Features

1. Rated power: 5W Max
2. Universal input: 85~305VAC 47~63Hz
3. Regulated single output Isolation voltage 4000VAC
4. Typical efficiency 70 … 79%
5. Energy saving, standby power only less than 0.1W
6. Operating temperature range: -40~+85°C
7. RoHS compliance
8. Compact 1"x1" package
9. Low profile 15mm height
10. Over voltage, over current and short circuit protection
11. Certified to IEC/EN/UL62368-1, EN60335-1
12. Meet CISPR32, EN55032 Class B with NO external circuit
13. 3 year warranty



RoHS CE 3 years Warranty

Selection Guide

Model Number	Input Voltage [VAC]	Output Voltage [VDC]	Output Current [mA] Max.	Efficiency [%] Typ.	Capacitive Load [uF] Max.
QM05-23B03R2	85~305VAC 100~430VDC	3.3	1200	70	3000
QM05-23B05R2		5	1000	74	3000
QM05-23B09R2		9	555	78	1200
QM05-23B12R2		12	416	79	1200
QM05-23B15R2		15	333	79	680
QM05-23B18R2		18	278	79	220
QM05-23B24R2		24	208	79	220

* Only typical models are listed, other models may be available, upon request.

Input Specification

Parameters	Condition	Min.	Typ.	Max.	Unit
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 & Output Specification

Parameters	Condition	Min.	Typ.	Max.	Unit
Input current	115VAC 230VAC	-	-	0.12 0.07	A
Inrush current Cold start	115VAC 230VAC	-	15 25	-	A
Leakage current	277VAC, 50Hz	-	-	0.25	mA RMS
Output voltage accuracy		-	±3	-	%
Line regulation	Full load	-	±0.5	-	%
Load regulation I_{OUT}=0%~100% of $I_{OUT, rated}$		-	±1.0	-	%
Ripple and noise 20MHz bandwidth, peak to peak		-	50	100	mV
Temperature coefficiency		-	±0.02	-	%/°C
Standby power consumption	230VAC	-	0.1	-	W
Hold up time Full load	115VAC 230VAC	-	5 50	-	mS
Over voltage protection Hiccup or clamping by Zener diode	V_{OUT}=3.3, 5V V_{OUT}=9, 12V V_{OUT}=15V V_{OUT}=24V	-	-	7.5 17 20 30	VDC
Over current protection	Automatic recovery	110	-	-	% I_{OUT}
Short circuit protection		Continuous, hiccup mode, automatic recovery			
Recommended external fuse		1A, 300V, slow blow, *required*			
Minimum load		No minimum load is required			

General Specifications

Parameters	Condition	Min.	Typ.	Max.	Unit
Isolation voltage 1 minute, leakage current 5mA max	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

General Specifications

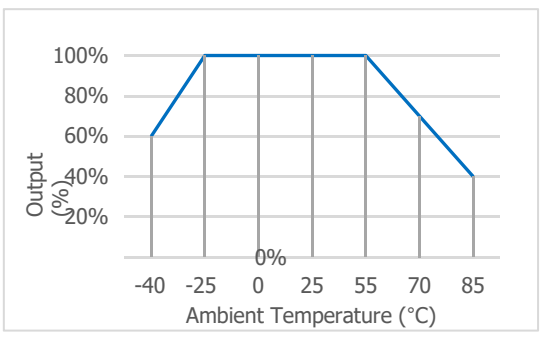
Parameters	Condition	Min.	Typ.	Max.	Unit
Storage humidity		10	-	95	%RH
Maximum case temperature		-	-	95	°C
Operating altitude	See "Derating Curve"	-	-	5000	m
Soldering temperature	5 seconds	-	260	-	°C
Case material		Black plastic UL94-V0			
Cooling method		Free air convection			
Vibration		10Hz to 55Hz, 5G, 30 minutes along X, Y and Z axis			
MTBF	MIL-HDBK-217F	> 1,500,000 Hours, 25°C			
Overvoltage category		OVC II			
Safety class		Class II			
Safety approvals		UL/EN/IEC 62368-1, UKCA, EN 60335-1, EN 61558-1			
EMC standards	CISPR32, EN55032	Class B with "NO External Circuit"			
ESD	IEC/EN61000-4-2	Contact ±6kV, Air ±8kV, perf. Criteria B			
Radiated	IEC/EN61000-4-3	10V/m, perf. Criteria A			
EFT, Burst	IEC/EN61000-4-4	±2kV, perf. Criteria B [1] ±4kV, perf. Criteria B [2]			
Surge	IEC/EN61000-4-5	Line to Line ±1kV, perf. Criteria B [1] Line to Line ±2kV, perf. Criteria B [2]			
Conducted	IEC/EN61000-4-6	10Vrms, perf. Criteria A			
Voltage dips and interruptions	IEC/EN 61000-4-11	0%, 70%, perf. Criteria B			
Size, and Weight		25.4x25.4x15mm, 16g			
Packing info	720 PCS/Carton	421x368x258mm, 13Kg G.W.			

Note [1]: with External Circuit Figure 1, Note [2]: with External Circuit Figure 2

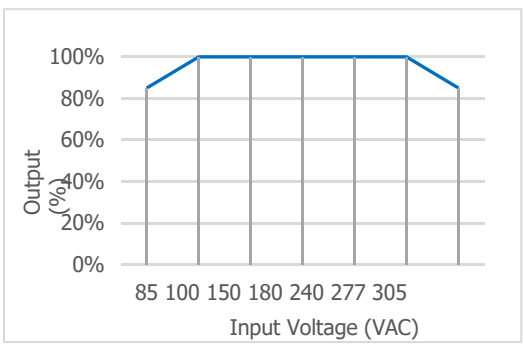
Characteristic Curves

Derating Curves

Output vs Ambient Temperature

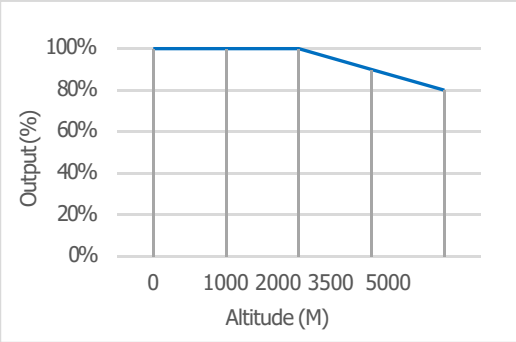


Output vs Input Voltage



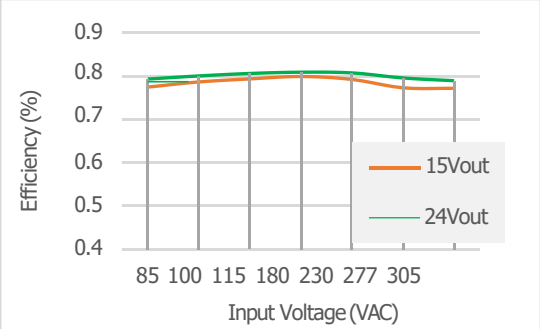
Characteristic Curves

Output vs Altitude

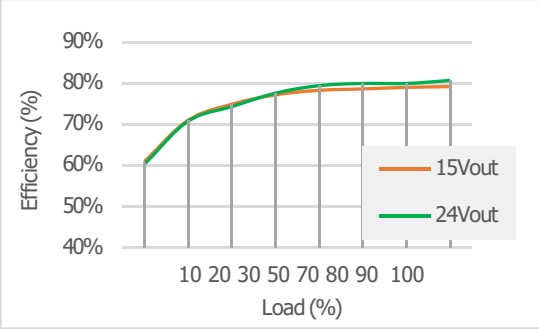


Efficiency Curves

Efficiency vs Input Voltage



Efficiency vs Load



Typical External Circuit

Components with "" are required. The other components are highly recommended.

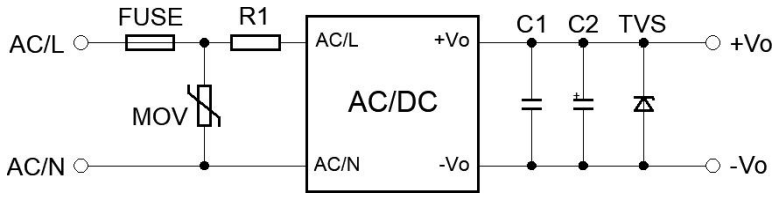


Figure 1. Typical external circuit

Recommended Components [Table 1]

SPEC	FUSE*	MOV	R1*	C1	C2	TVS
VOUT=3.3, 5V	1A, 300V	10D681K	12 Ohm, 3W	1uF, 50V	150uF, 16V	SMBJ7.0A
VOUT=9V	1A, 300V	10D681K	12 Ohm, 3W	1uF, 50V	120uF, 35V	SMBJ12A
VOUT=12, 15V	1A, 300V	10D681K	12 Ohm, 3W	1uF, 50V	120uF, 35V	SMBJ20A
VOUT=24V	1A, 300V	10D681K	12 Ohm, 3W	1uF, 50V	68uF, 35V	SMBJ30A

* For further questions contact one of our sales representatives.

EMC Enhancement for EN55032 Class B

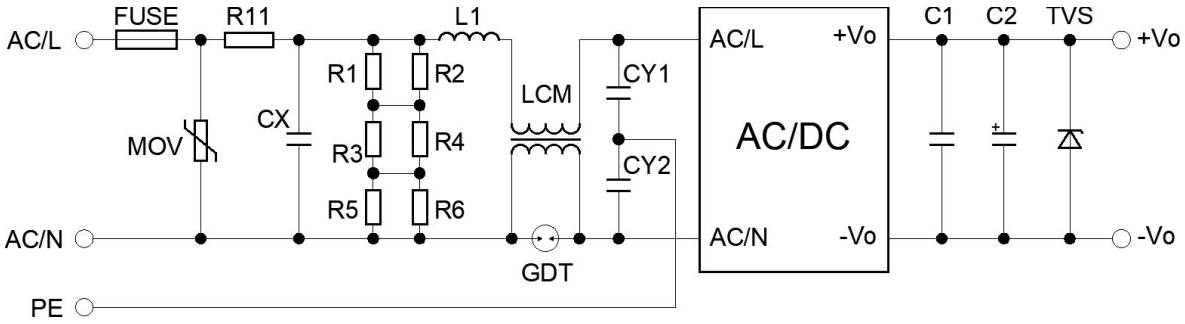


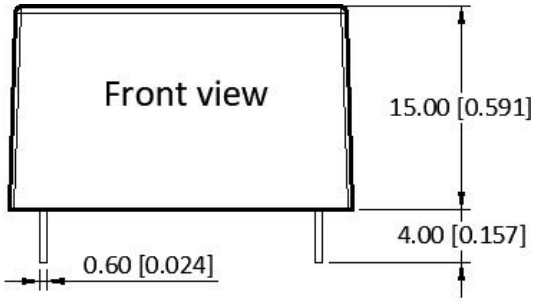
Figure 2. Circuit for EMC Enhancement

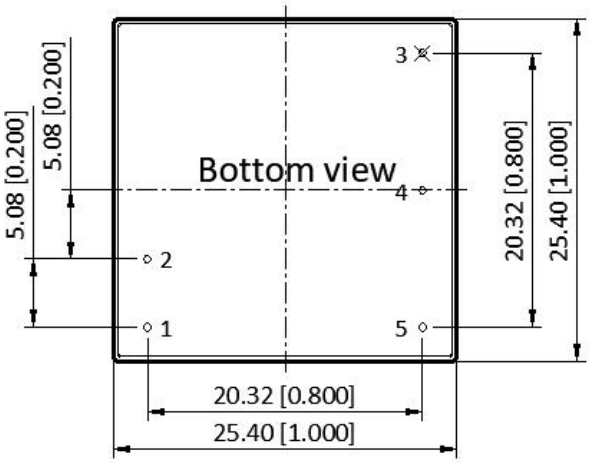
[Table 2] Recommended Components

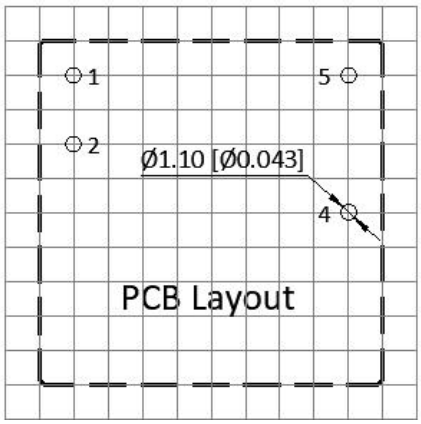
MOV	CX	R11	L1	LCM	GDT	CY1, CY2
14D681K	334K, 305VAC	33 Ohm, 3W	1.2mH, 0.3A	20mH	300V, 1KA	1nF, 400VAC

*FUSE to be 2A, 300V, slow blow. *R1 … R6 is the bleeder resistance of CX – 1.5Mohm, 150VDC
*Other components see the same in Table 1

Mechanical Specifications







Pin #	Single Out
1	AC (N)
2	AC (L)
3	No Pin
4	-VOUT
5	+VOUT

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 Ta=25℃, humidity <75%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.