

Features

- Universal input: 85~305VAC, 47~63Hz
- Regulated single output Isolation voltage 4000VAC Typical efficiency 81 ... 87%
- Energy saving, standby power only less than 0.1W
- Operating temperature range:-40~+85°C
- No external components required for operating
- Over voltage, over current and short circuit protection
- Meet to IEC/EN/UL62368-1, OVC III, EN60335-1, EN61558-1, FCC, UKCA, CISPR32, EN55032
- Class B with NO externals



3 years
Warranty

Selection Guide

Model Number	Input Voltage [VAC]	Output Voltage [VDC]	Output Current [mA] Max.	Efficiency [%] Typ.	Capacitive Load [uF] Max.
QM20-23B03R2-M	85~305VAC 100~430VDC	3.3	4500	81	8000
QM20-23B05R2-M		5	4000	85	8000
QM20-23B09R2-M		9	2200	85	5400
QM20-23B12R2-M		12	1670	86	4000
QM20-23B15R2-M		15	1330	87	3000
QM20-23B24R2-M		24	830	87	1000

Input & Output Specification

Parameters	Condition	Min.	Typ.	Max.	Unit	Note
Input voltage range	AC in DC in	85 100	-	305 430	VAC VDC	
Input frequency		47	-	63	Hz	
Nominal input voltage		100	-	277	VAC	
Input current	115VAC 230VAC	-	-	0.5 0.3	A	
Inrush current Cold start	115VAC 230VAC	-	20 45	-	A	
Leakage current	277VAC, 50Hz	-	-	0.1	mA RMS	
Output voltage accuracy		-	±3	-	%	
Line regulation	Full load	-	±0.5	-	%	
Load regulation $I_{OUT}=0\% \sim 100\%$ of $I_{OUT, rated}$		-	±1.0	-	%	
Ripple and noise 20MHz bandwidth, peak to peak		-	100	150	mV	
Temperature coefficient		-	±0.03	-	%/°C	
Standby power consumption		-	0.1	-	W	
Hold up time Full load	115VAC 230VAC	-	10 50	-	mS	
Over voltage protection Hiccup or clamping by zener diode	$V_{OUT}=3.3, 5V$ $V_{OUT}=9V$ $V_{OUT}=12, 15V$ $V_{OUT}=24V$	-	-	7.5 15 20 30	VDC	
Over current protection	Automatic recovery	110	-	-	% I_{OUT}	
Short circuit protection		Continuous, hiccup mode, automatic recovery				
Minimum load		No minimum load is required				
Built in fuse		3.15A, 300V slow blow				

* Ripple and noise measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 1uF ceramic capacitor and a 10uF electrolytic capacitor in parallel.

General Specifications

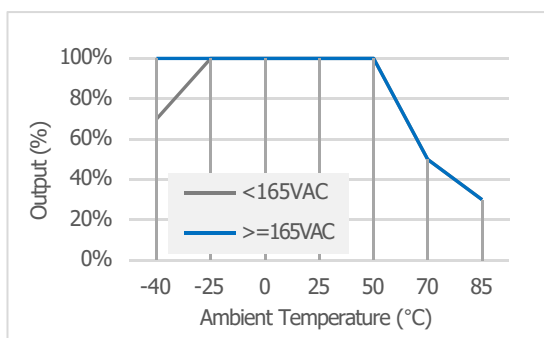
Parameters	Condition	Min.	Typ.	Max.	Unit	Note
Isolation voltage Tested for 1 minute	I/P to O/P	4000	-	-	VAC	
Isolation resistance 500VDC, 25°C, 70%RH	I/P to O/P	100	-	-	M Ohm	
Switching frequency		-	65	-	KHz	
Operating temperature range	See "Derating Curve"	-40	-	85	°C	
Storage temperature		-40	-	105	°C	
Storage humidity		10	-	95	%RH	
Maximum case temperature		-	-	95	°C	
Soldering temperature	5 seconds	-	260	-	°C	
Case material		Black plastic UL94-V0				
Cooling method		Free air convection				
Class II power		Yes, no FG				
Vibration		10Hz to 55Hz, 5G, 30 minutes along X, Y and Z axis				
MTBF	MIL-HDBK-217F	> 1,000,000 Hours, 25°C				
Design based on standards		RoHS & REACH directives, IEC/EN/UL 62368-1, OVC III, EN 60335-1, EN 61558-1, UKCA				
Safety certifications		IEC/EN/UL 62368-1, EN 60335-1, EN 61558-1, FCC, UKCA				
EMC	CE ESD RS EFT Surge CS DIP	CISPR32, EN55032 Class B with "NO External Circuit" IEC/EN61000-4-2, Contact $\pm 6\text{kV}$, Air $\pm 8\text{kV}$, Criteria B IEC/EN61000-4-3, 10V/m, Criteria A IEC/EN61000-4-4, $\pm 2\text{kV}$, Criteria B IEC/EN61000-4-5, Line to Line $\pm 2\text{kV}$, Criteria B IEC/EN61000-4-6, 10Vrms, Criteria A IEC/EN61000-4-11, 0%, 70%, Criteria B				
Size, and Weight		52.4x27.2x24mm, 55g				
Packing		200pcs/Carton, size: 335x345x210mm, 12.5Kg G.W.				

Characteristic Curves

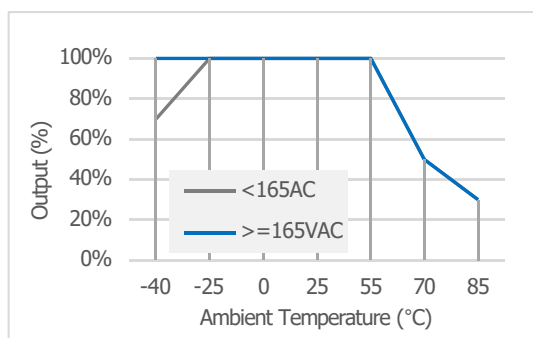
Derating Curve

Output vs Ambient Temperature

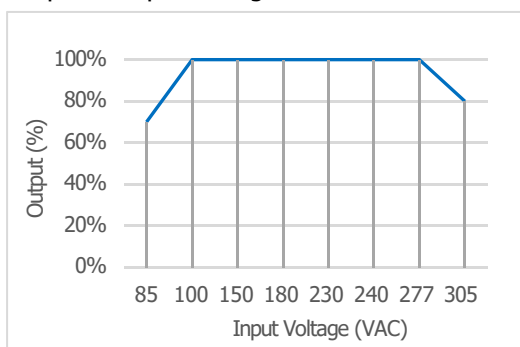
$V_{out}=3.3 \dots 9V$



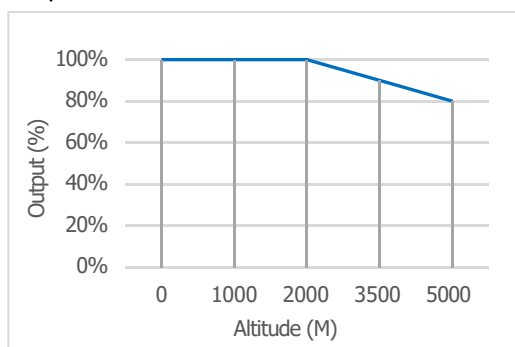
$V_{out}=12 \dots 24V$



Output vs Input Voltage

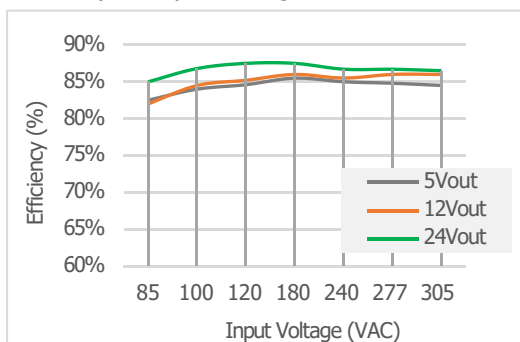


Output vs Altitude

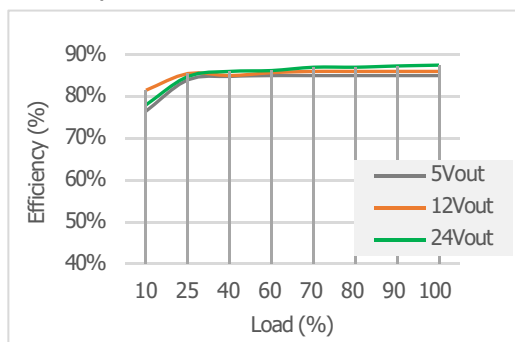


Efficiency Curve

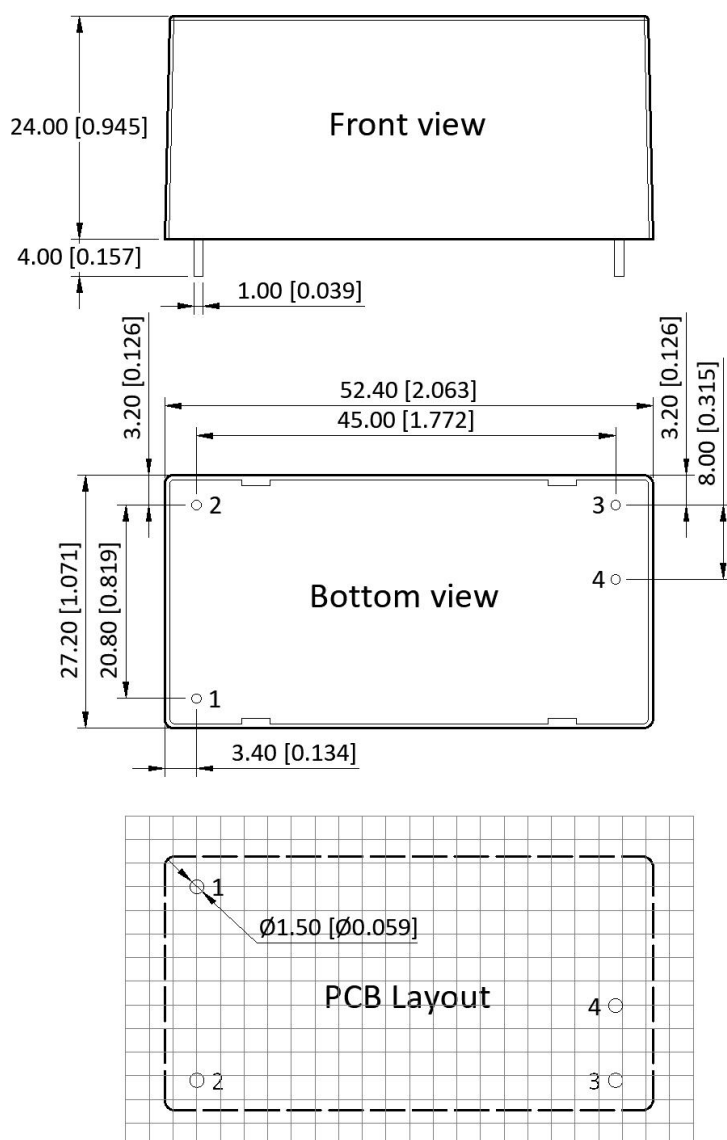
Efficiency vs Input Voltage



Efficiency vs Load



Mechanical Specifications



Pin #	Single Out
1	AC (L)
2	AC (N)
3	-V _{OUT}
4	+V _{OUT}

Unless otherwise specified unit: mm [inch]
 General tolerance: ± 1.00 [± 0.040]
 Pin thickness: ± 0.15 [± 0.006]
 Pin distance: ± 0.50 [± 0.020]
 Footprint grid 2.54 x 2.54 mm

Notes & Instructions

1. If the product works under the minimum required load, it cannot guarantee that the performance of the product complies with all the performance indicators in this manual;
2. The maximum capacitive load is tested under the input voltage range and full load condition;
3. Unless otherwise stated, all indexes in this manual are measured at $T_a=25^\circ\text{C}$, humidity $<75\%\text{RH}$, nominal input voltage and rated output load;
4. All index testing methods in this manual are based on the enterprise standards of the company;
5. Our company can provide product customization, specific needs can directly contact our technical staff;
6. AMCHARD reserves the right to make changes to the product at any time without notice.

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