aimtec
Your Power Partner

Series AM100QB-NZ

100 Watt | DC-DC Converter

Picture coming soon

FEATURES:

- Wide Input Range 66-160V
- Low no-load Power
- Efficiency up to 92%
- 3000VDC I/O Isolation
- Remote ON/OFF Control
- Meet Railway Standard: EN50155
- Industry Standard: 1/4 Brick
- Operating temperature -40˚C to + 100˚C
- Over Current, Over Voltage, Over Temperature & Continuous Short Circuit Protection

RoHS

Models
Single output

Model	Input Voltage (V)	Input Current No load/Full load (mA)	Output Voltage (V)	Output Current max (A)	Max Capacitive load (µF)	Efficiency (%)
AM100QB-11012S-NZ	66-160	15/1044	12	8.333	6,000	89
AM100QB-11015S-NZ	66-160	15/1044	15	6.667	4,700	89
AM100QB-11024S-NZ	66-160	15/1010	24	4.167	3,000	92

Add suffix “-K” for optional heatsink

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	110	66-160	170	VDC
Filter	π(Pi) Network			
Startup time		25		ms
Absolute Maximum Rating			180	VDC
Peak Input Voltage time			1,000	ms
Input reflected ripple current	Measured with the referenced circuit	50		mA p-p
Under Voltage Lockout (On/Off)		58		VDC
Remote On / OFF Control	ON: TTL high level or Open Circuit OFF: 0 ~ 1.2Vdc or Ctrl connected to -Vin			VDC

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60s		3000	VDC
Case Input & Output	60s		1500	VDC
Resistance		>1000		MOhm
Capacitance		2200		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy			±2	%
Over voltage protection	Zener Diode Clamp			
Over load protection	Hiccup	110%~180%		
Short Circuit protection	Continuous, Auto-recovery			
Thermal shutdown	On Case	115		ºC
Line voltage regulation		±0.3		% of Vin
Load voltage regulation	0% to 100% Full Load, Single		±0.5	%
Temperature coefficient		±0.03		%/ºC
Ripple & Noise	20MHz Bandwidth	100	300	mV p-p
Transient Response Deviation		±3	±5	% of Max
Transient Recovery		300	500	µsec
Voltage adjustment range		-5/+10		%

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	220		KHz
Operating temperature	With derating (see graph below)	-40 to +100		°C
Storage temperature	-55 to +125			°C
Maximum case temperature			110	°C
Cooling	Free Air Convection or Forced Convection 200-1000 LFM airflow			
Humidity			95	% RH
Case material	Non-conductive Black Plastic (UL94V-0 rated)			
Weight	46			g
Weight (with Heatsink)	76			g
Dimensions (L x W x H)	2.394 x 1.543 x 0.5 inches 60.8 x 39.2 x 12.7 mm			
Dimensions (L x W x H) with Heatsink	2.441 x 1.543 x 1.212 inches 62.0 x 39.2 x 30.8 mm			
MTBF	>500,000 hrs (MIL-HDBK-217 F at +25 °C)			
Maximum soldering temperature	1.5mm from case for 10 sec	260		°C

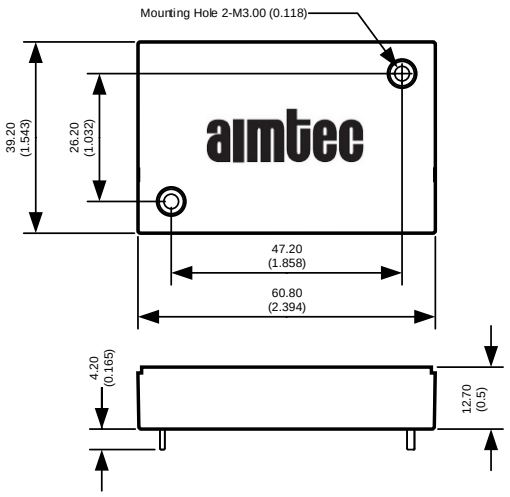
Safety Specifications

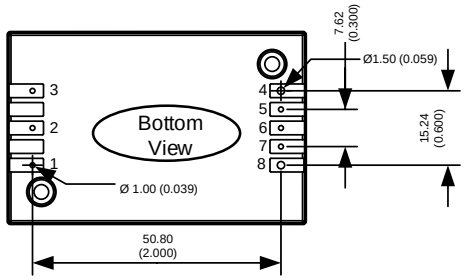
Parameters		
Standards	EMI - Conducted and radiated emission	EN55022, class B (with the recommended EMC circuit)
	Electrostatic Discharge Immunity	IEC 61000-4-2, Criteria B
	RF, Electromagnetic Field Immunity	IEC 61000-4-3, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4, Criteria B, (with the recommended EMC circuit)
	Surge Immunity	IEC 61000-4-5, Criteria B, (with the recommended EMC circuit)
		EN50155, +/-1.8kV (5/50us) Criteria B
	RF, Conducted Disturbance Immunity	IEC 61000-4-6, Criteria A
	Immunity of Short interruption	EN50155, 100%-0%, 10ms, Criteria B

Pin Out Specifications

Pin	Single
1	+V Input
2	On/Off Control
3	-V Input
4	Vo -
5	Sense -
6	Trim
5	Sense +
6	Vo +

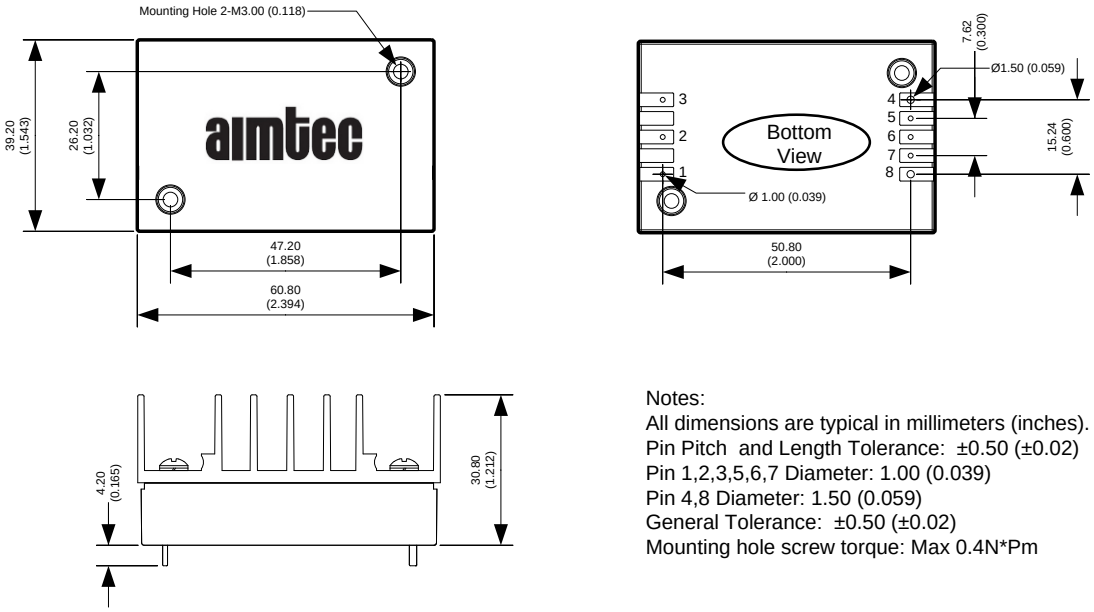
Dimensions





Notes:
All dimensions are typical in millimeters (inches).
Pin Pitch and Length Tolerance: ±0.50 (±0.02)
Pin 1,2,3,5,6,7 Diameter: 1.00 (0.039)
Pin 4,8 Diameter: 1.50 (0.059)
General Tolerance: ±0.50 (±0.02)
Mounting hole screw torque: Max 0.4N*Pm

Dimensions with Optional Heatsink (-K option)



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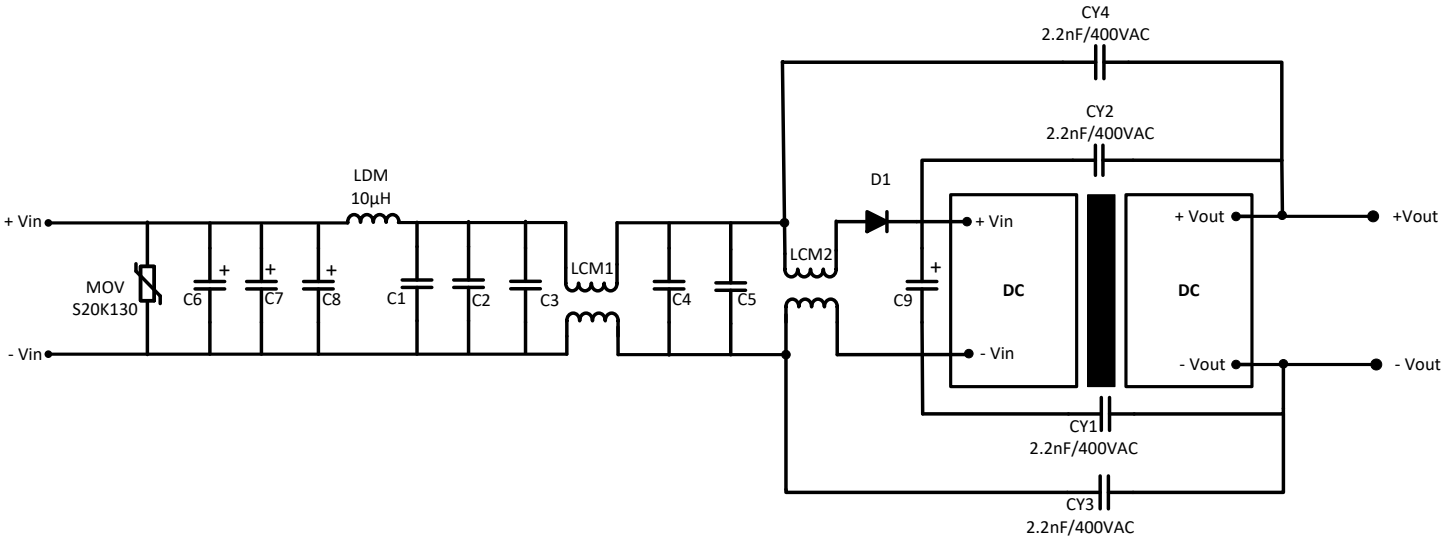
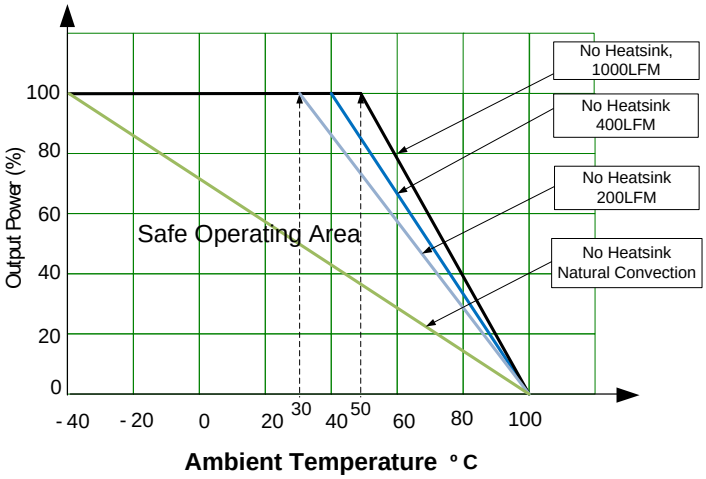
Recommended EMC Circuits



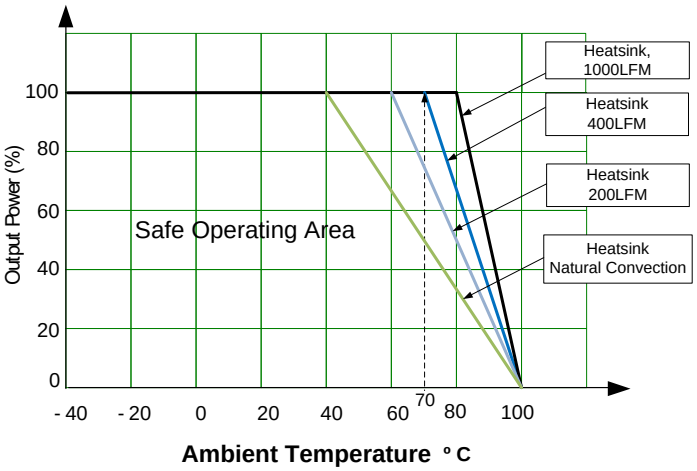
MOV	S20K130 (Varistor)
C6, C7, C8, C9	100uF/400V (Electrolytic Capacitor
C1, C2, C3, C4, C5	2.2uF/250V
LDM	10uH (Shielded Inductor)
LCM1	2200uH, 3.0A min.
LCM2	4400uH, 3.0A min.
D1	SF306
CY1, CY2, CY3, CY4	2.2nF / 400Vac (Y2 Safety Capacitor

Derating

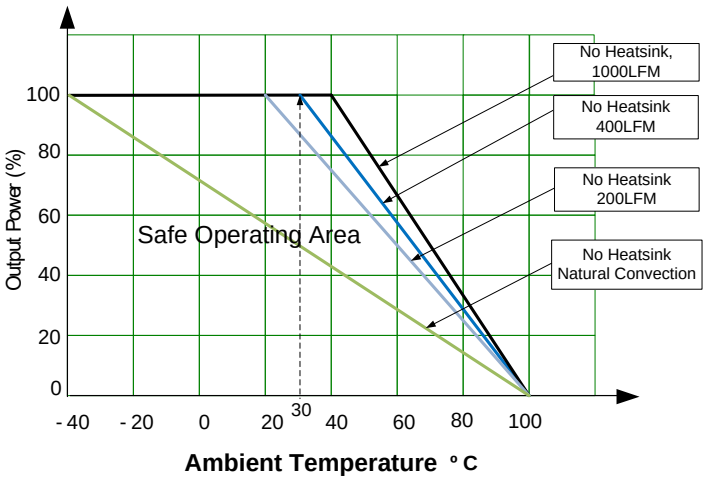
AM100QB-11012S-NZ



AM100QB-11012S-NZ-K



AM100QB-11015S-NZ



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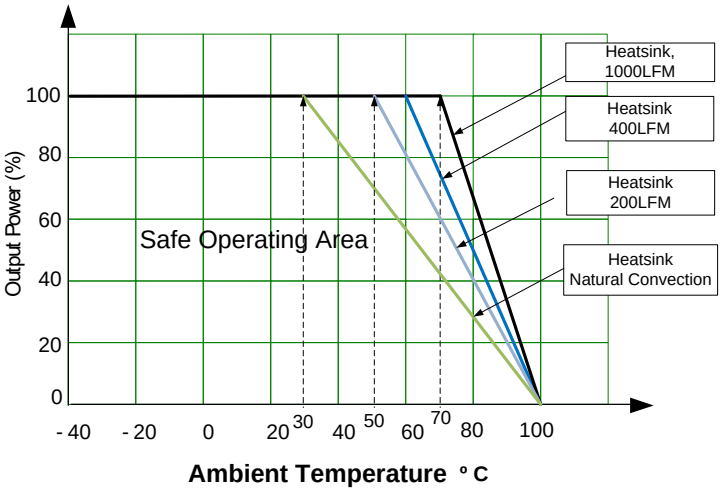

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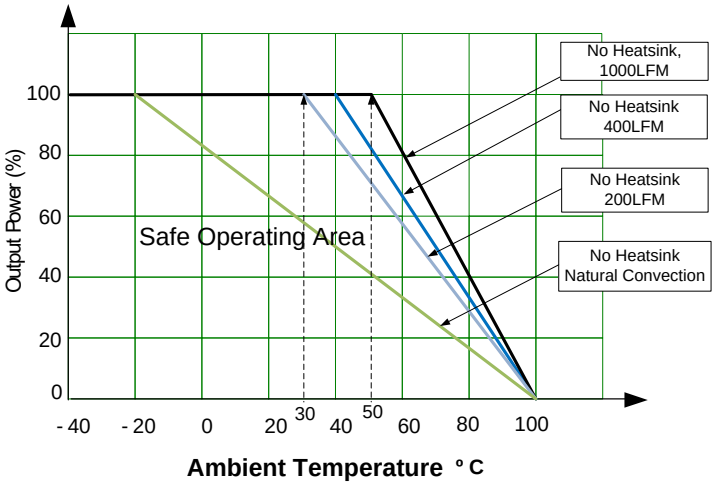
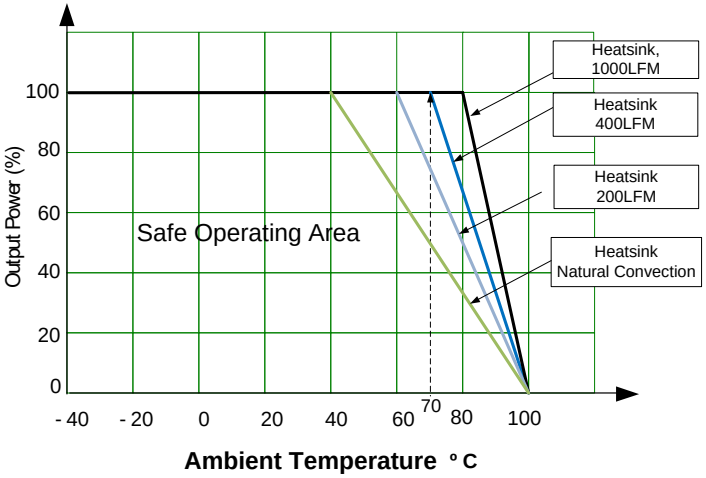


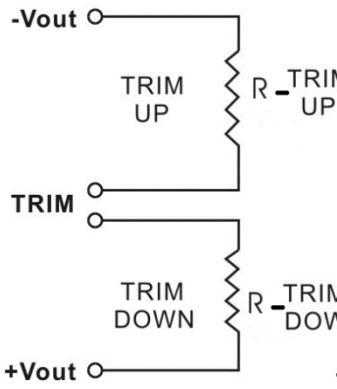
AM100QB-11024S-NZ-K



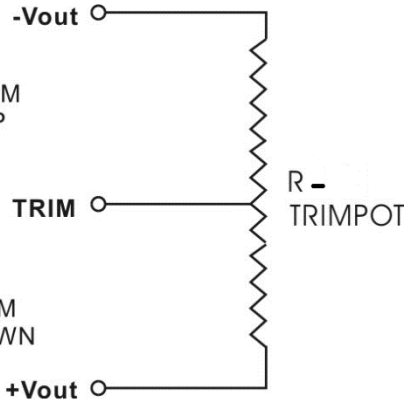
Trimming

Output voltage can be externally trimmed by utilizing the methods as shown below

Fixed Resistor



Variable Potentiometer



Leave open if not used.

AM100QB-11012S-NZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	11.88	11.76	11.64	11.52	11.4	11.28	11.16	11.04	10.92	10.8
Rt down (KΩ)	496.091	301.451	212.527	161.585	128.573	105.441	88.332	75.163	64.715	56.223
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	12.12	12.24	12.36	12.48	12.6	12.72	12.84	12.96	13.08	13.2
Rt up (KΩ)	706.435	158.920	83.878	54.074	38.076	28.095	21.274	16.316	12.551	9.594

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Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	14.85	14.7	14.55	14.4	14.25	14.1	13.95	13.8	13.65	13.5
Rt down (KΩ)	643.028	403.954	290.279	223.84	180.26	149.474	126.568	108.86	94.761	83.271
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	15.15	15.3	15.45	15.6	15.75	15.9	16.05	16.2	16.35	16.5
Rt up (KΩ)	1276.5	188.455	95.426	60.777	42.679	31.559	24.034	18.602	14.498	11.287

AM100QB-11024S-NZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	23.76	23.52	23.28	23.04	22.8	22.56	22.32	22.08	21.84	21.6
Rt down (KΩ)	1289.521	792.049	564.771	434.571	350.197	291.076	247.346	213.69	186.986	165.281
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	24.24	24.48	24.72	24.96	25.2	25.44	25.68	25.92	26.16	26.4
Rt up (KΩ)	795.55	176.609	91.778	58.086	40.001	28.717	21.006	15.402	11.146	7.803

NOTE: 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. **2.** Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. **3.** Mechanical drawings and specifications are for reference only. **4.** All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. **5.** Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. **6.** This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. **7.** Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.