOSIV
	TK380A60Y	600	+/-30	9.7	0.38	20	590	DTMOSV
	TK12A60W	600	+/-30	11.5	0.3	25	890	DTMOSIV
	TK290A60Y	600	+/-30	11.5	0.29	25	730	DTMOSV
	TK16A60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16A60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20A60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)
	TK(155)A60Z1 ★	600	+/-30	(17)	(0.155)	(25)	(1350)	DTMOSVI
	TK20A60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK25A60X5 &	600	+/-30	25	0.14	60	2400	DTMOSIV-H(HSD)
	TK(125)A60Z1 ★	600	+/-30	(20)	(0.125)	(30)	(1620)	DTMOSVI
	TK25A60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H
	TK31A60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV
	TK(080)A60Z1 ★	600	+/-30	(32)	(0.08)	(43)	(2510)	DTMOSVI
	TK39A60W	600	+/-30	38.8	0.065	110	4100	DTMOSIV
	TK6A65W	650	+/-30	5.8	1	11	390	DTMOSIV
	TK7A65W	650	+/-30	6.8	0.78	15	490	DTMOSIV
	TK8A65W	650	+/-30	7.8	0.65	16	570	DTMOSIV
	TK560A65Y	650	+/-30	7	0.56	14.5	380	DTMOSV
	TK9A65W	650	+/-30	9.3	0.5	20	700	DTMOSIV
	TK11A65W	650	+/-30	11.1	0.39	25	890	DTMOSIV
	TK380A65Y	650	+/-30	9.7	0.38	20	590	DTMOSV
	TK14A65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)
	TK290A65Y	650	+/-30	11.5	0.29	25	730	DTMOSV
	TK14A65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV
	TK17A65W5 &	650	+/-30	17.3	0.23	50	1800	DTMOSIV(HSD)
	TK17A65W	650	+/-30	17.3	0.2	45	1800	DTMOSIV
	TK190A65Z ☆	650	+/-30	15	0.19	25	1370	DTMOSVI
	TK22A65X5 &	650	+/-30	22	0.16	50	2400	DTMOSIV-H(HSD)
	TK155A65Z ☆	650	+/-30	18	0.155	29	1635	DTMOSVI
	TK22A65X	650	+/-30	22	0.15	50	2400	DTMOSIV-H
	TK(116)A65Z5 ★ &	650	+/-30	(24)	(0.116)	(40)	(2310)	DTMOSVI(HSD)
	TK110A65Z ☆	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK28A65W	650	+/-30	27.6	0.11	75	3000	DTMOSIV
	TK(095)A65Z5 ★ &	650	+/-30	(29)	(0.095)	(50)	(2880)	DTMOSVI(HSD)
	TK35A65W5 &	650	+/-30	35	0.095	115	4100	DTMOSIV(HSD)
	TK090A65Z ☆	650	+/-30	30	0.09	47	2780	DTMOSVI
	TK35A65W	650	+/-30	35	0.08	100	4100	DTMOSIV
	TK7A80W	800	+/-20	6.5	0.95	13	700	DTMOSIV
	TK10A80W	800	+/-20	9.5	0.55	19	1150	DTMOSIV
	TK12A80W	800	+/-20	11.5	0.45	23	1400	DTMOSIV
	TK17A80W	800	+/-20	17	0.29	32	2050	DTMOSIV

☆ New products, & High Speed Diode type
★ Under Development (The specification is subject to change without notice.)

TO-220SIS

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK9A20DA	200	+/-20	8.5	0.4	14	550	π-MOSVII
	TK15A20D	200	+/-20	15	0.18	26	1050	π-MOSVII
	TK20A20D	200	+/-20	20	0.109	43	1650	π-MOSVII
	TK25A20D	200	+/-20	25	0.07	60	2550	π-MOSVII
	TK8A25DA	250	+/-20	7.5	0.5	16	550	π-MOSVII
	TK13A25D	250	+/-20	13	0.25	25	1100	π-MOSVII
	TK17A25D	250	+/-20	17	0.15	43	1650	π-MOSVII
	TK20A25D	250	+/-20	20	0.1	55	2550	π-MOSVII
	TK18A30D	300	+/-20	18	0.139	60	2600	π-MOSVII
	TK5A45DA	450	+/-30	4.5	1.75	9	380	π-MOSVII
	TK6A45DA	450	+/-30	5.5	1.35	11	490	π-MOSVII
	TK7A45DA	450	+/-30	6.5	1.2	11	540	π-MOSVII
	TK8A45D	450	+/-30	8	0.9	16	700	π-MOSVII
	TK9A45D	450	+/-30	9	0.77	16	800	π-MOSVII
	TK11A45D	450	+/-30	11	0.62	20	1050	π-MOSVII
	TK12A45D	450	+/-30	12	0.52	24	1200	π-MOSVII
	TK13A45D	450	+/-30	13	0.46	25	1350	π-MOSVII
	TK19A45D	450	+/-30	19	0.25	45	2600	π-MOSVII
	TK4A50D	500	+/-30	4	2	9	380	π-MOSVII
	TK5A50D	500	+/-30	5	1.5	11	490	π-MOSVII
	TK6A50D	500	+/-30	6	1.4	11	540	π-MOSVII
	TK7A50D	500	+/-30	7	1.22	12	600	π-MOSVII
	TK8A50DA	500	+/-30	7.5	1.04	16	700	π-MOSVII
	TK8A50D	500	+/-30	8	0.85	16	800	π-MOSVII
	TK10A50D	500	+/-30	10	0.72	20	1050	π-MOSVII
	TK11A50D	500	+/-30	11	0.6	24	1200	π-MOSVII
	TK12A50D	500	+/-30	12	0.52	25	1350	π-MOSVII
	TK13A50DA	500	+/-30	12.5	0.47	28	1550	π-MOSVII
	TK13A50D	500	+/-30	13	0.4	38	1800	π-MOSVII
	TK15A50D	500	+/-30	15	0.3	40	2300	π-MOSVII
	TK18A50D	500	+/-30	18	0.27	45	2600	π-MOSVII
	TK4A53D	525	+/-30	4	1.7	11	490	π-MOSVII
	TK5A53D	525	+/-30	5	1.5	11	540	π-MOSVII
	TK6A53D	525	+/-30	6	1.3	12	600	π-MOSVII
	TK12A53D	525	+/-30	12	0.58	25	1350	π-MOSVII
	TK4A55DA	550	+/-30	3.5	2.45	9	380	π-MOSVII
	TK4A55D	550	+/-30	4	1.88	11	490	π-MOSVII
	TK5A55D	550	+/-30	5	1.7	11	540	π-MOSVII
	TK6A55DA	550	+/-30	5.5	1.48	12	600	π-MOSVII
	TK7A55D	550	+/-30	7	1.25	16	700	π-MOSVII
	TK8A55DA	550	+/-30	7.5	1.07	16	800	π-MOSVII
	TK9A55DA	550	+/-30	8.5	0.86	20	1050	π-MOSVII
	TK10A55D	550	+/-30	10	0.72	24	1200	π-MOSVII
	TK11A55D	550	+/-30	11	0.63	25	1350	π-MOSVII
	TK12A55D	550	+/-30	12	0.57	28	1550	π-MOSVII

TO-220SIS

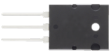
Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK13A55DA	550	+/-30	12.5	0.48	38	1800	π-MOSVII
	TK14A55D	550	+/-30	14	0.37	40	2300	π-MOSVII
	TK16A55D	550	+/-30	16	0.33	45	2600	π-MOSVII
	TK4K1A60F ☆	600	+/-30	2	4.1	8	270	π-MOSIX
	TK3A60DA	600	+/-30	2.5	2.8	9	380	π-MOSVII
	TK2K2A60F ☆	600	+/-30	3.5	2.2	13	450	π-MOSIX
	TK1K9A60F ☆	600	+/-30	3.7	1.9	14	490	π-MOSIX
	TK1K7A60F ☆	600	+/-30	4	1.7	16	560	π-MOSIX
	TK5A60D	600	+/-30	5	1.43	16	700	π-MOSVII
	TK1K2A60F ☆	600	+/-30	6	1.2	21	740	π-MOSIX
	TK1K0A60F ☆	600	+/-30	7.5	1	24	890	π-MOSIX
	TK9A60D	600	+/-30	9	0.83	24	1200	π-MOSVII
	TK750A60F ☆	600	+/-30	10	0.75	30	1130	π-MOSIX
	TK650A60F ☆	600	+/-30	11	0.65	34	1320	π-MOSIX
	TK12A60D	600	+/-30	12	0.55	38	1800	π-MOSVII
	TK430A60F ☆	600	+/-30	13	0.43	48	1940	π-MOSIX
	TK370A60F ☆	600	+/-30	15	0.37	55	2200	π-MOSIX
	TK2A65D	650	+/-30	2	3.26	9	380	π-MOSVII
	TK3A65DA	650	+/-30	2.5	2.51	11	490	π-MOSVII
	TK3A65D	650	+/-30	3	2.25	11	540	π-MOSVII
	TK4A65DA	650	+/-30	3.5	1.9	12	600	π-MOSVII
	TK5A65DA	650	+/-30	4.5	1.67	16	700	π-MOSVII
	TK5A65D	650	+/-30	5	1.43	16	800	π-MOSVII
	TK6A65D	650	+/-30	6	1.11	20	1050	π-MOSVII
	TK7A65D	650	+/-30	7	0.98	24	1200	π-MOSVII
	TK8A65D	650	+/-30	8	0.84	25	1350	π-MOSVII
	TK11A65D	650	+/-30	11	0.7	30	1700	π-MOSVII
	TK12A65D	650	+/-30	12	0.54	40	2300	π-MOSVII
	TK13A65D	650	+/-30	13	0.47	45	2600	π-MOSVII
	TK4A80E	800	+/-30	4	3.5	15	650	π-MOSVIII
	TK5A80E	800	+/-30	5	2.4	20	950	π-MOSVIII
	TK6A80E	800	+/-30	6	1.7	32	1350	π-MOSVIII
	2SK4013	800	+/-30	6	1.7	45	1400	π-MOSIV
	TK10A80E	800	+/-30	10	1	46	2000	π-MOSVIII
	2SK3566	900	+/-30	2.5	6.4	12	470	π-MOSIV
	TK3A90E	900	+/-30	2.5	4.6	15	650	π-MOSVIII
	2SK3564	900	+/-30	3	4.3	17	700	π-MOSIV
	2SK3798	900	+/-30	4	3.5	26	800	π-MOSIV
	TK5A90E	900	+/-30	4.5	3.1	20	950	π-MOSVIII
	2SK3565	900	+/-30	5	2.5	28	1150	π-MOSIV
	2SK3742	900	+/-30	5	2.5	25	1150	π-MOSIV
	2SK4014	900	+/-30	6	2	45	1400	π-MOSIV
	TK7A90E	900	+/-30	7	2	32	1350	π-MOSVIII
	2SK3799	900	+/-30	8	1.3	60	2200	π-MOSIV
	TK9A90E	900	+/-30	9	1.3	46	2000	π-MOSVIII

☆ New products

TO-3P(N)

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK12J60W	600	+/-30	11.5	0.3	25	890	DTMOSIV
	TK16J60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16J60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20J60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)
	TK20J60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK31J60W5 &	600	+/-30	30.8	0.099	105	3000	DTMOSIV(HSD)
	TK31J60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV
	TK39J60W5 &	600	+/-30	38.8	0.074	135	4100	DTMOSIV(HSD)
	TK39J60W	600	+/-30	38.8	0.065	110	4100	DTMOSIV
	TK62J60W5 &	600	+/-30	61.8	0.045	205	6500	DTMOSIV(HSD)
	TK62J60W	600	+/-30	61.8	0.04	180	6500	DTMOSIV
N-ch	TK40J20D	200	+/-20	40	0.044	100	4300	π-MOSVII
	TK70J20D	200	+/-20	70	0.027	160	6950	π-MOSVII
	TK30J25D	250	+/-20	30	0.06	100	4300	π-MOSVII
	TK60J25D	250	+/-20	60	0.038	160	7000	π-MOSVII
	TK50J30D	300	+/-20	50	0.052	160	7000	π-MOSVII
	TK15J50D	500	+/-30	15	0.4	38	1800	π-MOSVII
	TK20J50D	500	+/-30	20	0.27	45	2600	π-MOSVII
	TK12J55D	550	+/-30	12	0.57	28	1550	π-MOSVII
	TK16J55D	550	+/-30	16	0.37	40	2300	π-MOSVII
	TK19J55D	550	+/-30	19	0.33	45	2600	π-MOSVII
	2SK3633	800	+/-30	7	1.7	35	1500	π-MOSIV
	TK10J80E	800	+/-30	10	1	46	2000	π-MOSVIII
	2SK3700	900	+/-30	5	2.5	28	1150	π-MOSIV
	2SK4115	900	+/-30	7	2	45	1650	π-MOSIV
	TK7J90E	900	+/-30	7	2	32	1350	π-MOSVIII
	TK9J90E	900	+/-30	9	1.3	46	2000	π-MOSVIII
	2SK4207	900	+/-30	13	0.95	45	2790	π-MOSIV

TO-3P(L)



Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK100L60W	600	+/-30	100	0.018	360	15000	DTMOSIV

& High Speed Diode type

TO-247

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK16N60W5 &	600	+/-30	15.8	0.23	43	1350	DTMOSIV(HSD)
	TK16N60W	600	+/-30	15.8	0.19	38	1350	DTMOSIV
	TK20N60W5 &	600	+/-30	20	0.175	55	1800	DTMOSIV(HSD)
	TK20N60W	600	+/-30	20	0.155	48	1680	DTMOSIV
	TK25N60X5 &	600	+/-30	25	0.14	60	2400	DTMOSIV-H(HSD)
	TK(125)N60Z1 ★	600	+/-30	(20)	(0.125)	(30)	(1620)	DTMOSVI
	TK25N60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H
	TK31N60W5 &	600	+/-30	30.8	0.099	105	3000	DTMOSIV(HSD)
	TK31N60W	600	+/-30	30.8	0.088	86	3000	DTMOSIV
	TK31N60X	600	+/-30	30.8	0.088	65	3000	DTMOSIV-H
	TK(080)N60Z1 ★	600	+/-30	(32)	(0.08)	(43)	(2510)	DTMOSVI
	TK39N60W5 &	600	+/-30	38.8	0.074	135	4100	DTMOSIV(HSD)
	TK39N60W	600	+/-30	38.8	0.065	110	4100	DTMOSIV
	TK39N60X	600	+/-30	38.8	0.065	85	4100	DTMOSIV-H
	TK62N60W5 &	600	+/-30	61.8	0.045	205	6500	DTMOSIV(HSD)
	TK(040)N60Z1 ★	600	+/-30	(57)	(0.04)	(85)	(5200)	DTMOSVI
	TK62N60W	600	+/-30	61.8	0.04	180	6500	DTMOSIV
	TK62N60X	600	+/-30	61.8	0.04	135	6500	DTMOSIV-H
	TK14N65W5 &	650	+/-30	13.7	0.3	40	1300	DTMOSIV(HSD)
	TK14N65W	650	+/-30	13.7	0.25	35	1300	DTMOSIV
	TK(024)N60Z1 ★	600	+/-30	(80)	(0.024)	(143)	(8420)	DTMOSVI
	TK17N65W	650	+/-30	17.3	0.2	45	1800	DTMOSIV
	TK28N65W5 &	650	+/-30	27.6	0.13	90	3000	DTMOSIV(HSD)
	TK(116)N65Z5 ★&	650	+/-30	(24)	(0.116)	(40)	(2310)	DTMOSVI(HSD)
	TK110N65Z ☆	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK28N65W	650	+/-30	27.6	0.11	75	3000	DTMOSIV
	TK(095)N65Z5 ★&	650	+/-30	(29)	(0.095)	(50)	(2880)	DTMOSVI(HSD)
	TK35N65W5 &	650	+/-30	35	0.095	115	4100	DTMOSIV(HSD)
	TK090N65Z ☆	650	+/-30	30	0.09	47	2780	DTMOSVI
	TK35N65W	650	+/-30	35	0.08	100	4100	DTMOSIV
	TK(068)N65Z5 ★&	650	+/-30	(37)	(0.068)	(65)	(3750)	DTMOSVI(HSD)
	TK065N65Z ☆	650	+/-30	38	0.065	62	3650	DTMOSVI
	TK49N65W5 &	650	+/-30	49.2	0.057	185	6500	DTMOSIV(HSD)
	TK49N65W	650	+/-30	49.2	0.055	160	6500	DTMOSIV
	TK(042)N65Z5 ★&	650	+/-30	(55)	(0.042)	(105)	(6280)	DTMOSVI(HSD)
	TK040N65Z ☆	650	+/-30	57	0.04	105	6250	DTMOSVI
	TK(027)N65Z ★	650	+/-30	(80)	(0.027)	(143)	(8460)	DTMOSVI

TO-247-4L

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=10 V			
N-ch	TK25Z60X	600	+/-30	25	0.125	40	2400	DTMOSIV-H
	TK31Z60X	600	+/-30	30.8	0.088	65	3000	DTMOSIV-H
	TK39Z60X	600	+/-30	38.8	0.065	85	4100	DTMOSIV-H
	TK62Z60X	600	+/-30	61.8	0.04	135	6500	DTMOSIV-H
	TK110Z65Z ☆	650	+/-30	24	0.11	40	2250	DTMOSVI
	TK090Z65Z ☆	650	+/-30	30	0.09	47	2780	DTMOSVI
	TK065Z65Z ☆	650	+/-30	38	0.065	62	3650	DTMOSVI
	TK040Z65Z ☆	650	+/-30	57	0.04	105	6250	DTMOSVI

☆ New products, & High Speed Diode type
★ Under Development (The specification is subject to change without notice.)

3. Automotive MOSFETs Series

DPAK+

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)			Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 6.0 V	$\|V_{GS}\|$= 4.5 V			
N-ch	TK15S04N1L # $	40	+/-20	15	17.8	-	37	10	610	U-MOSVIII-H
	TK65S04N1L # $	40	+/-20	65	4.3	-	7.8	39	2550	U-MOSVIII-H
	TK100S04N1L #	40	+/-20	100	2.3	-	4.5	76	5490	U-MOSVIII-H
	TK1R4S04PB #	40	+/-20	120	1.35	1.9	-	103	5500	U-MOSIX-H
	TK25S06N1L # $	60	+/-20	25	18.5	-	36.8	15	855	U-MOSVIII-H
	TK40S06N1L # $	60	+/-20	40	10.5	-	18	26	1650	U-MOSVIII-H
	TK90S06N1L #	60	+/-20	90	3.3	-	5.2	81	5400	U-MOSVIII-H
	TK7S10N1Z # $	100	+/-20	7	48	-	-	7.1	470	U-MOSVIII-H
	TK11S10N1L # $	100	+/-20	11	28	-	50	15	850	U-MOSVIII-H
	TK33S10N1L # $	100	+/-20	33	9.7	-	16.2	33	2250	U-MOSVIII-H
	TK33S10N1Z # $	100	+/-20	33	9.7	-	-	28	2050	U-MOSVIII-H
	TK55S10N1 #	100	+/-20	55	6.5	-	-	49	3280	U-MOSVIII-H
	TK60S10N1L #	100	+/-20	60	6.11	9.25	-	60	4320	U-MOSVIII-H
P-ch	TJ10S04M3L # $	-40	+10/-20	-10	44	62	-	19	930	U-MOSVI
	TJ20S04M3L # $	-40	+10/-20	-20	22.2	32	-	37	1850	U-MOSVI
	TJ40S04M3L # $	-40	+10/-20	-40	9.1	13	-	83	4140	U-MOSVI
	TJ60S04M3L # $	-40	+10/-20	-60	6.3	9.4	-	125	6510	U-MOSVI
	TJ80S04M3L # $	-40	+10/-20	-80	5.2	7.9	-	158	7770	U-MOSVI
	TJ90S04M3L #	-40	+10/-20	-90	4.3	-	6	172	7700	U-MOSVI
	TJ8S06M3L # $	-60	+10/-20	-8	104	130	-	19	890	U-MOSVI
	TJ15S06M3L # $	-60	+10/-20	-15	50	63	-	36	1770	U-MOSVI
	TJ30S06M3L # $	-60	+10/-20	-30	21.8	28	-	80	3950	U-MOSVI
	TJ50S06M3L # $	-60	+10/-20	-50	13.8	17.4	-	124	6290	U-MOSVI
	TJ60S06M3L # $	-60	+10/-20	-60	11.2	14.5	-	156	7760	U-MOSVI
	TJ15S10M3	-100	+10/-20	-15	130	-	-	69	3200	U-MOSVI

TSON Advance(WF) (3.1 x 3.6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)			Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 6 V	$\|V_{GS}\|$= 4.5 V			
N-ch	XPN7R104NC ◆ # $	40	+/-20	20	7.1	-	14.2	21	1290	U-MOSVIII-H
	XPN3R804NC ◆ # $	40	+/-20	40	3.8	-	7.8	35	2230	U-MOSVIII-H
	XPN12006NC ◆ # $	60	+/-20	20	12	-	23.7	23	1100	U-MOSVIII-H
	XPN6R706NC ◆ # $	60	+/-20	40	6.7	-	13.3	35	2000	U-MOSVIII-H
	XPN1300ANC ◆ # $	100	+/-20	30	13.3	-	24.2	28	1470	U-MOSVIII-H
P-ch	XPN19014MC ★◆ # $	-40	(+10/-20)	(-20)	(18.7)	-	(27.3)	(46)	(1600)	U-MOSVI
	XPN9R614MC ◆ #	-40	+10/-20	-40	9.6	-	13.4	64	3000	U-MOSVI

★ Under Development (The specification is subject to change without notice.)
AEC-Q101 qualified, $ With protection Zener diode between gate and source, ◆ Wettable Flank Lead Terminal

SOP Advance(WF) (5 x 6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)			Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 6 V	$\|V_{GS}\|$= 4.5 V			
N-ch	XPH3R304PS ☆◆#	40	+20/-8	60	3.3	6.3	-	30	1660	U-MOSIX-H
	XPH2R404PS ☆◆#	40	+20/-8	90	2.4	4.1	-	40	2500	U-MOSIX-H
	XPH1R104PS ◆#	40	+/-20	120	1.14	1.96	-	55	4560	U-MOSIX-H
	XPHR7904PS ◆#	40	+/-20	150	0.79	1.3	-	85	6650	U-MOSIX-H
	XPH3R206NC ◆#$	60	+/-20	70	3.2	-	6.2	65	4180	U-MOSVIII-H
	XPH2R106NC ◆#	60	+/-20	110	2.1	-	4.1	104	6900	U-MOSVIII-H
	XPH6R30ANB ◆#$	100	+/-20	45	6.3	9.5	-	52	3240	U-MOSVIII-H
	XPH4R10ANB ◆#	100	+/-20	70	4.1	6.2	-	75	4970	U-MOSVIII-H
P-ch	XPH4R714MC ◆#	-40	+10/-20	-60	4.7	-	6.9	140	5640	U-MOSVI
	XPH3R114MC ◆#	-40	+10/-20	-100	3.1	-	4.7	230	9500	U-MOSVI
	XPH13016MC ★◆#	-60	(+10/-20)	(-60)	(12.9)	-	(16.6)	(148)	(6820)	U-MOSVI
	XPH8R316MC ★◆#	-60	(+10/-20)	(-90)	(8.3)	-	(10.2)	(222)	(10500)	U-MOSVI

DSOP Advance(WF) (5 x 6)

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)			Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 6 V	$\|V_{GS}\|$= 4.5 V			
N-ch	TPW1R104PB *☆◆#	40	+/-20	120	1.14	1.96	-	55	4560	U-MOSIX-H
	TPWR7904PB **☆◆#	40	+/-20	150	0.79	1.3	-	85	6650	U-MOSIX-H
	XPW6R30ANB *☆◆#$	100	+/-20	45	6.3	9.5	-	52	3240	U-MOSVIII-H
	XPW4R10ANB **☆◆#	100	+/-20	70	4.1	6.2	-	75	4970	U-MOSVIII-H

L-TOGL™

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ max (mΩ)		Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	$\|V_{GS}\|$= 10 V	$\|V_{GS}\|$= 6 V			
N-ch	XPQ1R004PB ☆#%	40	+/-20	200	1.0	1.8	84	5300	U-MOSIX-H
	XPQR3004PB ☆#%	40	+/-20	400	0.30	0.47	295	20700	U-MOSIX-H
	XPQR8308QB ☆#%	80	+/-20	350	0.83	1.23	305	19000	U-MOSX-H
	XPQ1R00AQB ☆#%	100	+/-20	300	1.03	1.93	269	16500	U-MOSX-H

☆ New Products, ★ Under Development (The specification is subject to change without notice.)
AEC-Q101 qualified, $ With protection Zener diode between gate and source, ◆ Wettable Flank Lead Terminal
* DSOP Advance(WF)M, ** DSOP Advance(WF)L
% V_{th} pairing is possible.

4. Silicon Carbide (SiC) MOSFETs Series

TO-3P(N)

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ typ. (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=20 V			
N-ch	TW070J120B	1200	+25/-10	36	0.07	67	1680	2nd generation

TO-247

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ typ. (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=18 V			
N-ch	TW107N65C ☆	650	+25/-10	20	0.107	21	600	3rd generation
	TW083N65C ☆	650	+25/-10	30	0.083	28	873	3rd generation
	TW048N65C ☆	650	+25/-10	40	0.048	41	1362	3rd generation
	TW027N65C ☆	650	+25/-10	58	0.027	65	2288	3rd generation
	TW015N65C ☆	650	+25/-10	100	0.015	128	4850	3rd generation
	TW140N120C ☆	1200	+25/-10	20	0.14	24	691	3rd generation
	TW060N120C ☆	1200	+25/-10	36	0.06	46	1530	3rd generation
	TW045N120C ☆	1200	+25/-10	40	0.045	57	1969	3rd generation
	TW030N120C ☆	1200	+25/-10	60	0.03	82	2925	3rd generation
	TW015N120C ☆	1200	+25/-10	100	0.015	158	6000	3rd generation

TO-247-4L

Circuit Configuration	Part Number	Absolute Maximum Ratings			$R_{DS(ON)}$ typ. (Ω)	Q_g typ. (nC)	C_{iss} typ. (pF)	Remark
		V_{DSS} (V)	V_{GSS} (V)	I_D (A)	V_{GS}=18 V			
N-ch	TW107Z65C ★	650	(+25/-10)	(20)	(0.107)	(21)	(600)	3rd generation
	TW083Z65C ★	650	(+25/-10)	(30)	(0.083)	(28)	(873)	3rd generation
	TW048Z65C ★	650	(+25/-10)	(40)	(0.048)	(41)	(1362)	3rd generation
	TW027Z65C ★	650	(+25/-10)	(58)	(0.027)	(65)	(2288)	3rd generation
	TW015Z65C ★	650	(+25/-10)	(100)	(0.015)	(128)	(4850)	3rd generation
	TW140Z120C ★	1200	(+25/-10)	(20)	(0.14)	(24)	(691)	3rd generation
	TW060Z120C ★	1200	(+25/-10)	(36)	(0.06)	(46)	(1530)	3rd generation
	TW048Z120C ★	1200	(+25/-10)	(40)	(0.048)	(57)	(1969)	3rd generation
	TW030Z120C ★	1200	(+25/-10)	(60)	(0.03)	(82)	(2925)	3rd generation
	TW015Z120C ★	1200	(+25/-10)	(100)	(0.015)	(158)	(6000)	3rd generation

☆ New Products
★ Under Development (The specification is subject to change without notice.)

5. Part Naming Conventions

Conventional Multi-Pin Series

Ex) TPC8 0 67 -H
① ② ③ ④

① Package
TPC8: SOP-8 Series
TPCC8: TSON Advance Series TPCA8: SOP Advance Series
② Polarity / Configuration
0: N-channel, single 3: P-channel, dual
1: P-channel, single 4: N-channel and P-channel, dual
2: N-channel, dual J: P-channel and NPN
③ Serial number of the products
④ Additional information
H: High-speed type None: Low-on-resistance type

New Multi-Pin Series

Ex) TPH 4R3 0 4 N C 5
① ② ③ ④ ⑤ ⑥ ⑦

① Package
TPP: PS-8 Series TPH / XPH: SOP Advance Series
TPN / XPN: TSON Advance Series TP8: SOP-8 Series
TPW / XPW: DSOP Advance Series XPQ: L-TOGL™ Series
② Max. on-resistance (at max drive conditions)
R79 = 0.79 mΩ 100 = 10 x 10^0 = 10 mΩ
4R3 = 4.3 mΩ 101 = 10 x 10^1 = 100 mΩ
③ Polarity / Configuration
0: Single N-ch 1: Single P-ch
④ Drain-source voltage (V_{DSS})
2: 15 to 24 V 7: 65 to 74 V D: 180 to 199 V
3: 25 to 34 V 8: 75 to 84 V E: 200 to 249 V
4: 35 to 44 V A: 95 to 124 V F: 250 to 299 V
5: 45 to 54 V B: 125 to 149 V
6: 55 to 64 V C: 150 to 179 V
⑤ Series
M: U-MOSⅥ N: U-MOSⅧ / U-MOSⅧ-H P: U-MOSⅨ-H
Q: U-MOSⅩ-H
⑥ Additional information (1)
1 to 5: Serial number of the products
A: V_{GS} = 10 V (Drive)
B: V_{GS} = 6 V (Drive)
C: V_{GS} = 4.5 V (Drive)
D: V_{GS} = 2.5 V (Drive)
E: V_{GS} = 2.0 V (Drive)
F: V_{GS} = 1.8 V (Drive)
H: Low-rg, V_{GS} = 10 V (Drive)
M: Low-rg, V_{GS} = 6 V (Drive)
L: Low-rg, V_{GS} = 4.5 V (Drive)
Q: $T_{ch(max)}$ = Guaranteed up to 175 ℃ + ZD
R: $T_{ch(max)}$ = Guaranteed up to 150 ℃ + ZD
S: $T_{ch(max)}$ = Guaranteed up to 175 ℃
T: $T_{ch(max)}$ = Guaranteed up to 150 ℃
U: Low spike
⑦ Additional information (2)
5: Fast body diode type

Silicon carbide (SiC) Series

Ex) TW 070 J 120 B
① ② ③ ④ ⑤

① Polarity
TW: N-channel
② Typ. on-resistance (at max drive conditions)
070 = 70 mΩ
③ Package
A: TO-220SIS N: TO-247
E: TO-220 V: DFN8x8
J: TO-3P(N) Z: TO-247-4L
④ Drain-source voltage V_{DSS} : Display value x 10 times = V_{DSS}
120: V_{DSS} = 1200 V
⑤ Generation
B: 2nd Generation C: 3rd Generation

3-Pin Series

Ex) TK 40 S 10 K 3 Z
① ② ③ ④ ⑤ ⑥ ⑦

① Polarity
TK: N-channel TJ: P-channel
② Drain current (I_D)
③ Package
A: TO-220SIS N: TO-247
E: TO-220 P: DPAK / New PW-Mold
F: TO-220SM(W) Q: IPAK / New PW-Mold2
G: D2PAK S: DPAK+
J: TO-3P(N) V: DFN8x8
L: TO-3P(L) Z: TO-247-4L
④ Drain-source voltage (V_{DSS}) Display value x 10 = V_{DSS}
06: V_{DSS} = 60 V 10: V_{DSS} = 100 V
⑤ Series
A: π-MOSⅣ J: U-MOSⅢ U: DTMOSⅡ
C: π-MOSⅥ K: U-MOSⅣ V: DTMOSⅢ
D: π-MOSⅦ M: U-MOSⅥ W: DTMOSⅣ
E: π-MOSⅧ N: U-MOSⅧ X: DTMOSⅣ-H
⑥ Additional information (1)
1: Low-capacitance type 5: Fast body diode type
3 : Low-on-resistance type
⑦ Additional information (2)
L: V_{GS} = 4.5 V (Drive) S: V_{GS} = 4.5 V (Drive)
H: V_{GS} = 10 V (Drive) Z: With protection Zener diode
M: V_{GS} = 6 V (Drive) between gate and source

New 3-Pin Series

Ex) TK R74 F 04 P B
① ② ③ ④ ⑤ ⑥

① Polarity
TK / XK: N-channel TJ / XJ: P-channel
② Max, on-resistance V_{DSS} = 400 V less than the product
(at max drive conditions)
R74 = 0.74 mΩ 100 = 10 x 10^0 = 10 mΩ
8R2 = 8.2 mΩ 101 = 10 x 10^1 = 100 mΩ
Max, on-resistance V_{DSS} = 400 V or more products
(at max drive conditions)
047 = 0.047 Ω 410 = 0.41 Ω 4K7 = 4.7 Ω
③ Package
A: TO-220SIS P: DPAK / New PW-Mold
E: TO-220 Q: IPAK / New PW-Mold2
G: D2PAK S: DPAK+
J: TO-3P(N) U: TOLL
L: TO-3P(L) V: DFN8x8
N: TO-247 Z: TO-247-4L
④ Drain-source voltage V_{DSS}: Display value x 10 times = V_{DSS}
04: V_{DSS} = 40 V 10: V_{DSS} = 100 V
⑤ Series
F: π-MOSⅨ N: U-MOSⅧ-H Y: DTMOSⅤ
M: U-MOSⅥ P: U-MOSⅨ-H Z: DTMOSⅥ
⑥ Additional information
A: V_{GS} = 10 V (Drive) H: Low-rg, V_{GS} = 10 V (Drive)
B: V_{GS} = 6 V (Drive) M: Low-rg, V_{GS} = 6 V (Drive)
C: V_{GS} = 4.5 V (Drive) L: Low-rg, V_{GS} = 4.5 V (Drive)

JEITA registration Item Series

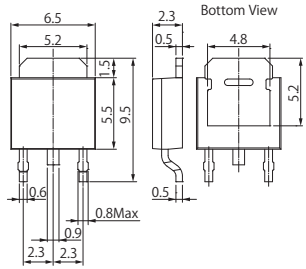
Ex) N-channel MOS P-channel MOS
2SK ✻✻✻✻ 2SJ ✻✻✻✻

6. Device Packages

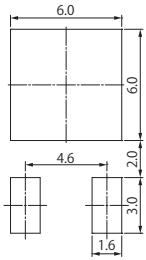
Surface Mount Type

DPAK+ (6.5 x 9.5)

Package dimension unit : mm

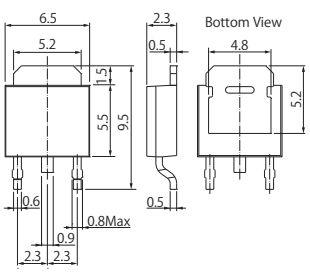


Land pattern example unit : mm

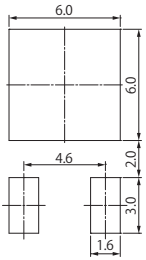


New PW-Mold (6.5 x 9.5)

Package dimension unit : mm

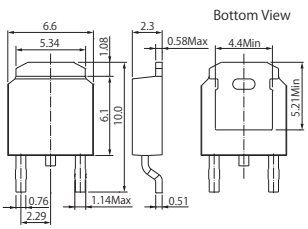


Land pattern example unit : mm

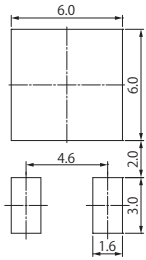


DPAK 2-7K1S (TO-252) (6.6 x 10.0)

Package dimension unit : mm

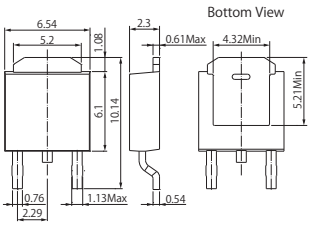


Land pattern example unit : mm

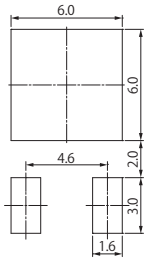


DPAK 2-7N1S (TO-252)

Package dimension unit : mm

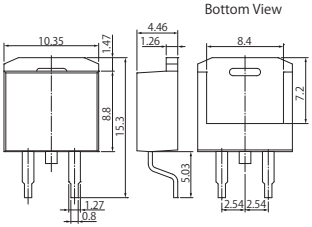


Land pattern example unit : mm

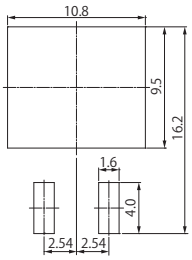


D2PAK (10.35 x 15.3)

Package dimension unit : mm

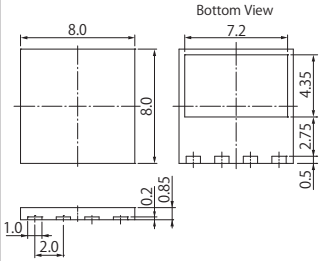


Land pattern example unit : mm

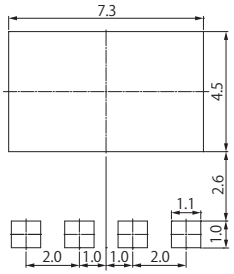


DFN8x8 (8.0 x 8.0)

Package dimension unit : mm



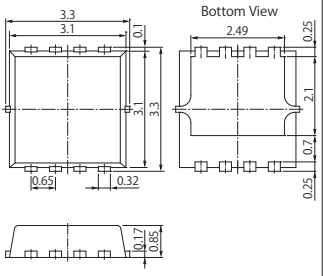
Land pattern example unit : mm



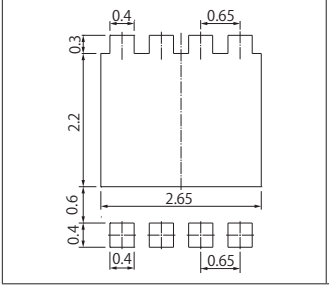
Surface Mount Type

TSON Advance (3.1 x 3.3)

Package dimension unit : mm

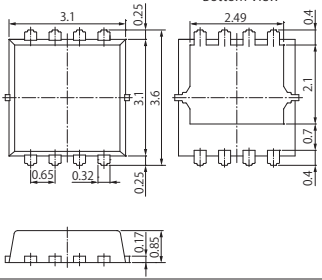


Land pattern example unit : mm

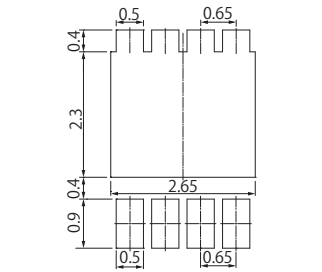


TSON Advance (WF) (3.1 x 3.6) ★

Package dimension unit : mm

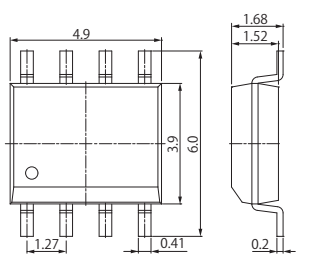


Land pattern example unit : mm

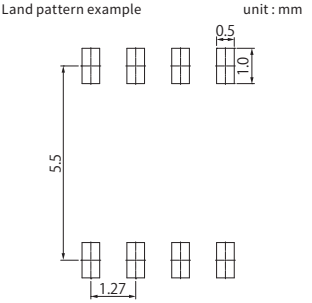


SOP-8 2-5R1S (4.9 x 6.0)

Package dimension unit : mm



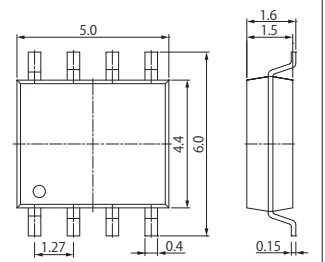
Land pattern example unit : mm



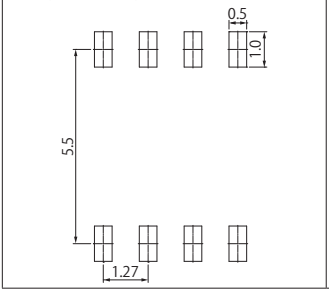
★ Wettable Flank Lead Terminal

SOP-8 2-6J1S

Package dimension unit : mm

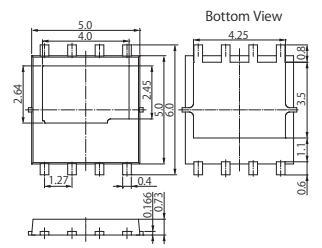


Land pattern example unit : mm

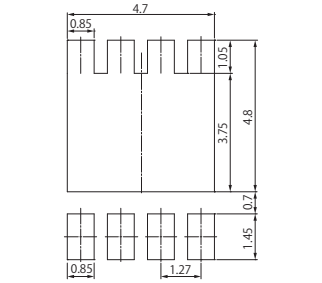


DSOP Advance (5.0 x 6.0)

Package dimension unit : mm

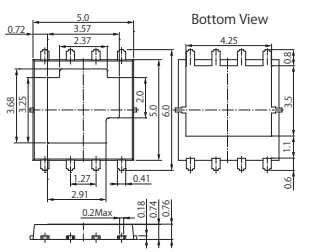


Land pattern example unit : mm

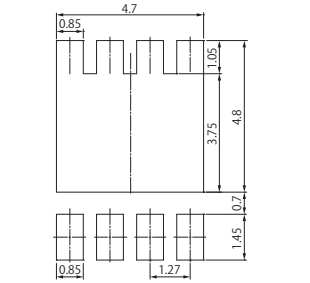


DSOP Advance (WF)L (5.0 x 6.0) ★

Package dimension unit : mm



Land pattern example unit : mm

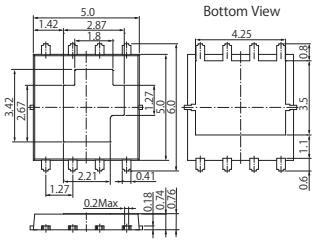


★ Wettable Flank Lead Terminal

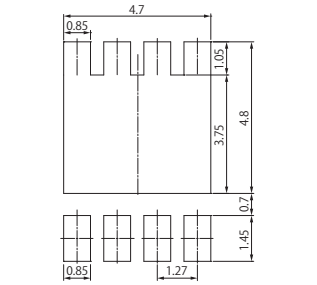
Surface Mount Type

DSOP Advance (WF)M (5.0 x 6.0) ★

Package dimension unit : mm

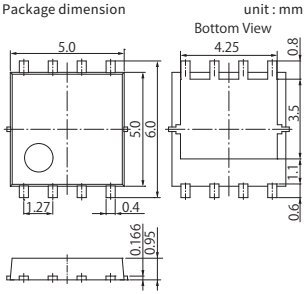


Land pattern example unit : mm

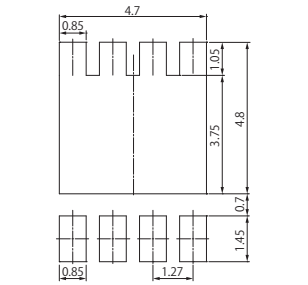


SOP Advance (5.0 x 6.0)

Package dimension unit : mm

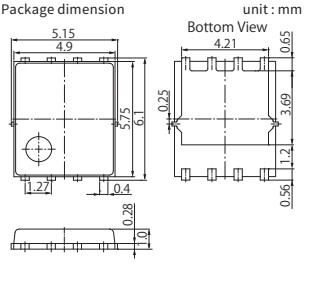


Land pattern example unit : mm

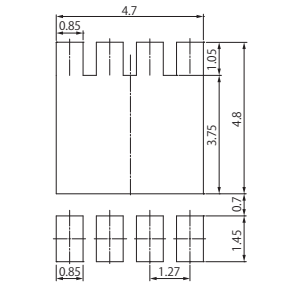


SOP Advance(N) (4.9 x 6.1)

Package dimension unit : mm



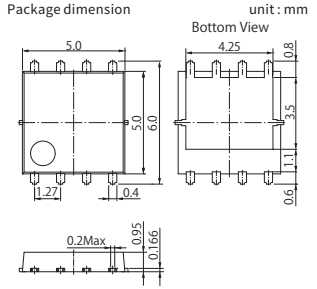
Land pattern example unit : mm



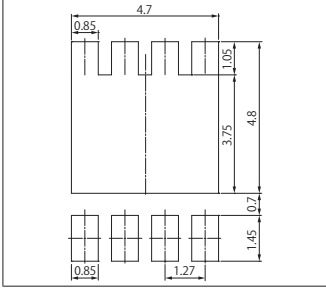
★ Wettable Flank Lead Terminal

SOP Advance(WF) (5.0 x 6.0) ★

Package dimension unit : mm

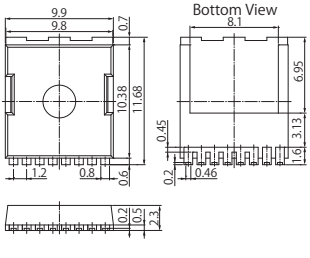


Land pattern example unit : mm

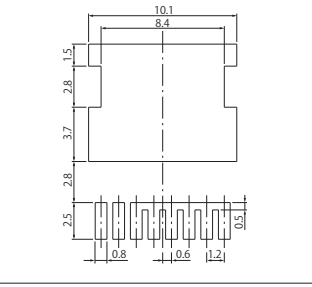


TOLL (9.9 x 11.68)

Package dimension unit : mm

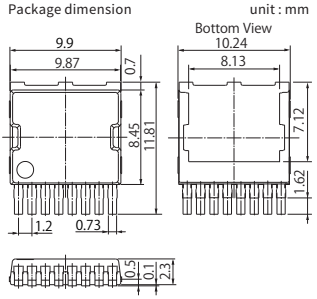


Land pattern example unit : mm

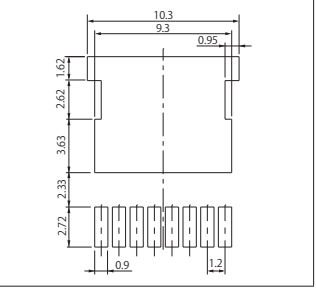


L-TOGL™ (9.9 x 11.81)

Package dimension unit : mm



Land pattern example unit : mm

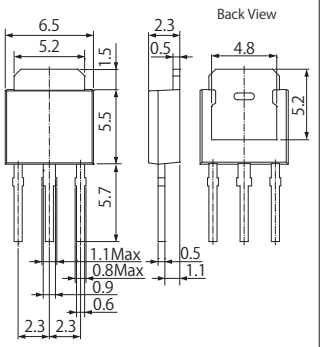


★ Wettable Flank Lead Terminal

Through Hole Type

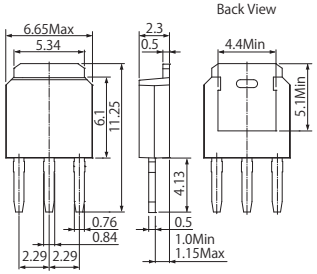
New PW-Mold2 (6.5 x 5.5)

Package dimension unit : mm



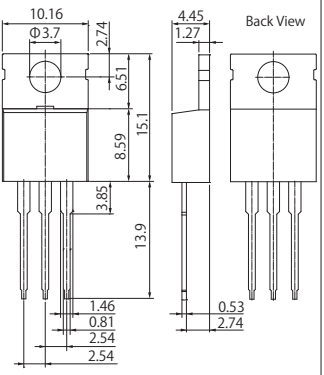
IPAK (6.65 x 6.1)

Package dimension unit : mm



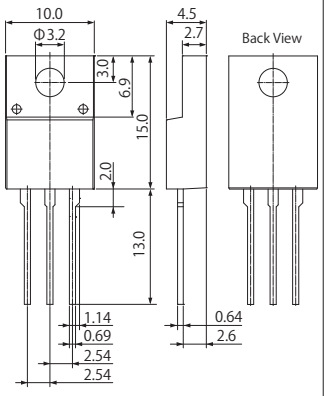
TO-220 (10.16 x 15.1)

Package dimension unit : mm



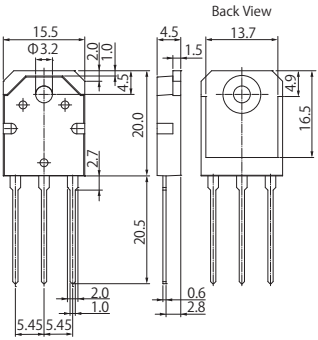
TO-220SIS (SC-67) (10.0 x 15.0)

Package dimension unit : mm



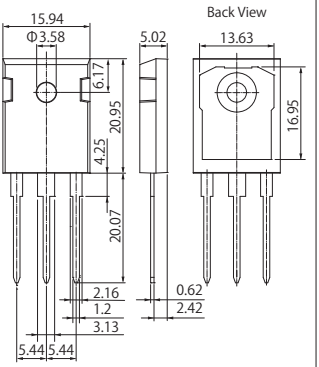
TO-3P(N) (SC-65) (15.5 x 20.0)

Package dimension unit : mm



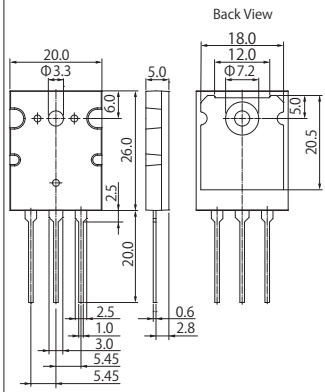
TO-247 (15.94 x 20.95)

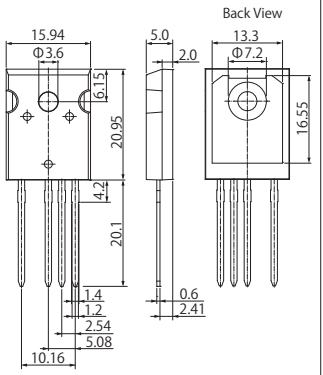
Package dimension unit : mm



Through Hole Type

TO-3P(L) (20.0 x 26.0)	TO-247-4L (15.94 x 20.95)
Package dimension unit : mm	Package dimension unit : mm





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