



























- Universal AC input / Full range
- No load power consumption<0.075W</li>
- · Compact size
- Comply with BS EN/EN55032 Class B without any additional components
- Wide operating temp. range -30~85°C
- Protections: Short circuit / Overload / Over voltage
- · Cooling by free air convection
- · Isolation Class II
- · High reliability, low cost
- · 3 years warranty

## Features

# Applications

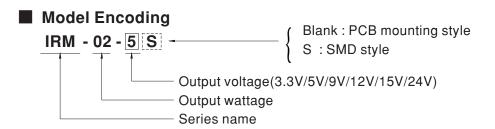
- Industrial electrical equipment
- Mechanical equipment
- Factory automation equipment
- · Handheld electronic device

## GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

## Description

IRM-02 is a 2W miniature (33.7\*22.2\*15mm) AC-DC module-type power supply, ready to be soldered onto the PCB boards of various kinds of electronic instruments or industrial automation equipments. This product allows a universal input voltage range of 85~305Vac. The phenolic case and potted with silicone enhance the heat dissipation and meet the anti-vibration demand up to 5G; moreover, it provides the fundamental resistance to dust and moisture. With the high efficiency up to 77% and the extremely low no-load power consumption below 0.075W, IRM-02 series fulfills the worldwide regulation for the low power consumption requirement for electronics. The entire series is a Class II design (no FG pin), incorporating the built-in EMI filtering components, enabling the compliance with BS EN/EN55032 Class B; the supreme EMC features keep the end electronic units from electromagnetic interference. In addition to module-type model, IRM-02 series also offers the SMD style model.



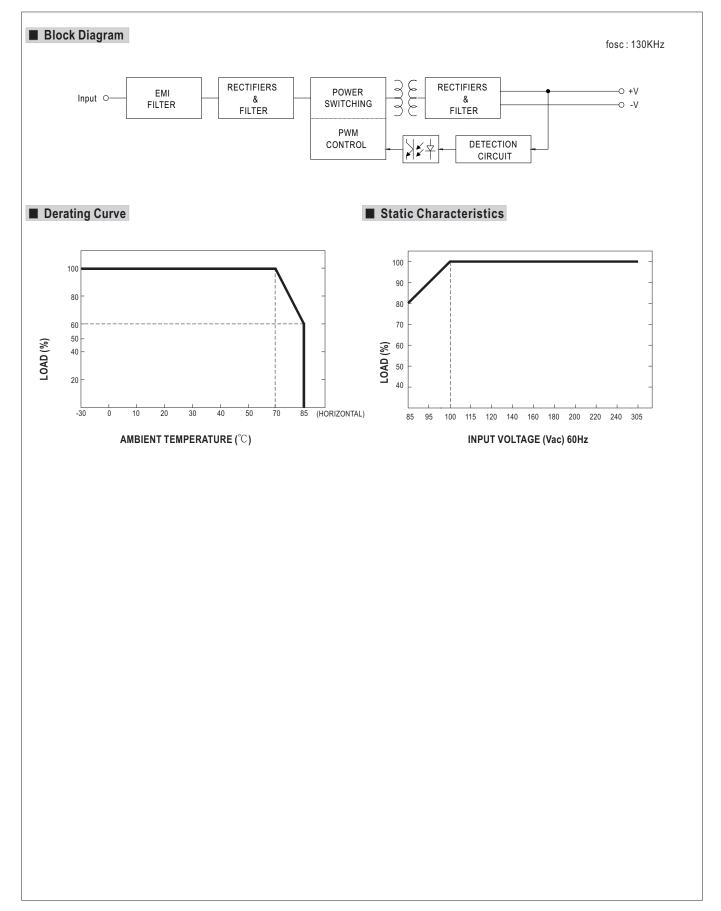


# 2W AC-DC High Reliable PCB-Mount Green Industrial Power Module

## **SPECIFICATION**

OUTPUT  OUTPUT  OUTPUT  PROTECTION  ENVIRONMENT  ENVIRONMENT  RATI CUR RATI PROP VOL' FREE AC CO INRU LEAD  OVE WOR WOR VOR TEM VIBR	C VOLTAGE ATED CURRENT URRENT RANGE ATED POWER IPPLE & NOISE (max.) Note.2 OLTAGE TOLERANCE Note.3 INE REGULATION DAD REGULATION ETUP, RISE TIME OLD UP TIME (Typ.) OLTAGE RANGE REQUENCY RANGE FFICIENCY (Typ.) C CURRENT (Typ.)	±2.5% ±0.5% ±0.5% 600ms, 30ms/230Va 40ms/230Vac	12ms/115Vac at full lo		12V 167mA 0~167mA 2W 150mVp-p ±2.5% ±0.5% ±0.5%	15V 133mA 0 ~ 133mA 2W 200mVp-p ±2.5% ±0.5% ±0.5%	24V 83mA 0~83mA 2W 200mVp-p ±2.5% ±0.5%			
OUTPUT  OUTPUT  OUTPUT  RIPP VOL' LINE LOA SETI HOL FREE EFFI AC C INRL LEAI  PROTECTION  OVE ENVIRONMENT STOI TEM VIBR	URRENT RANGE ATED POWER IPPLE & NOISE (max.) Note.2 OLTAGE TOLERANCE Note.3 NE REGULATION DAD REGULATION ETUP, RISE TIME OLD UP TIME (Typ.) OLTAGE RANGE REQUENCY RANGE FFICIENCY (Typ.) C CURRENT (Typ.)	0 ~ 600mA 2W 150mVp-p ±2.5% ±0.5% ±0.5% 600ms, 30ms/230Vac 40ms/230Vac 85 ~ 305Vac 120 ~ 47 ~ 63Hz	0~400mA 2W 150mVp-p ±2.5% ±0.5% c 600ms, 30ms/ 12ms/115Vac at full lo	0~222mA 2W 150mVp-p ±2.5% ±0.5% ±0.5%	0 ~ 167mA 2W 150mVp-p ±2.5% ±0.5%	0 ~ 133mA 2W 200mVp-p ±2.5% ±0.5%	0~83mA 2W 200mVp-p ±2.5% ±0.5%			
OUTPUT  OUTPUT  RIPP VOL' LINE LOA SETI HOL FREE AC CO INRU LEAI  PROTECTION  OVE ENVIRONMENT ENVIRONMENT TEM VIBR	ATED POWER IPPLE & NOISE (max.) Note.2 OLTAGE TOLERANCE Note.3 NE REGULATION DAD REGULATION ETUP, RISE TIME OLD UP TIME (Typ.) OLTAGE RANGE REQUENCY RANGE FFICIENCY (Typ.) C CURRENT (Typ.)	2W 150mVp-p ±2.5% ±0.5% ±0.5% 600ms, 30ms/230Va 40ms/230Vac 85 ~ 305Vac 120 ~ 47 ~ 63Hz	2W 150mVp-p ±2.5% ±0.5% ±0.5% c 600ms, 30ms/ 12ms/115Vac at full lo	2W 150mVp-p ±2.5% ±0.5% ±0.5% 115Vac at full load	2W 150mVp-p ±2.5% ±0.5%	2W 200mVp-p ±2.5% ±0.5%	2W 200mVp-p ±2.5% ±0.5%			
OUTPUT  RIPP VOL' LINE LOA SETU HOL FREE EFFI AC CO INRU LEAD  PROTECTION OVE ENVIRONMENT ENVIRONMENT TEM VIBR	IPPLE & NOISE (max.) Note.2 OLTAGE TOLERANCE Note.3 INE REGULATION DAD REGULATION ETUP, RISE TIME OLD UP TIME (Typ.) OLTAGE RANGE REQUENCY RANGE FFICIENCY (Typ.) C CURRENT (Typ.)	150mVp-p ±2.5% ±0.5% ±0.5% 600ms, 30ms/230Va 40ms/230Vac 85 ~ 305Vac 120 ~ 47 ~ 63Hz	150mVp-p ±2.5% ±0.5% ±0.5% c 600ms, 30ms/ 12ms/115Vac at full lo	150mVp-p ±2.5% ±0.5% ±0.5%	150mVp-p ±2.5% ±0.5%	200mVp-p ±2.5% ±0.5%	200mVp-p ±2.5% ±0.5%			
INPUT  PROTECTION  PROTECTION  OVE  ENVIRONMENT  TEM  VOL'  LOA  SETT  HOL  FRE:  EFFI  AC C  INRU  LEAI  OVE  WOR  WOR  VIBR	OLTAGE TOLERANCE Note.3 INE REGULATION OAD REGULATION ETUP, RISE TIME OLD UP TIME (Typ.) OLTAGE RANGE REQUENCY RANGE FFICIENCY (Typ.) C CURRENT (Typ.)	$\pm 2.5\%$ $\pm 0.5\%$ $\pm 0.5\%$ $600$ ms, $30$ ms/230Vac $40$ ms/230Vac $85 \sim 305$ Vac $120 \sim 47 \sim 63$ Hz	±2.5% ±0.5% ±0.5% c 600ms, 30ms/ 12ms/115Vac at full lo	$\pm 2.5\%$ $\pm 0.5\%$ $\pm 0.5\%$ 115 Vac at full load	±2.5% ±0.5%	±2.5% ±0.5%	±2.5% ±0.5%			
INPUT  INPUT  PROTECTION  ENVIRONMENT  EVOL  LOA  SETU  HOL  VOL  FREE  EFFI  AC C  INRL  LEAI  OVE  WOF  WOF  WOF  VIBR	NE REGULATION DAD REGULATION ETUP, RISE TIME OLD UP TIME (Typ.) OLTAGE RANGE REQUENCY RANGE FFICIENCY (Typ.) C CURRENT (Typ.)	±0.5% ±0.5% 600ms, 30ms/230Va 40ms/230Vac 85 ~ 305Vac 120 ~ 47 ~ 63Hz	±0.5% ±0.5% c 600ms, 30ms/ 12ms/115Vac at full lo	$\pm 0.5\%$ $\pm 0.5\%$ 115Vac at full load	±0.5%	±0.5%	±0.5%			
INPUT  INPUT  PROTECTION  ENVIRONMENT  EVOL  FREE  EFFI  AC C  INRU  LEAI  OVE  WOF  WOF  WOF  TEM  VIBR	DAD REGULATION ETUP, RISE TIME OLD UP TIME (Typ.) OLTAGE RANGE REQUENCY RANGE FFICIENCY (Typ.) C CURRENT (Typ.)	±0.5% 600ms, 30ms/230Va 40ms/230Vac 85 ~ 305Vac 120 ~ 47 ~ 63Hz	±0.5% c 600ms, 30ms/ 12ms/115Vac at full lo	±0.5% 115Vac at full load						
INPUT  INPUT  EFFI AC CO INRU LEA  OVE PROTECTION OVE ENVIRONMENT STOI TEM VIBR	ETUP, RISE TIME OLD UP TIME (Typ.) OLTAGE RANGE REQUENCY RANGE FFICIENCY (Typ.) C CURRENT (Typ.)	600ms, 30ms/230Va 40ms/230Vac 85 ~ 305Vac 120 ~ 47 ~ 63Hz	600ms, 30ms/ 12ms/115Vac at full lo	115Vac at full load	±0.5%	±0.5%	±0.5%			
INPUT  INPUT  EFFI AC CO INRU LEAD  OVE  PROTECTION  OVE  ENVIRONMENT  TEM VIBR	OLD UP TIME (Typ.) OLTAGE RANGE REQUENCY RANGE FFICIENCY (Typ.) C CURRENT (Typ.)	40ms/230Vac 85 ~ 305Vac 120 ~ 47 ~ 63Hz	12ms/115Vac at full lo							
INPUT  INPUT  EFFI AC CO INRU LEAD  OVE  PROTECTION  OVE  ENVIRONMENT  STOO TEM VIBR	OLTAGE RANGE REQUENCY RANGE FFICIENCY (Typ.) C CURRENT (Typ.)	85 ~ 305Vac 120 ~ 47 ~ 63Hz		nad	600ms, 30ms/230Vac 600ms, 30ms/115Vac at full load					
INPUT    FREI     EFFI     AC C     INRU     LEAI     OVE     PROTECTION     OVE     WOF     WOF     ENVIRONMENT     TEM     VIBR	REQUENCY RANGE FFICIENCY (Typ.) C CURRENT (Typ.)	47 ~ 63Hz	430Vdc	40ms/230Vac 12ms/115Vac at full load						
INPUT  AC CONTROL INRU LEAD  OVE OVE ENVIRONMENT STOOL TEM VIBR	FFICIENCY (Typ.) C CURRENT (Typ.)			85 ~ 305Vac 120 ~ 430Vdc						
PROTECTION OVE ENVIRONMENT STOLE  PROTECTION STOLE  ENVIRONMENT TEM VIBR	C CURRENT (Typ.)	66%								
PROTECTION OVE  ENVIRONMENT STOIL  TEM  VIBR			70%	72%	74%	75%	77%			
PROTECTION OVE  WOR ENVIRONMENT STOIL TEM VIBR		45mA/115Vac	30mA/230Vac 2	25mA/277Vac			1			
PROTECTION OVE  WOR ENVIRONMENT STOLE TEM VIBR	IRUSH CURRENT (Typ.)	5A/115Vac 10A/230Vac								
PROTECTION OVE WOR ENVIRONMENT TEM VIBR	EAKAGE CURRENT	< 0.25mA/277Vac								
PROTECTION OVE WOR ENVIRONMENT TEM VIBR	OVERLOAD	≥110% rated output power								
OVE WOR WOR ENVIRONMENT STOI TEM VIBR		Protection type: Hiccup mode, recovers automatically after fault condition is removed								
WOF WOF ENVIRONMENT STOI TEM VIBR	OVER VOLTAGE	3.8 ~ 4.9V	5.2 ~ 6.8V	10.3 ~ 12.2V	12.6 ~ 16.2V	15.7 ~ 20.3V	25.2 ~ 32.4V			
ENVIRONMENT STOO TEM VIBR		Protection type : Sh	ut off o/p voltage, clam	nping by zener diode			1			
ENVIRONMENT STOIL TEM VIBR	ORKING TEMP.	-30 ~ +85 °C (Refer to "Derating Curve")								
TEM VIBR	ORKING HUMIDITY	20 ~ 90% RH non-condensing								
VIBR	TORAGE TEMP., HUMIDITY	-40 ~ +100°C, 10 ~ 95% RH								
	EMP. COEFFICIENT	±0.03%/°C (0~75°C)								
SOL	BRATION	10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes								
	OLDERING TEMPERATURE	Wave soldering: 265°C,5s (max.); Manual soldering: 390°C,3s (max.); Reflow soldering(SMD style): 240°C,10s (max.)								
SAFI	AFETY STANDARDS	IEC62368-1,IEC61558-1/-2-16,UL62368-1,TUV BS EN/EN62368-1, BS EN/EN61558-1/-2-16,EAC TP TC 004, BSMI CNS15598-1 approved								
OVE	VER VOLTAGE CATEGORY	IEC/EN 61558-1/-2-16(OVC $ \mathrm{II}$ , altitude up to 2000m); IEC/EN/UL 62368-1(OVC $ \mathrm{II}$ , altitude up to 2000m)								
SAFETY & WITH	ITHSTAND VOLTAGE	I/P-O/P:4.2KVac								
EMC ISOL	OLATION RESISTANCE	I/P-O/P:100M Ohms / 500Vdc / 25°C / 70% RH								
EMC	MC EMISSION	Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020, CNS15936 Class B								
EMC	MC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55035, heavy industry level (surge L-N: 1KV), EAC TP TC 020								
МТВ	TBF	13571.4K hrs min. Telcordia SR-332 (Bellcore) ; 1960.2K hrs min. MIL-HDBK-217F (25°C)								
OTHERS DIME	IMENSION	PCB mounting style	: 33.7*22.2*15mm (L*	W*H) SMD style	: 33.7*22.2*16mm (L*	W*H)				
PAC	ACKING	PCB mounting style	: 0.024Kg; 640pcs/ 16	3.3 Kg/ 0.84CUFT	SMD style: 0.02	4Kg; 640 pcs/ 16.3 Kg	g/ 0.84CUFT			
2. F 3. T 4. T	1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25°C of ambient temperature.  2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.  3. Tolerance: includes set up tolerance, line regulation and load regulation.  4. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).  We Product Liability Disclaimer: For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx									





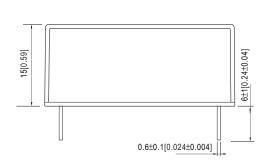
Case No.IRM02

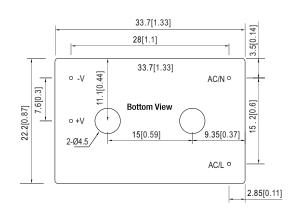


### ■ Mechanical Specification

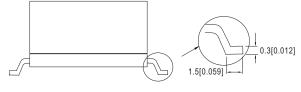
(Unit:mm[inch], Tolerance:±0.5[±0.02])

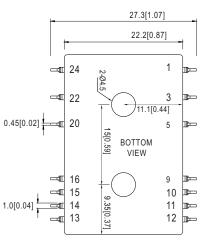
O PCB mounting style

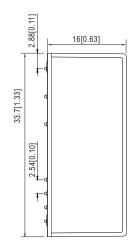




### O SMD style

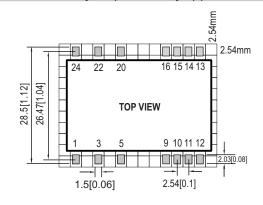


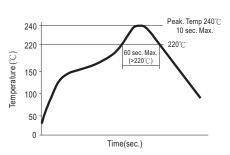




Pin No.	Assignment
1	AC/L
24	AC/N
13	-Vo
12	+Vo
others	N.C.

## ■ Recommended PCB Layout (for SMD style) (Reflow soldering method available)





Remark : The curve applies only to the "Hot Air Reflow Soldering"

## **■** Installation Manual

Please refer to: http://www.meanwell.com/manual.html