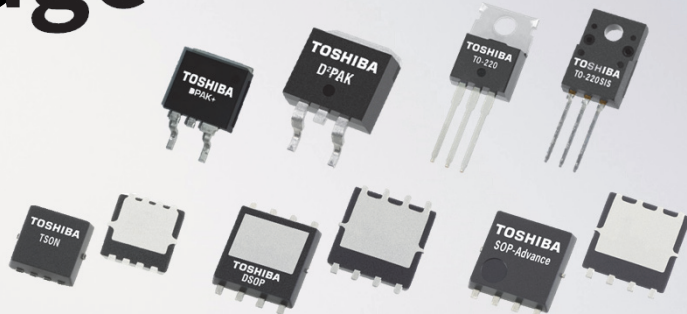


Low Voltage MOSFETs



Highest Efficiency at Light Loads

U-MOS VIII-H and IX are high-efficiency Low Voltage (LV) MOSFET series, specifically designed for use in the secondary side of AC-DC power supplies for adapters, servers etc. as well as DC-DC power supplies for communication equipment, servers and data center. U-MOS IX is also suitable for motor drives, UPS and machine tools. The U-MOS VIII-H and IX series provide higher efficiency at light loads while providing the same efficiency as competitors' devices at heavy loads. U-MOS IX and X item are specified up to 175°C for use in higher temperature applications.

Applications

- Power supplies
- Industry automation
- Servers
- Adapters
- UPS
- Machine tools
- Battery packs
- Welding

Features

- Latest Gen-10 and Gen-9 trench MOS process, complementing Gen-8 lineup
- Increased Tj:175°C since Gen-9
- Improved energy efficiency categories
- Highest performance in on-resistance per die area (R_{ON-A})
- Wide range of V_{DSS} (30V-250V) and $R_{DS(ON)}$ values down to 0.6mΩ
- Package option dual side cooling
- Low spike solutions since Gen-9

Advantages

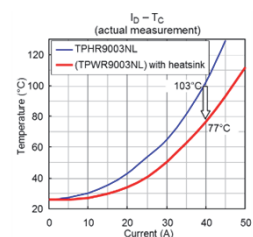
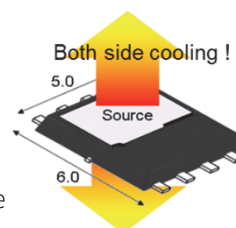
- Wide product lineup is applicable in various power apps.
- More thermal safety head room
- Significantly better trade-offs between on-resistance ($R_{DS(ON)}$) and charge characteristics.
- High avalanche ruggedness
- Reduced electromagnetic radiation
- Ideal for applications that require power density, smaller size etc.
- Less EMI effects at low spike type








Benefits

- Attractive cost effects
- Lower system costs due to fast switching & smaller form factor
 - Low service costs based on increased lifetime (cooler system) to reduce costs of operation failures
 - Flexible system costs by cost variations related to product construction (topology)
- Smart performance increases
- Improved end product quality
 - Improved end product reliability
 - Increased demand and market share

Dual side cooling

The new DSOP dual-side cooling package can use the same footprint as the 5x6mm SOP-Advanced. Due to the strongly reduced thermal resistance, the maximum load can be increased considerably. Alternatively the MOSFET temperature can be reduced to increase long term reliability.



V_{DS} (V)	$R_{DS(ON)}$ In mΩ	TO-220SIS	TO-220	D2-PAK (TO-263)	SOP Advance 5x6mm	DSOP Advance 5x6mm	TSON Advance 3x3mm	CPAK
								
30	10-20				TPH11003NL		TPN11003NL	
	5-10				TPH8R903NL TPH6R003NL		TPN8R903NL TPN6R003NL TPN6R303NC TPN5R203PL**	
	3-5				TPH4R003NL TPH3R203NL		TPN4R203NC TPN4R303NL	
	1-3				TPH3R003PL** TPH2R903PL** TPH2R003PL** TPH1R403NL		TPN2R203NC TPN2R503NC TPN2R703NL TPN2R903PL**	
	<1				TPHR9003NL TPHR9203PL** TPHR6503PL**	TPWR8503NL TPWR6003PL**	TPN1R603PL**	
40	5-10				TPH7R204PL** TPH6R004PL**		TPN7R504PL**	
	3-5	TK3R1A04PL**	TK3R1E04PL**		TPH3R704PL**		TPN3R704PL**	TK3R1P04PL**
	<3			TK1R5R04PB** TK1R4F04PB**	TPH2R104PL** TPH1R204PB** TPH1R204PL**		TPN2R304PL**	
	<1			TKR74F04PB**	TPHR8504PL**	TPWR8004PL**		
60	10-30	TK30A06N1 TK40A06N1	TK30E06N1 TK40E06N1		TPH14006NH TPH11006NL		TPN22006NH TPN14006NH TPN11006PL**	
	6-10	TK58A06N1 TK8R2A06PL**	TK58E06N1 TK8R2E06PL**		TPH9R506PL** TPH7R506NH TPH7R006PL**		TPN7R506NH TPN7R006PL**	TK6R7P06PL**
	3-6	TK5R3A06PL** TK4R3A06PL**	TK5R1E06PL** TK4R3E06PL**		TPH5R906NH TPH3R506PL**		TPN4R806PL**	TK4R4P06PL**
	1-3	TK100A06N1 TK3R3A06PL**	TK100E06N1		TPH2R306NH TPH2R506PL** TPH1R306PL** TPH1R306P1**	TPW1R306PL**		
75	1-3			TPH2R608NH	TPW2R508NH			
80	30-50						TPN30008NH	
	10-20	TK35A08N1	TK35E08N1		TPH12008NH		TPN19008QM*** TPN13008NH	NEW
	5-10	TK46A08N1	TK46E08N1		TPH8R008NH			
	2-5	TK72A08N1 TK100A08N1	TK72E08N1 TK100E08N1		TPH4R008NH TPH2R408QM***	TPW4R008NH		
100	30-50						TPN3300ANH	
	10-30	TK22A10N1 TK110A10PL	TK22E10N1 TK110E10PL		TPH1400ANH		TPN1600ANH TPN1200APL**	TK110P10PL**
	5-10	TK34A10N1 TK40A10N1 TK7R4A10PL TK6R7A10PL	TK34E10N1 TK40E10N1 TK7R2E10PL TK6R4E10PL	TK60R10N1L	TPH8R80ANH TPH6R30ANL			TK7R7P10PL**
	3-5	TK65A10N1 TK4R1A10PL TK100A10N1 TK3R2A10PL	TK65E10N1 TK3R9E10PL TK100E10N1	TK65G10N1	TPH5R60APL** TPH4R50ANH TPH4R10ANL TPH3R70APL**	TPW4R50ANH TPW3R70APL**		
	<3		TK2R9E10PL	TK160F10N1*				
120	10-20	TK32A12N1	TK32E12N1					
	5-10	TK42A12N1 TK56A12N1	TK42E12N1 TK56E12N1					
	3-5	TK72A12N1	TK72E12N1					
150	50-100				TPH5900CNH		TPN5900CNH	
	20-50				TPH3300CNH			
	10-20				TPH1500CNH	TPW1500CNH		
200	100-200				TPH1110FNH		TPN1110FNH	
	50-100				TPH6400FNH			
	20-50				TPH2900FNH	TPW2900FNH		
250	200-300				TPH2010FNH		TPN2010FNH	
	100-200				TPH1110FNH			
	50-100				TPH5200FNH	TPW5200FNH		

* TO-220SM(W) package; ** U-MOS IX technology; *** U-MOS X technology

202001

© 2020 Toshiba Electronic Devices & Storage Corporation
Product specifications are all subject to change without notice. Product design specifications and colours are subject to change without notice and may vary from those shown. Errors and omissions excepted.

toshiba.semicon-storage.com