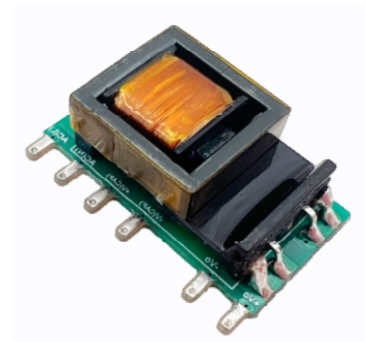


Product Feature

1. Universal Input: 85-305VAC / 100-430VDC
2. Operating temperature range: -40°C - +85°C
3. Isolation:4000VAC
4. SIP ultra-small size, high power density, flexible application
5. The mechanism has input undervoltage protection, output short circuit protection and over current protection
6. Design meet IEC/EN61558、IEC/EN60335



Selection Guide

Part No.	Input Voltage (VAC)	Out Power (W)	Out Voltage (VDC)	Out Current (mA)MAX	Full Load Efficiency % (Typ.)	Capacitive Load(μF) Max.
Q003-13B05R3	85-305	3	5	600	75	1500
Q003-13B12R3		3	12	250	78	470
Q003-13B15R3		3	15	200	78	330
Q003-13B24R3		3	24	125	79	100

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage	AC Input	85	--	305	VAC
	DC Input	100	--	430	VDC
Input Current	110VAC	--	0.10	--	A
	230VAC	--	0.07	--	
Input Frequency		47	--	63	Hz
Fuse		1A, slow-blow, required			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	10% - 100%load	--	±5	--	%
Linear Regulation	Rated load	3.3V	±2.5	--	
		Other	±1.5	--	
Load Regulation	10% - 100%load	--	±3.0	--	

Ripple & Noise	20MHz bandwidth, 10% - 100%load	--	80	180	mV
Temperature Coefficient		--	±0.15	--	%/°C
Stand-by Power Consumption	230VAC	--	0.10	--	W
Min. Load		10	--	--	%
Over Current Protection		110	--	--	%Io
Short-Circuit Protection		Continuous, Self-Recovery			
Hold-up Time	115VAC	--	8	--	ms
	230VAC	--	40	--	

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, test time 1 minute, leakage current less than 5mA	4000	--	--	VAC
Insulation Resistance	Input-output, insulated voltage 500VDC	1000	--	--	MΩ
Power Derating	+55°C - +85°C	1.67	--	--	%°C
	85VAC - 100VAC	1.33	--	--	%/VAC
Operating Temperature		-40	--	+85	°C
Storage Temperature		-40	--	+85	
Soldering Profile	Wave-soldering	260 ± 5°C; time: 5 - 10s			
	Manual-welding	360 ± 8°C; time: 3 - 5s			
Safety Standard	IEC/UL62368-1、IEC/EN60335-1、IEC/EN61558-1				
Safety Class		CLASS II			
MTBF	MIL-HDBK-217F@25°C	>1000Kh			

Mechanical Specification

Package Dimensions	26.40 x 14.73 x 11.00 mm
Weight	5.9g (TYP.)
Cooling Method	Free air convection

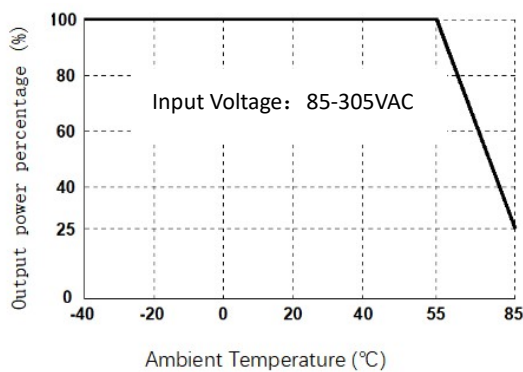
EMC Specifications

EMI	CE	CISPR32/EN55032 CLASS A (application circuit1, 4)
		CISPR32/EN55032 CLASS B (application circuit2, 3)
	RE	CISPR32/EN55032 CLASS A (application circuit1, 4)

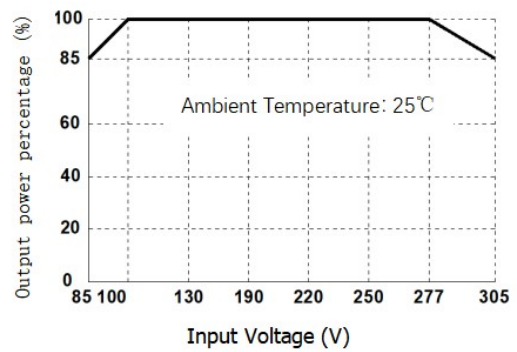
		CISPR32/EN55032 CLASS B (application circuit2, 3)	
EMS	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV (application circuit 1、2)	perf. Criteria B
		IEC/EN61000-4-4 ±4KV (application circuit 3、4)	perf. Criteria B
	Surge	IEC/EN61000-4-5 line to line ±1KV (application circuit 1、2)	perf. Criteria B
		IEC/EN61000-4-5 line to line ±2KV (application circuit 3、4)	perf. Criteria B
	CS	IEC/EN61000-4-6 10Vr.m.s	perf. Criteria A
ESD	IEC/EN61000-4-2 Contact ±6KV / Air ±8KV	perf. Criteria B	

Typical Characteristic Curves

Input voltage Derating Curve

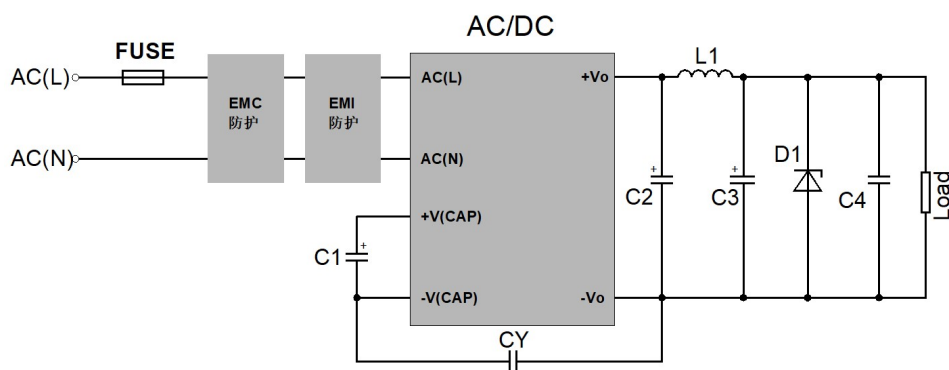


Temperature Derating Curve



Typical Circuit Design And Application

Application circuit



Reference Table for Selection of Peripheral Devices

Output voltage	C1 (required)	C2 (required)	L1 (required)	C3 (required)	C4	CY (required)	D1
3.3/5VDC 10W	22uF/450V	820uF/16V	2.2uH 6.5A 15mΩMAX	150uF/25V	0.1uF/50V	1nF/400VAC	D1 is a TVS transistor that can protect the downstream circuit in

9/12VDC 10W		470uF/25V			0.1uF/50V		case of module abnormalities. It is recommended to choose a model that is 1.2 times the output voltage
15/24VDC 10W		470uF/35V	3.3uH 5A 25mΩMAX	100uF/35V	0.1uF/50V		
3.3/5VDC 15W	33uF/450V	1000uF/16V	2.0uH 6.5A 15mΩMAX	470uF/25V	0.1uF/50V	2.2nF/400VA C	
9/12VDC 15W		470uF/25V		220uF/25V	0.1uF/50V	1nF/400VAC	
15/24VDC 15W		470uF/35V	3.3uH 5A 25mΩMAX	150uF/35V	0.1uF/50V		

Note:

1. FUSE, EMC protection, and EMI protection are selected based on actual application needs;
2. C1 is a filtering electrolytic capacitor, which is a required component. It is recommended to use ripple current > 400mA@100KHz Electrolytic capacitors.
3. C2, C4, and L1 form a Pi type filtering circuit, and it is recommended to use high-frequency low resistance electrolytic capacitors or solid-state capacitors.
4. When selecting L1, ripple requirements can be considered, while paying attention to current and internal resistance values.

EMS Solutions - Recommended Circuits

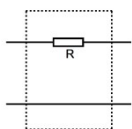
Environmental Application - EMC Solution Selection Table

Recommended circuit	Application environment	Application industry	Input Voltage	Ambient Temperature	EMI	EMS
1	Basic applications	-	85-305VAC	-40°C - +85°C	Class A	III level
2	Indoor civil	Intelligent household electrical appliance		-25°C - +55°C	Class B	III level
	Indoor ordinary	Intelligent building		-25°C - +55°C	Class B	III level
3	Outdoor industry	Manufacturing workshop		-25°C - +55°C	Class B	IV level
4	Outdoor ordinary	ITS/Charging point/Communication/Security and protection		-40°C - +85°C	Class A	IV level

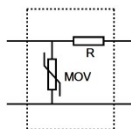
EMS protection circuit design reference

EMI protection circuit design reference

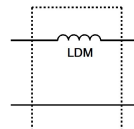
III level



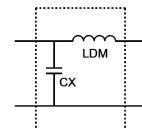
IV level



Class A

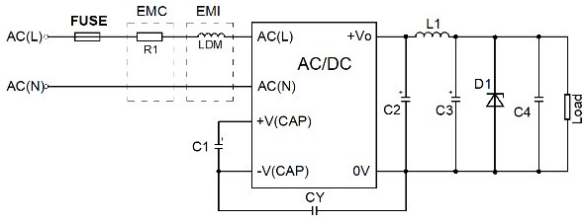


Class B

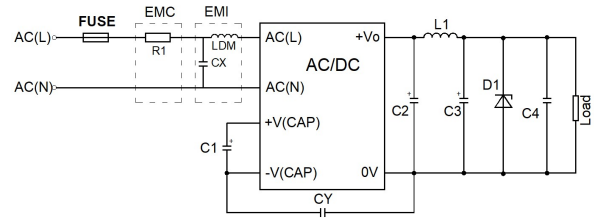


EMC Solutions - Recommended Circuits

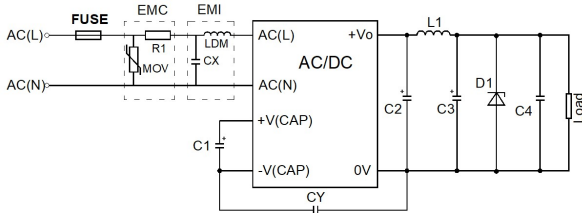
Recommended circuit 1



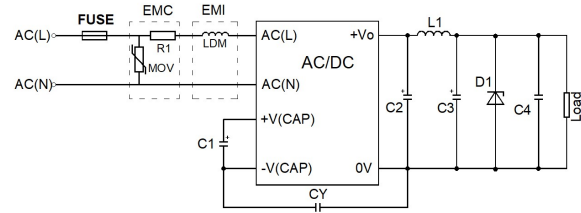
Recommended circuit 2



Recommended circuit 3



Recommended circuit 4



EMC Recommended Circuit Device Selection Reference Table

Components	Recommended circuit 1	Recommended circuit 2	Recommended circuit 3	Recommended circuit 4
FUSE (required)	1A/300V, Slow melting		2A/300V, Slow melting	
Re1(wire-wound resistor, required)	6.8 Ω /3W			
MOV	14D561			
LDM	2.2mH/Max: 4Ω/Min:0.24A			
CX	0.1uF/310VAC			

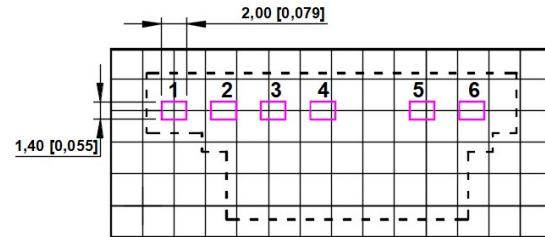
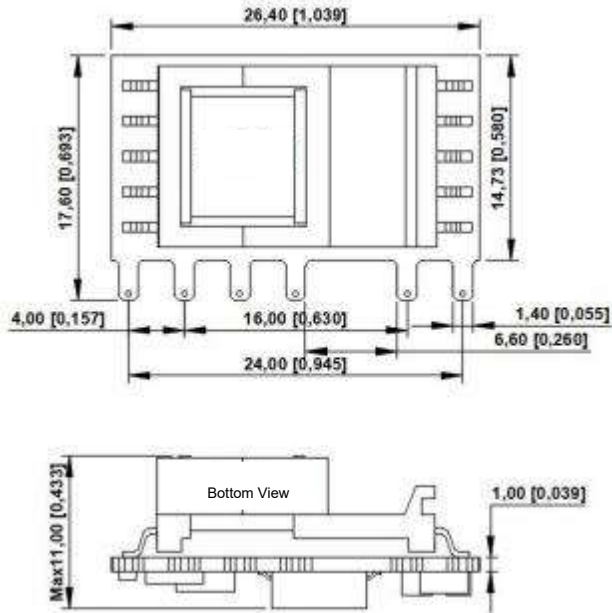
Dimensions and Recommended Layout

Dimensions

PCB Printing Layout

Grid size: 2.54 x 2.54 mm

Note:
 Unit: mm[inch]
 Pin section tolerances: $\pm 0.10[\pm 0.004]$
 General tolerances: $\pm 0.50[\pm 0.020]$



Pin Function Table

Pin	Function
1	AC(L)
2	AC(N)
3	+V(CAP)
4	-V(CAP)
5	-Vo
6	+Vo

Note:

1. The input voltage cannot exceed the specified range value, otherwise permanent and irreparable damage may be caused;
2. Unless otherwise specified, the parameters in this datasheet were measured at 25°C, humidity 40%~75%, input nominal voltage and output pure resistance mode under full load;
3. All index test methods are based on our company's enterprise standards.

DONGGUAN AMCHARD-POWER TECHNOLOGY CO., LTD.

www.amchard-power.com

Mail: info@amchard-power.com