



Наличие и актуальные цены на

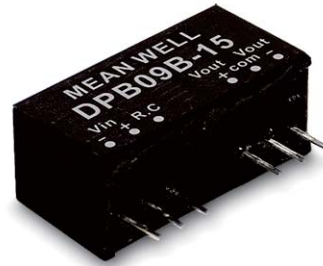
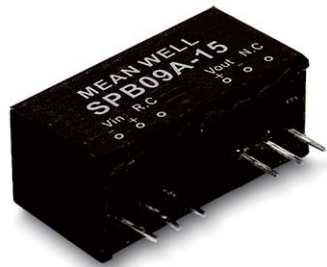
**SPB09B-03**

<https://www.mean-well.ru/store/SPB09B-03/>



9W SIP Package DC-DC Regulated Converter

## SPB09 & DPB09 series



### ■ Features

- SIP8 package with industry standard pinout
- 2:1 wide input range
- Operating temperature range -40 ~ +90°C
- No minimum load required
- High efficiency up to 89%
- Protections: Short circuit (Continuous) / Overload / Input under voltage
- 1.5KVDC I/O isolation
- Remote ON/OFF control
- 9V model available(optional)
- 3 years warranty

### ■ Applications

- Telecom/datacom system
- Wireless network
- Industrial control facility
- Instrument
- Analyzer
- Detector
- Data switch

### ■ GTIN CODE

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

### ■ Description

SPB09 and DPB09 series are 9W isolated and regulated module type DC-DC converter with SIP8 package. It features international standard pins, a high efficiency up to 89%, wide working temperature range -40~+90°C, 1.5KVDC I/P-O/P isolation voltage, continuous-mode short circuit protection, etc. The models account for different input voltage 9~18V and 18~36V and 36~75V 2:1 wide input range, and various output voltage, 3.3V/5V/12V/15V/24V for single output and  $\pm 5V/\pm 12V/\pm 15V$  for dual outputs, which are suitable for all kinds of systems, Such as industrial control, telecommunication field, distributed power architecture, and so on.

### ■ Model Encoding

SPB09A-12

Output voltage (3.3/5/12/15/24Vdc ,  $\pm 5/\pm 12/\pm 15Vdc$ )

Input voltage (A: 9~18Vdc , B: 18~36Vdc , C: 36~75Vdc)

Rated wattage

Series name { S:Single output  
D: Dual output



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| MODEL SELECTION TABLE |                          |               |           |                   |                   |                      |                          |
|-----------------------|--------------------------|---------------|-----------|-------------------|-------------------|----------------------|--------------------------|
| ORDER NO.             | INPUT                    |               |           | OUTPUT            |                   | EFFICIENCY<br>(TYP.) | CAPACITOR LOAD<br>(MAX.) |
|                       | INPUT VOLTAGE<br>(RANGE) | INPUT CURRENT |           | OUTPUT<br>VOLTAGE | OUTPUT<br>CURRENT |                      |                          |
|                       |                          | NO LOAD       | FULL LOAD |                   |                   |                      |                          |
| SPB09A-03             | Normal 12V<br>(9 ~ 18V)  | 12mA          | 671mA     | 3.3V              | 0 ~ 2000mA        | 82%                  | 1000μF                   |
| SPB09A-05             |                          | 12mA          | 800mA     | 5V                | 0 ~ 1600mA        | 83%                  | 1000μF                   |
| SPB09A-12             |                          | 12mA          | 852mA     | 12V               | 0 ~ 750mA         | 88%                  | 220μF                    |
| SPB09A-15             |                          | 12mA          | 852mA     | 15V               | 0 ~ 600mA         | 88%                  | 100μF                    |
| SPB09A-24             |                          | 15mA          | 852mA     | 24V               | 0 ~ 375mA         | 88%                  | 100μF                    |
| DPB09A-05             |                          | 15mA          | 784mA     | ± 5V              | ±0 ~ 800mA        | 85%                  | 470μF                    |
| DPB09A-12             |                          | 22mA          | 862mA     | ± 12V             | ±0 ~ 375mA        | 88%                  | 100μF                    |
| DPB09A-15             |                          | 20mA          | 862mA     | ± 15V             | ±0 ~ 300mA        | 88%                  | 47μF                     |
| SPB09B-03             | Normal 24V<br>(18 ~ 36V) | 6mA           | 335mA     | 3.3V              | 0 ~ 2000mA        | 82%                  | 1000μF                   |
| SPB09B-05             |                          | 8mA           | 392mA     | 5V                | 0 ~ 1600mA        | 85%                  | 1000μF                   |
| SPB09B-12             |                          | 12mA          | 426mA     | 12V               | 0 ~ 750mA         | 88%                  | 220μF                    |
| SPB09B-15             |                          | 12mA          | 421mA     | 15V               | 0 ~ 600mA         | 89%                  | 100μF                    |
| SPB09B-24             |                          | 20mA          | 421mA     | 24V               | 0 ~ 375mA         | 89%                  | 100μF                    |
| DPB09B-05             |                          | 10mA          | 392mA     | ± 5V              | ±0 ~ 800mA        | 85%                  | 470μF                    |
| DPB09B-12             |                          | 15mA          | 431mA     | ± 12V             | ±0 ~ 375mA        | 87%                  | 100μF                    |
| DPB09B-15             |                          | 15mA          | 431mA     | ± 15V             | ±0 ~ 300mA        | 87%                  | 47μF                     |
| SPB09C-03             | Normal 48V<br>(36 ~ 75V) | 5mA           | 168mA     | 3.3V              | 0 ~ 2000mA        | 82%                  | 1000μF                   |
| SPB09C-05             |                          | 5mA           | 196mA     | 5V                | 0 ~ 1600mA        | 85%                  | 1000μF                   |
| SPB09C-12             |                          | 5mA           | 213mA     | 12V               | 0 ~ 750mA         | 88%                  | 220μF                    |
| SPB09C-15             |                          | 5mA           | 213mA     | 15V               | 0 ~ 600mA         | 88%                  | 100μF                    |
| SPB09C-24             |                          | 15mA          | 211mA     | 24V               | 0 ~ 375mA         | 89%                  | 100μF                    |
| DPB09C-05             |                          | 6mA           | 198mA     | ± 5V              | ±0 ~ 800mA        | 84%                  | 470μF                    |
| DPB09C-12             |                          | 8mA           | 216mA     | ± 12V             | ±0 ~ 375mA        | 87%                  | 100μF                    |
| DPB09C-15             |                          | 8mA           | 216mA     | ± 15V             | ±0 ~ 300mA        | 87%                  | 470μF                    |

\* For each output



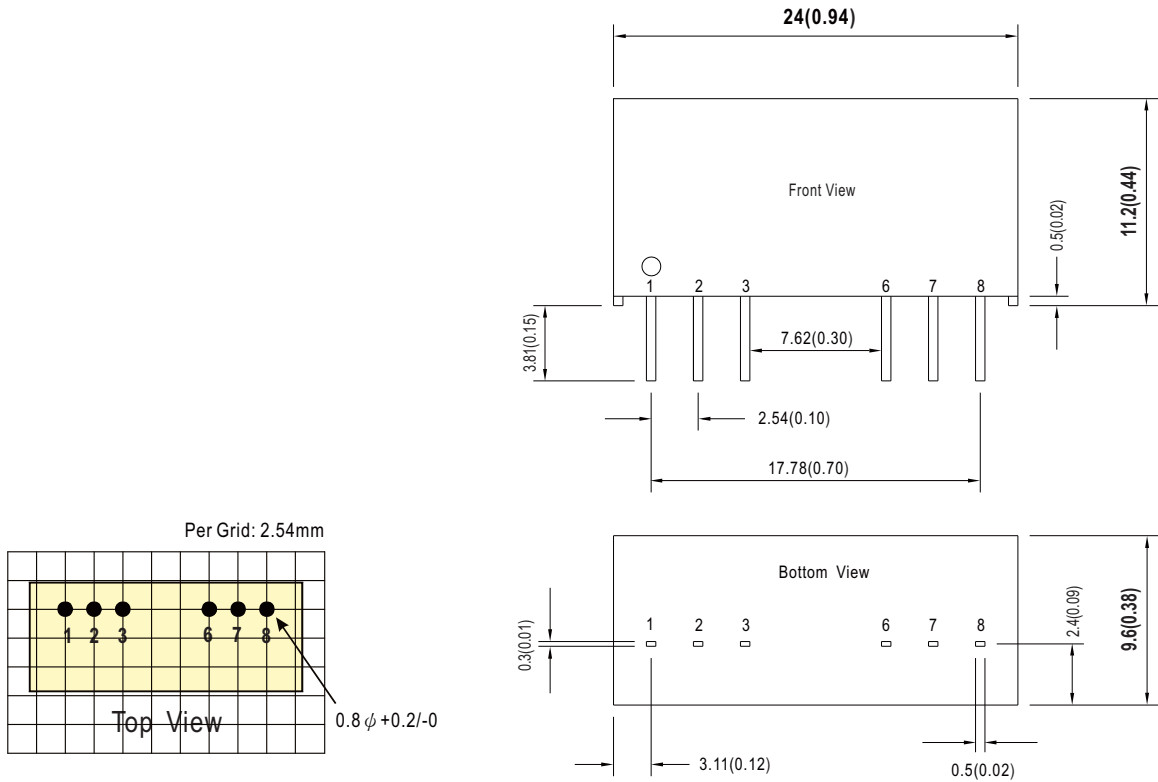
9W SIP Package DC-DC Regulated Converter

**SPB09 & DPB09 series**

| SPECIFICATION             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                   |                        |                                        |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------------|
| INPUT                     | VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | A: 9~18Vdc , B: 18~36Vdc , C: 36~75Vdc                                                                            |                        |                                        |
|                           | FILTER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Internal capacitor                                                                                                |                        |                                        |
|                           | PROTECTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Fuse recommended. 12Vin models: 2A Slow-Blow, 24Vin models: 1A Slow-Blow Type, 48Vin models: 600mA Slow-Blow Type |                        |                                        |
| OUTPUT                    | VOLTAGE ACCURACY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ± 1.5%                                                                                                            |                        |                                        |
|                           | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 9W                                                                                                                |                        |                                        |
|                           | RIPPLE & NOISE   Note.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 100mVp-p                                                                                                          |                        |                                        |
|                           | LINE REGULATION   Note.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.5%                                                                                                              |                        |                                        |
|                           | LOAD REGULATION   Note.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Single output models: ±0.5% (±1% for 3.3Vout model), Dual output models: ±0.5%                                    |                        |                                        |
|                           | SWITCHING FREQUENCY (Min.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 400KHz                                                                                                            |                        |                                        |
| PROTECTION                | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Protection type : Continuous, automatic recovery                                                                  |                        |                                        |
|                           | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 120 ~ 250% rated output power                                                                                     |                        |                                        |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Protection type : Recovers automatically after fault condition is removed                                         |                        |                                        |
| FUNCTION                  | REMOTE CONTROL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Power ON: R.C. ~ -Vin >2.5Vdc or open circuit ; Power OFF: R.C. ~ -Vin <0.8Vdc or short                           |                        |                                        |
| ENVIRONMENT               | COOLING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Free-air convection                                                                                               |                        |                                        |
|                           | WORKING TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -40 ~ +90℃ (Refer to "Derating Curve")                                                                            |                        |                                        |
|                           | CASE TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | +115℃ max.                                                                                                        |                        |                                        |
|                           | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20% ~ 90% RH non-condensing                                                                                       |                        |                                        |
|                           | STORAGE TEMP., HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -40 ~ +125℃, 10 ~ 95% RH non-condensing                                                                           |                        |                                        |
|                           | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.03% / °C (0 ~ 70℃)                                                                                              |                        |                                        |
|                           | SOLDERING TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.5mm from case of 1 ~ 3sec./260℃ max.                                                                            |                        |                                        |
|                           | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes                                           |                        |                                        |
| SAFETY & EMC<br>( Note.5) | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | EAC TP TC 020/2011 (EAC TP TC 004 for 48Vin type only) approved                                                   |                        |                                        |
|                           | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | I/P-O/P:1.5KVDC                                                                                                   |                        |                                        |
|                           | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | I/P-O/P:100M Ohms / 500VDC / 25℃ / 70% RH                                                                         |                        |                                        |
|                           | ISOLATION CAPACITANCE (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 500pF                                                                                                             |                        |                                        |
|                           | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Parameter                                                                                                         | Standard               | Test Level / Note                      |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Conducted                                                                                                         | BS EN/EN55032(CISPR32) | N/A                                    |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Radiated                                                                                                          | BS EN/EN55032(CISPR32) | Class A/B with external components     |
|                           | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Parameter                                                                                                         | Standard               | Test Level / Note                      |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ESD                                                                                                               | BS EN/EN61000-4-2      | Level 3, ±8KV air, Level 2±4KV contact |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Radiated Susceptibility                                                                                           | BS EN/EN61000-4-3      | Level 2, 3V/m                          |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EFT/Bursts                                                                                                        | BS EN/EN61000-4-4      | Level 2, 0.5KV at power                |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Surge                                                                                                             | BS EN/EN61000-4-5      | Level 2, 0.5KV Line-Line               |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Conducted                                                                                                         | BS EN/EN61000-4-6      | Level 2, 3V(e.m.f.)                    |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Magnetic Field                                                                                                    | BS EN/EN61000-4-8      | Level 1, 1A/m                          |
| OTHERS                    | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 275Khrs MIL-HDBK-217F(25℃)                                                                                        |                        |                                        |
|                           | DIMENSION (L*W*H)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 24*9.6*11.2mm (0.94*0.38*0.44 inch)                                                                               |                        |                                        |
|                           | CASE MATERIAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Non-Conductive black plastic (UL 94V-0 rated)                                                                     |                        |                                        |
|                           | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5g ; 21pcs/per tube, 2100pcs/100 tube/per carton                                                                  |                        |                                        |
| NOTE                      | 1.All parameters are specified at normal input(A:12Vdc, B:24Vdc, C:48Vdc), rated load, 25℃ 70% RH ambient.<br>2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1µf & 47µf capacitor.<br>3.Line regulation is measured from low line to high line at rated load.<br>4.Load regulation is measured from 10% to 100% rated load.<br>5.The final equipment must be re-confirm that it still meet EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."(as available on <a href="http://www.meanwell.com">http://www.meanwell.com</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> |                                                                                                                   |                        |                                        |

### ■ Mechanical Specification

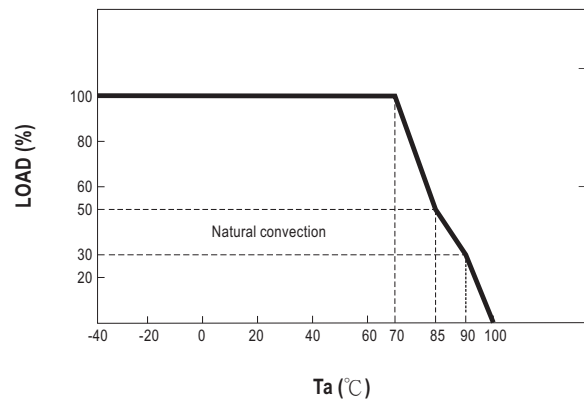
- All dimensions in mm(inch)
- Tolerance:  $x.x \pm 0.5\text{mm}$  ( $x.xx \pm 0.02"$ )
- Pin size is  $0.50 \times 0.30\text{mm}$  ( $0.02" \times 0.01"$ )
- Pin pitch tolerance:  $\pm 0.05\text{mm}$  ( $\pm 0.002"$ )



### ■ Plug Assignment

| Pin-Out |                          |                        |
|---------|--------------------------|------------------------|
| Pin No. | SPB09<br>(Single output) | DPB09<br>(Dual output) |
| 1       | -Vin                     | -Vin                   |
| 2       | +Vin                     | +Vin                   |
| 3       | R.C.                     | R.C.                   |
| 6       | +Vout                    | +Vout                  |
| 7       | -Vout                    | Common                 |
| 8       | N.C.                     | -Vout                  |

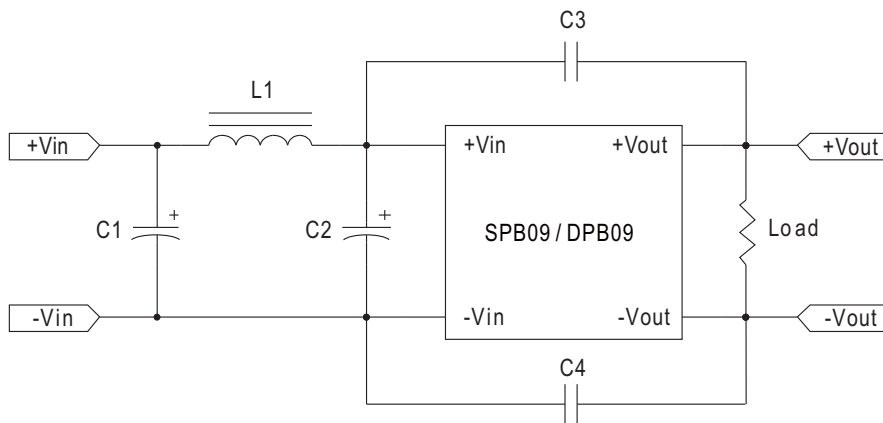
### ■ Derating Curve



### Remote ON/OFF Control

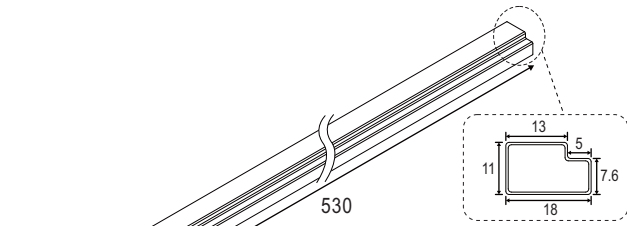
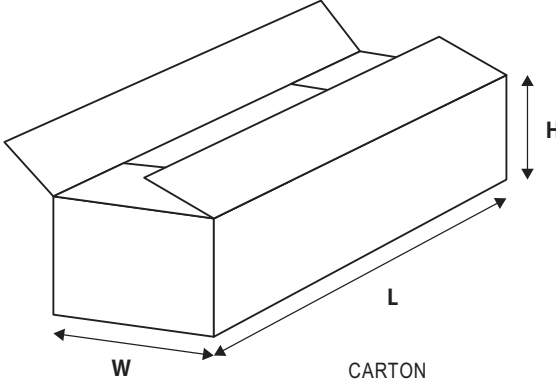
| Remote On/Off Control |                                  |                                 |               |
|-----------------------|----------------------------------|---------------------------------|---------------|
| Control Input         | Pin3                             | Control Common                  | Pin1          |
| Control Voltage       |                                  | Converter Shutdown Idle Current | 10mA          |
| ON                    | >+2.5Vdc or Open Circuit         | Logic Compatibility             | CMOS or Open  |
| OFF                   | <+0.8Vdc or Jumper Short to Pin1 |                                 | Collector TTL |

### EMC Suggestion Circuit



| No | BS EN/EN55032 Class A | BS EN/EN55032 Class B |
|----|-----------------------|-----------------------|
| C1 | NC                    | 2.2μF/100V            |
| C2 | 2.2μF/100V            | 2.2μF/100V            |
| C3 | 1000pF/2KV            | 1500pF/2KV            |
| C4 | 1000pF/2KV            | 1500pF/2KV            |
| L1 | NC                    | 10μH                  |

### ■ Packing

| Standard Tube Packing                                                                                                                                                                                                                                                                                                                                              | MPQ<br>Per Tube<br>(PCS) | One Tube<br>G.W. | Max. Q'TY/<br>Carton(PCS) | One Carton<br>G.W. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------|---------------------------|--------------------|
| <p>Unit : mm</p>  <p>Product</p> <p>Tube Plugs</p>  <p>Tube pattern</p>  <p>CARTON<br/>L620 x W230 x H230</p> | 21                       | 125g             | 2100                      | 13.3Kg             |

### ■ Installation Manual

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