

## Features

- 2.06"x1.07"compact size
- Universal input 85~305Vac
- No load power consumption<0.1W
- EMI Class B without additional components
- Wide operating temp. range -30~85°C
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Isolation Class II
- Pass LPS
- 3 years warranty

## Applications

- Industrial electrical equipment
- Mechanical equipment
- Factory automation equipment
- Hand-held electronic device

## GTIN CODE

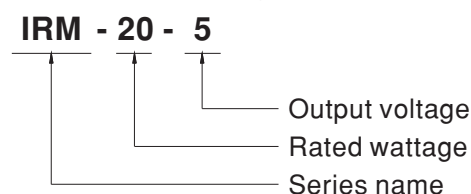
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

## Description

IRM-20 is a 20W miniature (52.4\*27.2\*24mm) 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 the universal input voltage range of 85~305Vac. The 94V-0 flame retardant plastic case and potted with silicone enhance the heat dissipation and meet the anti-vibration demand up to 2G; moreover, it provides the fundamental resistance to dust and moisture.

With the high efficiency up to 85% and the extremely low no-load power consumption below 0.1W, IRM-20 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.

## Model Encoding

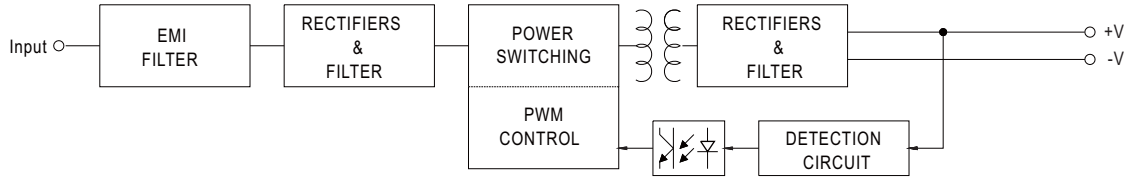


## SPECIFICATION

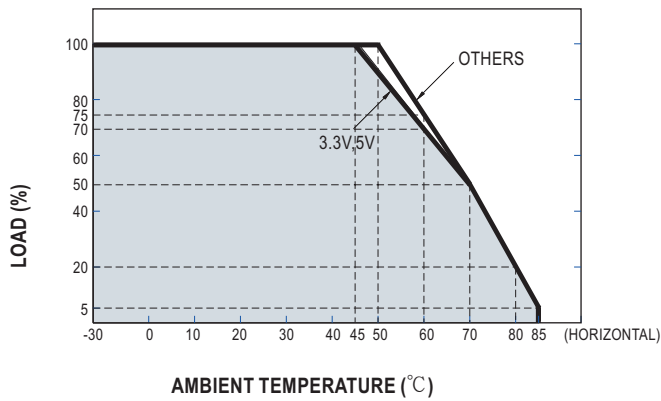
| MODEL                                   |                                             | IRM-20-3.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | IRM-20-5                         | IRM-20-12                                                                    | IRM-20-15                                          | IRM-20-24    |
|-----------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|------------------------------------------------------------------------------|----------------------------------------------------|--------------|
| OUTPUT                                  | DC VOLTAGE                                  | 3.3V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5V                               | 12V                                                                          | 15V                                                | 24V          |
|                                         | RATED CURRENT                               | 4.5A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4A                               | 1.8A                                                                         | 1.4A                                               | 0.9A         |
|                                         | CURRENT RANGE                               | 0 ~ 4.5A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0 ~ 4A                           | 0 ~ 1.8A                                                                     | 0 ~ 1.4A                                           | 0 ~ 0.9A     |
|                                         | RATED POWER                                 | 14.85W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 20W                              | 21.6W                                                                        | 21W                                                | 21.6W        |
|                                         | RIPPLE & NOISE (max.) <small>Note.2</small> | 200mVp-p                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 200mVp-p                         | 200mVp-p                                                                     | 200mVp-p                                           | 200mVp-p     |
|                                         | VOLTAGE TOLERANCE <small>Note.3</small>     | ± 2.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ± 2.5%                           | ± 2.5%                                                                       | ± 2.5%                                             | ± 2.5%       |
|                                         | LINE REGULATION                             | ± 0.5%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ± 0.5%                           | ± 0.3%                                                                       | ± 0.3%                                             | ± 0.3%       |
|                                         | LOAD REGULATION                             | ± 1%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ± 1%                             | ± 0.5%                                                                       | ± 0.5%                                             | ± 0.5%       |
|                                         | SETUP, RISE TIME                            | 1000ms, 20ms/230Vac      1000ms, 20ms/115Vac at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                  |                                                                              |                                                    |              |
|                                         | HOLD UP TIME (Typ.)                         | 40ms/230Vac      8ms/115Vac at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                  |                                                                              |                                                    |              |
| INPUT                                   | VOLTAGE RANGE                               | 85 ~ 305Vac      120 ~ 430Vdc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                  |                                                                              |                                                    |              |
|                                         | FREQUENCY RANGE                             | 47 ~ 440Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |                                                                              |                                                    |              |
|                                         | EFFICIENCY (Typ.)                           | 76%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 79%                              | 84%                                                                          | 84%                                                | 85%          |
|                                         | AC CURRENT (Typ.)                           | 0.6A/115Vac      0.4A/230Vac      0.3A/277Vac                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                  |                                                                              |                                                    |              |
|                                         | INRUSH CURRENT (Typ.)                       | COLD START 20A/115Vac      40A/230Vac                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                  |                                                                              |                                                    |              |
|                                         | LEAKAGE CURRENT                             | < 0.25mA/277Vac                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                  |                                                                              |                                                    |              |
| PROTECTION                              | OVERLOAD                                    | 115%~160% rated output power                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                  |                                                                              |                                                    |              |
|                                         |                                             | Protection type : Hiccup mode, recovers automatically after fault condition is removed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                  |                                                                              |                                                    |              |
|                                         | OVER VOLTAGE                                | 3.8 ~ 4.46V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.75 ~ 6.75V                     | 13.8 ~ 16.2V                                                                 | 17.25 ~ 20.25V                                     | 27.6 ~ 32.4V |
|                                         |                                             | Protection type : Shut off o/p voltage, clamping by zener diode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                  |                                                                              |                                                    |              |
| ENVIRONMENT                             | WORKING TEMP.                               | -30 ~ +85℃ (Refer to "Derating Curve")                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                  |                                                                              |                                                    |              |
|                                         | WORKING HUMIDITY                            | 20 ~ 90% RH non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |                                                                              |                                                    |              |
|                                         | STORAGE TEMP., HUMIDITY                     | -40 ~ +85℃, 10 ~ 95% RH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                  |                                                                              |                                                    |              |
|                                         | TEMP. COEFFICIENT                           | ±0.03%/℃ (0 ~ 50℃)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                  |                                                                              |                                                    |              |
|                                         | VIBRATION                                   | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                  |                                                                              |                                                    |              |
|                                         | SOLDERING TEMPERATURE                       | Wave soldering: 265℃,5s (max.); Manual soldering: 390℃,3s (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                  |                                                                              |                                                    |              |
|                                         | OPERATING ALTITUDE <small>Note.4</small>    | 2000 meters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                  |                                                                              |                                                    |              |
| SAFETY & EMC<br><small>(Note.5)</small> | SAFETY STANDARDS                            | IEC62368-1, UL62368-1, TUV BS EN/EN62368-1, EAC TP TC 004, BSMI CNS15598-1 approved                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                  |                                                                              |                                                    |              |
|                                         | WITHSTAND VOLTAGE                           | I/P-O/P:3KVac                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                  |                                                                              |                                                    |              |
|                                         | ISOLATION RESISTANCE                        | I/P-O/P:100M Ohms / 500Vdc / 25℃ / 70% RH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                  |                                                                              |                                                    |              |
|                                         | EMC EMISSION                                | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Standard                         |                                                                              | Test Level / Note                                  |              |
|                                         |                                             | Conducted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | BS EN/EN55032(CISPR32), CNS15936 |                                                                              | Class B                                            |              |
|                                         |                                             | Radiated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | BS EN/EN55032(CISPR32), CNS15936 |                                                                              | Class B                                            |              |
|                                         |                                             | Harmonic Current (Note 5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | BS EN/EN61000-3-2                |                                                                              | Class A                                            |              |
|                                         |                                             | Voltage Flicker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | BS EN/EN61000-3-3                |                                                                              | -----                                              |              |
|                                         | EMC IMMUNITY                                | BS EN/EN55035, BS EN/EN61000-6-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                  |                                                                              |                                                    |              |
|                                         |                                             | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Standard                         |                                                                              | Test Level /Note                                   |              |
|                                         |                                             | ESD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | BS EN/EN61000-4-2                |                                                                              | Level 3, 8KV air; Level 2, 4KV contact, criteria A |              |
|                                         |                                             | Radiated Susceptibility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | BS EN/EN61000-4-3                |                                                                              | Level 3, criteria A                                |              |
|                                         |                                             | EFT/Burest                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | BS EN/EN61000-4-4                |                                                                              | Level 3, criteria A                                |              |
|                                         |                                             | Surge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | BS EN/EN61000-4-5                |                                                                              | Level 4,2KV/L-N, criteria A                        |              |
|                                         |                                             | Conducted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | BS EN/EN61000-4-6                |                                                                              | Level 3, criteria A                                |              |
| Magnetic Field                          |                                             | BS EN/EN61000-4-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                  | Level 4, criteria A                                                          |                                                    |              |
| Voltage Dips and interruptions          |                                             | BS EN/EN61000-4-11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                  | >95% dip 0. 5 periods, 30% dip 25 periods,<br>>95% interruptions 250 periods |                                                    |              |
| OTHERS                                  | MTBF                                        | 10656.2K hrs min.      Telcordia SR-332 (Bellcore) ; 970.3K hrs min.      MIL-HDBK-217F (25℃)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                  |                                                                              |                                                    |              |
|                                         | DIMENSION                                   | 52.4*27.2*24mm (L*W*H)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                  |                                                                              |                                                    |              |
|                                         | PACKING                                     | 0.05Kg/240pcs/13Kg/0.94CUFT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                  |                                                                              |                                                    |              |
| NOTE                                    |                                             | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μ F & 47 μ F parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).<br>5. The power supply is considered as an independent unit ,but the final equipment still need to re-confirm that the whole system complies with the EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."<br>(as available on <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a> )<br>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a> |                                  |                                                                              |                                                    |              |

### Block Diagram

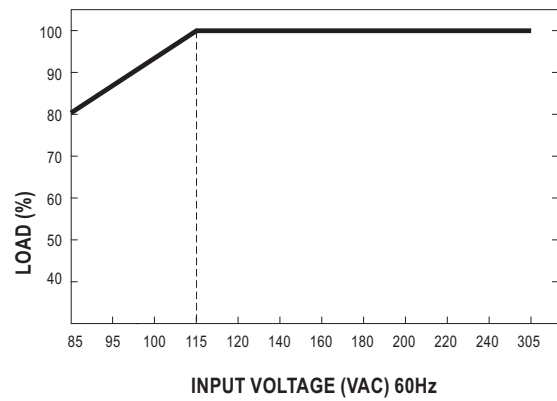
fosc : 65KHz



### Derating Curve



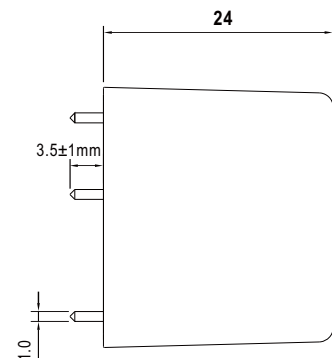
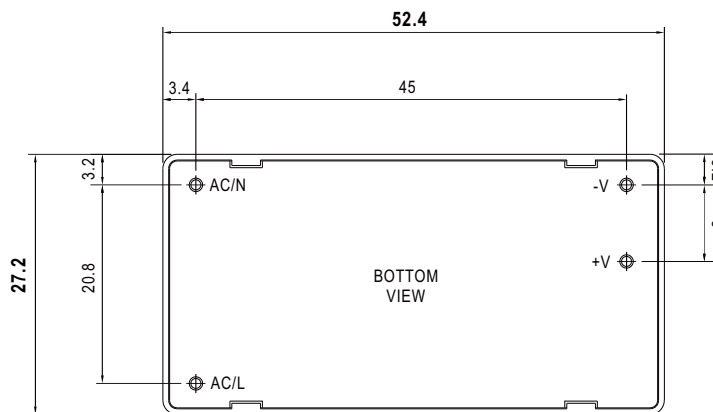
### Output Derating VS Input Voltage



### Mechanical Specification

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

Case No.219A



P/N diameter:1.0

### Installation Manual

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

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## Hauptsitz

### **Simpex Electronic AG**

Binzackerstrasse 33

CH-8620 Wetzikon

Telefon +41 44 931 10 10

E-Mail [contact@simpex.ch](mailto:contact@simpex.ch)

Internet [www.simpex.ch](http://www.simpex.ch)

## Manufaktur

### **Simpex Electronic SA**

En Bas-le-Port 1

CH-2088 Cressier

E-Mail [contact@simpex.ch](mailto:contact@simpex.ch)

Internet [www.simpex.ch](http://www.simpex.ch)