Features

1. UItra-wide 176-418VAC and 248-591VDC input voltage range
2. Operating ambient temperature range:-40℃ to +85℃
3. Up to 85%efficiency
4. No-load power consumption 0.3W
5. 5000m altitude application
6. Industrial-grade design
7. EMI performance meets CISPR32/EN55032 CLASS B,EN55014,EN62368-1

RoHS CE 3 years Warranty

Selection Guide

Part No	Output Power	Output Voltage and Current (Vo/Io)	Efficiency at 220VAC Typ.(%)	Capacitive Load (uF)Max.
RAD15-25B05R2	15W	5V/3000mA	81	3000
RAD15-25B12R2		12V/1250mA	84	1000
RAD15-25B15R2		15V/1000mA	84	560
RAD15-25B24R2		24V/625mA	85	150

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max	Unit
Input Voltage Range	AC input	176		418	VAC
	DC input	248		591	VDC
Input Certified Voltage Range	AC input	176	--	380	VAC
	DC input	248		550	VDC
Input Frequency		47	--	63	Hz
Input Current	220VAC			0.30	A
Inrush Current	220VAC	--	30		
Leakage Current	277VAC/50Hz	0.25mA RMS Max.			
Recommended External Input Fuse		2A,slow-blow,required (The actual use needs to be selected according to the application environment)			
Hot Plug		Unavallable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max	Unit
Output Voltage Accuracy			±3	±5	%
Line Regulation	Full load		±1	±1.5	
Load Regulation	10%-100%load	--	±1.5	±3	
Ripple &Noise*	20MHz bandwidth(peak-to-peak value) 10%-100%load			150	mV
Stand-by Power Consumption	220VAC		0.3	0.5	W
Short Circuit Protection		Hiccup,continuous,self-recover			
Over-current Protectlon		≥110%lo,self-recover			
Minimum Load*		10	--		%
Hold-up Time	220VAC		8		ms

Note:1."The "Tip and barel method"is used for ripple and nolse test,output parale 10uF electoytic capactor and luF ceramic capactor please refer to AC-DC Converter Application Nofes for specific information.
2."The product is able to work with 0%-10%load and with stable output

General Specifications

Item		Operating Conditions	Min.	Typ.	Max	Unit
Isolation	Input-output	Electrlc Strength Test for 1min.,leakage current <5mA	4000	--		VAC
Insulation Resistance	Input-output	At 500VDC	100	--		MΩ
Operating Temperature			-40		+85	℃
Storage Temperature			-40		+85	
Storage Humidity				--	95	%RH
Thermal Shock		-40℃ to +85℃,Temperature Holding Time=30min	500			H
Soldering Temperature		Wave-soldering	260±5℃;time:5-10s			
		Manual-welding	360±10℃;time:3-5s			
Switching Frequency			--	85	--	kHz
Power Derating		-40℃ to-25℃(≥200VAC)	1.33	--	--	%/℃
		+50℃ to+70℃	3.00	--	--	
		70℃ to +85℃	0.66	--		
		380VAC-418VAC	0.526			%/VAC
		2000-5000m	6.7		-	%/Km
Safety Standard			EN62368-1(Report)safety approved			
Safety Class			CLASSII			
MTBF		MIL-HDBK-217F@25℃	>1,000,000h			

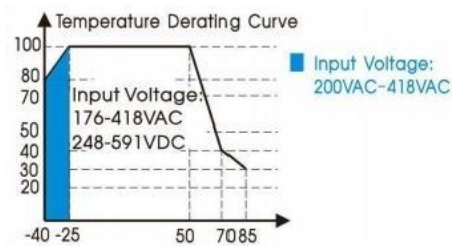
Mechanical Specifications

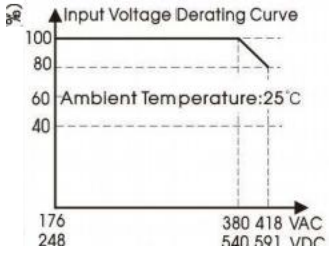
Case Material	Black plastic, fame-retardant and heat-resistant (UL94V-0)
Dimension	52.40x27,20x24.00 mm
Weight	55g (Typ.)
Cooling method	Free air convection

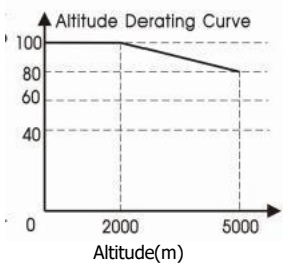
Electromagnetic Compatibility(EMC)

Emission	CE	CISPR32/EN55032 CLASS B	
		EN55014-1	
	RE	CISPR32/EN55032 CLASS B	
		EN55014-1	
Immunity	ESD	IEC/EN61000-4-2 Contact ±8KV/Air±10KV	perf.CriteriaA
		IEC/EN55014-2	perf.CriteriaA
	RS	IEC/EN61000-4-3 10V/m	perf.Criterig A
		IEC/EN55014-2	perf.CriteriaA
	EFT	IEC/EN61000-4-4 ±2KV	perf.Criteria B
		IEC/EN61000-4-4 ±4KV (See Fig.2 for recommended circuit)	perf.Criteria B
		IEC/EN55014-2	perf.Criteria B
	Surge	IEC/EN61000-4-5 line to line±1KV	perf.Criteria A
		IEC/EN61000-4-5 line to line ±2KV/line to PE±4KV (See Flg.2 for recommended circuif)	perf.Criteria A
		IEC/EN55014-2	perf.Criteria A
	CS	IEC/EN61000-4-6 10Vr.m,s	perf.Criteria A
		IEC/EN55014-2	perf.Criteria A
	Voltage dlp,short interruptlon andvoltage varlatlon	IEC/EN61000-4-11 0%,70%	perf.Criteria B
		IEC/EN55014-2	perf.Criteria B

Derating Curve





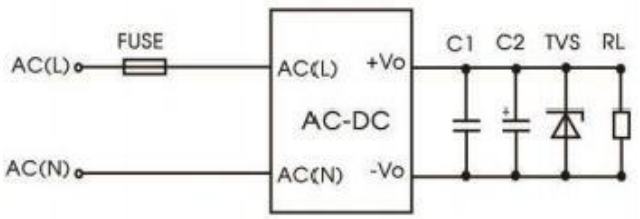


Note: ①With an AC input between 380-418VAC and a DC input between 540-591VDC, the output power must be derated as per temperature derating curves;

② This product s suitable for appllcatlons using natural air cooling:for applcationsincbosed environment please consult our FAE.

Desion Reference

1.Typical application

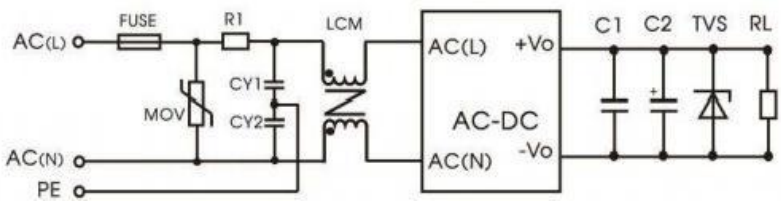


Fg.1:Typical circuit diagram

Part No	FUSE	C1	C2	TVS
RAD15-25B05R2	2A/300V,slow-blow,required(176-305VAC input); 2A/500V,slow-blow,required(176-418VAC input);	luF/50V	220uF/16V	SMBJ7.0A
RAD15-25B09R2			220uF/16V	SMBJ12A
RAD15-25B12R2			100uF/25V	SMBJ20A
RAD15-25B15R2			100uF/25V	SMBJ20A
RAD15-25B24R2			100uF/35V	SMBJ30A

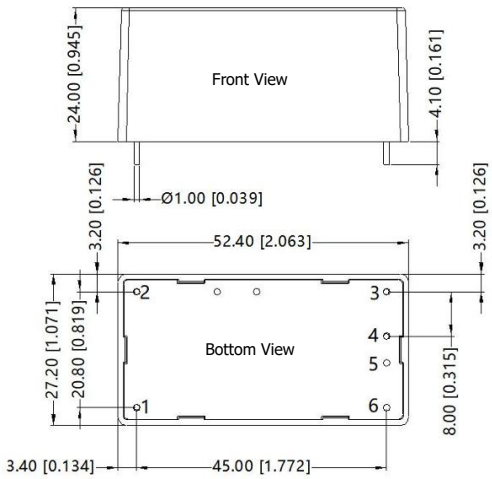
Note: The output filter capacitor C2 is an electrolytic capacitor. It is recommended to use a high frequency and low resistance electrolytic capacitor. For the capacity and current flowing, refer to the technical specifications provided by each manufacturer. Capacitor withstand voltage derating to at least 80%. C1 is a ceramic capacitor that removes high frequencies
Noise. TVS tube is recommended to protect the back-end circuit when the module is abnormal.

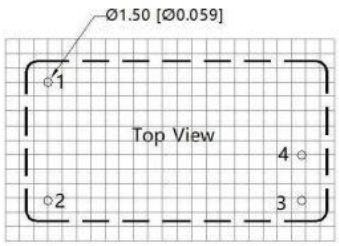
2.EMC compliance recommended circuit



Component	Recommended value
FUSE	2A/300V,slow-blow,required(176-305VAC input) 2A/500V,slow-blow,required(176-418VAC input)
MOV	S10K350(176-305VAC Input);S10K510(176-418VAC input)
R1	6.82/3W
CY1/CY2	1nF/400VAC(176-305VAC input);1nF/500VAC(176-418VAC input)
LCM	10mH

Dimensions and Recommended Layout





Note:Grid
2.54*2.54mm

Pin-Out	
Pin	Function
1	AC(L)
2	AC(N)
3	-Vo
4	+Vo
5	No Pin
6	No Pin

Unit:mm[inch]
Pin diameter tolerances:±0.10[±0.004]
General tolerances:±0.50[±0.020]

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;