



## ■ Features

- SMD package with industry standard pinout
- Operating temperature range -40 ~ +100°C
- Comply to EN55032 radiated Class A without additional components
- High efficiency up to 83%
- Protection: Short circuit
- 3KVDC I/O isolation
- Low cost
- Optional reel packing
- 3 years warranty

## ■ Applications

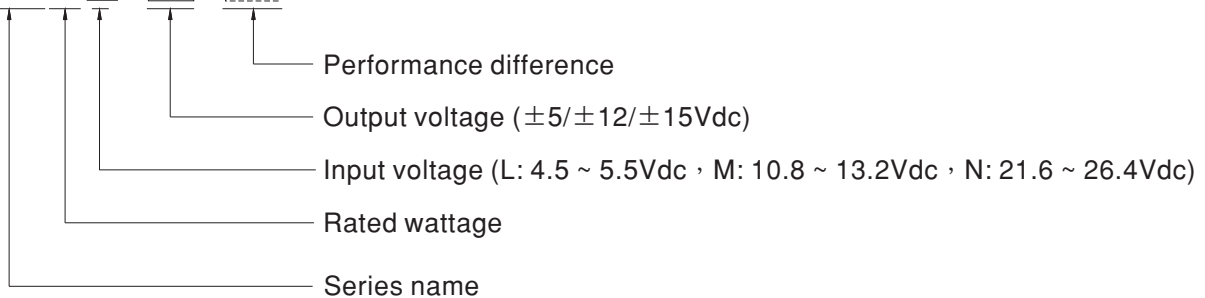
- Telecom/datacom system
- Wireless network
- Industrial control facility
- Instrument
- Analyzer
- Detector
- Data switch

## ■ Description

DETN02 series is 2W isolated and unregulated module type DC-DC converter with SMD package. It features international standard pins, a high efficiency up to 83%, wide working temperature range -40~+100°C, 3KVDC I/P-O/P isolation voltage, compliance to EN55032 radiated Class A without additional components, short circuit protection, etc. The models account for different input voltage 5V/12V/24V±10%, and various output voltage, ±5V/±12V/±15V for Dual output which are suitable for all kinds of systems, Such as industrial control, telecommunication field, distributed power architecture, and so on.

## ■ Model Encoding

DETN02 **L** - **12** - **SC**



| Type  | Description  | Note     |
|-------|--|----------|
| Blank | -40~+100°C working temperature with max. 0.5 second short protection | In Stock |
| SC    | -40~+105°C working temperature with continuous short protection      | Optional |

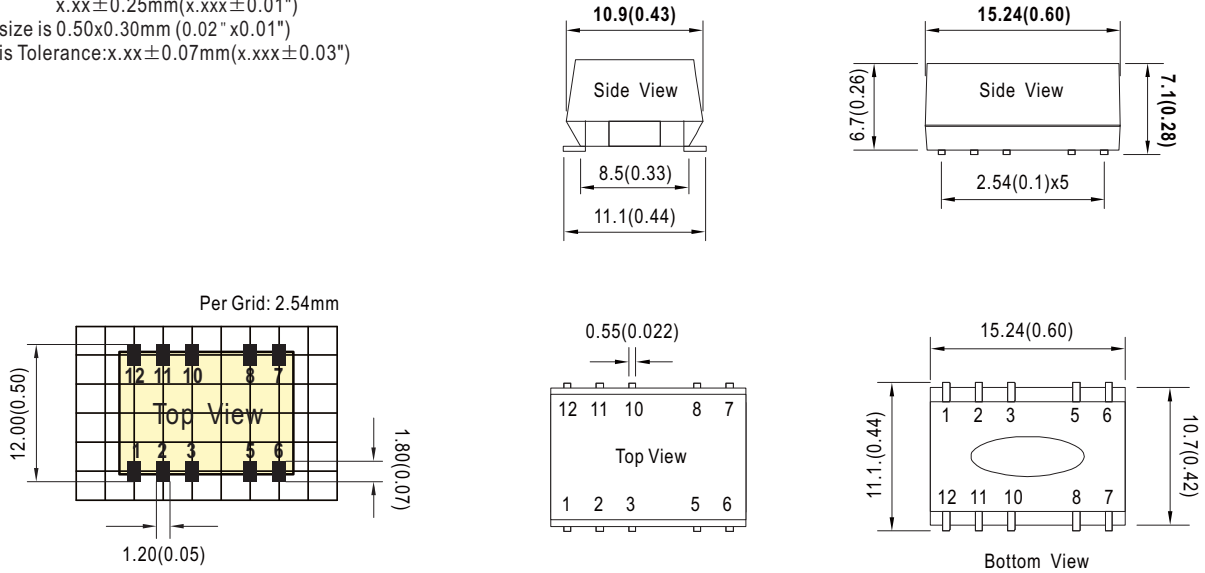


| MODEL SELECTION TABLE |                              |               |           |                |                |                   |                       |
|-----------------------|------------------------------|---------------|-----------|----------------|----------------|-------------------|-----------------------|
| ORDER NO.             | INPUT                        |               |           | OUTPUT         |                | EFFICIENCY (TYP.) | CAPACITOR LOAD (MAX.) |
|                       | INPUT VOLTAGE (RANGE)        | INPUT CURRENT |           | OUTPUT VOLTAGE | OUTPUT CURRENT |                   |                       |
|                       |                              | NO LOAD       | FULL LOAD |                |                |                   |                       |
| DETN02L-05            | Normal 5V<br>(4.5 ~ 5.5V)    | 60mA          | 513mA     | ±5V            | ±20 ~ 200mA    | 78%               | 220μF                 |
| DETN02L-12            |                              | 60mA          | 500mA     | ±12V           | ±8 ~ 84mA      | 80%               | 220μF                 |
| DETN02L-15            |                              | 60mA          | 494mA     | ±15V           | ±6 ~ 67mA      | 81%               | 220μF                 |
| DETN02M-05            | Normal 12V<br>(10.8 ~ 13.2V) | 30mA          | 208mA     | ±5V            | ±20 ~ 200mA    | 80%               | 220μF                 |
| DETN02M-12            |                              | 30mA          | 203mA     | ±12V           | ±8 ~ 84mA      | 82%               | 220μF                 |
| DETN02M-15            |                              | 30mA          | 200mA     | ±15V           | ±6 ~ 67mA      | 83%               | 220μF                 |
| DETN02N-05            | Normal 24V<br>(21.6 ~ 26.4V) | 15mA          | 107mA     | ±5V            | ±20 ~ 200mA    | 78%               | 220μF                 |
| DETN02N-12            |                              | 15mA          | 104mA     | ±12V           | ±8 ~ 84mA      | 80%               | 220μF                 |
| DETN02N-15            |                              | 15mA          | 104mA     | ±15V           | ±6 ~ 67mA      | 80%               | 220μF                 |

| SPECIFICATION           |   |  |                          |  |
|-------------------------|---|--|--------------------------|--|
| INPUT                   | VOLTAGE RANGE   | L: 4.5 ~ 5.5Vdc<br>M: 10.8 ~ 13.2Vdc<br>N: 21.6 ~ 26.4Vdc  |                          |  |
|                         | SURGE VOLTAGE (100ms max.)  | 5Vin models : 9Vdc<br>12Vin models : 16Vdc<br>24Vin models : 30Vdc   |                          |  |
|                         | FILTER  | Internal capacitor   |                          |  |
|                         | PROTECTION  | Fuse recommended.<br>5Vin models: 800mA Slow-Blow Type<br>12Vin models: 300mA Slow-Blow Type<br>24Vin models: 170mA Slow-Blow Type |                          |  |
|                         | INTERNAL POWER DISSIPATION  | 500mW  |                          |  |
| OUTPUT                  | VOLTAGE ACCURACY  | ±2.0%  |                          |  |
|                         | RATED POWER   | 2W   |                          |  |
|                         | RIPPLE & NOISE Note.2   | 75mVp-p  |                          |  |
|                         | LINE REGULATION Note.3  | 1.2% for 1% input variation  |                          |  |
|                         | LOAD REGULATION Note.4  | ±8%  |                          |  |
|                         | SWITCHING FREQUENCY (Typ.)  | 100KHz   |                          |  |
| PROTECTION              | SHORT CIRCUIT   | Standard model: 0.5 second max.<br>Optional models (SC-suffix): Continuous   |                          |  |
| ENVIRONMENT             | COOLING   | Free-air convection  |                          |  |
|                         | WORKING TEMP.   | Standard model: -40 ~ +100°C (Refer to "Derating Curve") ; Optional models (SC-suffix): -40 ~ +105°C                               |                          |  |
|                         | CASE TEMPERATURE  | +105°C max.  |                          |  |
|                         | WORKING HUMIDITY  | 20% ~ 90% RH non-condensing  |                          |  |
|                         | STORAGE TEMP., HUMIDITY   | -55 ~ +125°C, 10 ~ 95% RH non-condensing   |                          |  |
|                         | TEMP. COEFFICIENT   | 0.03% / °C (0 ~ 90°C)  |                          |  |
|                         | SOLDERING TEMPERATURE   | 1.5mm from case of 1 ~ 10sec./240°C max.   |                          |  |
|                         | VIBRATION   | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes  |                          |  |
| SAFETY & EMC (Note.5,6) | SAFETY STANDARDS  | EAC TP TC 004 approved   |                          |  |
|                         | WITHSTAND VOLTAGE   | I/P-O/P:3KVDC  |                          |  |
|                         | ISOLATION RESISTANCE  | I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH   |                          |  |
|                         | ISOLATION CAPACITANCE (Typ.)  | 80pF   |                          |  |
|                         | EMC EMISSION  | Parameter  | Standard                 | Test Level / Note( Note.6)             |
|                         |   | Conducted  | EN55032(CISPR32)         | N/A                                    |
|                         |   | Radiated   | EN55032(CISPR32)         | Class A                                |
|                         | EMC IMMUNITY  | Parameter  | Standard                 | Test Level / Note                      |
|                         |   | ESD  | EN61000-4-2              | Level 3, ±8KV air, Level 2±4KV contact |
|                         |   | Radiated Susceptibility  | EN61000-4-3              | Level 2, 3V/m                          |
|                         |   | EFT/Burest   | EN61000-4-4              | Level 1, 0.5KV at power                |
| Surge                   |   | EN61000-4-5  | Level 2, 0.5KV Line-Line |  |
| Conducted               |   | EN61000-4-6  | Level 2, 3V(e.m.f.)      |  |
| Magnetic Field          |   | EN61000-4-8  | Level 1, 1A/m            |  |
| OTHERS                  | MTBF  | 888Khrs min. MIL-HDBK-217F(25°C)   |                          |  |
|                         | DIMENSION (L*W*H)   | 15.24*10.9*7.1mm (0.6*0.43*0.28 inch)  |                          |  |
|                         | CASE MATERIAL   | Non-Conductive black plastic (UL 94V-0 rated)  |                          |  |
|                         | PACKING   | 1.2g   |                          |  |
| NOTE                    | <p>1.All parameters are specified at normal input(L:5Vdc, M:12Vdc, N:24Vdc), rated load, 25°C 70% RH ambient.</p> <p>2.Ripple &amp; noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1µf &amp; 47µf capacitor.</p> <p>3.Line regulation is measured from low line to high line at rated load.</p> <p>4.Load regulation is measured from 10% to 100% rated load.</p> <p>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>)</p> <p>6.An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.</p> <p>The filter capacitor Power Mate suggest: 470µF/100V.</p> |  |                          |  |

**Mechanical Specification**

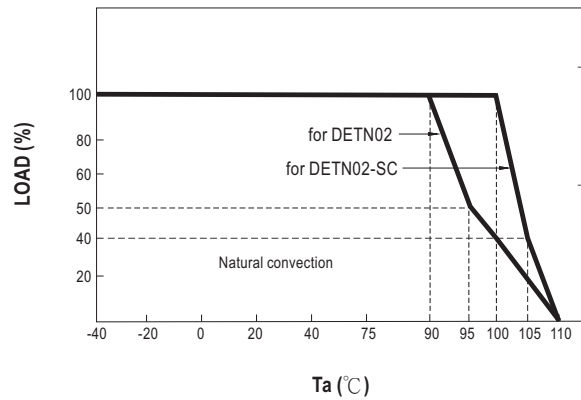
- All dimensions in mm (inch)
- Tolerance:  $x.xx \pm 0.5mm (x.xx \pm 0.02")$   
 $x.xx \pm 0.25mm (x.xxx \pm 0.01")$
- Pin size is  $0.50 \times 0.30mm (0.02" \times 0.01")$
- Pin is Tolerance:  $x.xx \pm 0.07mm (x.xxx \pm 0.03")$



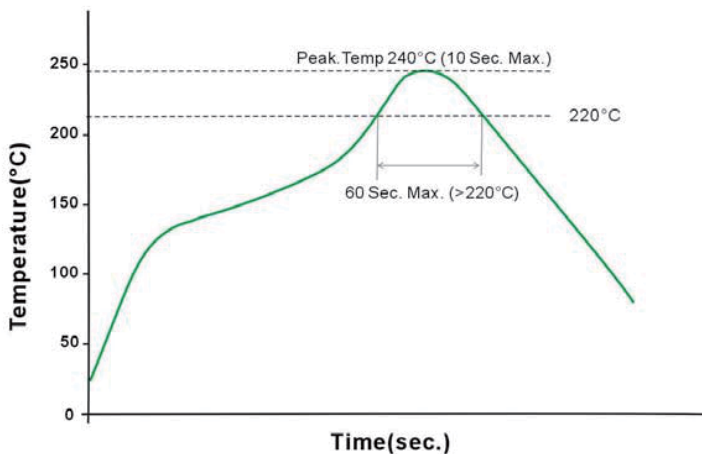
**Plug Assignment**

| Pin No.      | Pin-Out |
|--------------|---------|
| 1            | -Vin    |
| 2            | +Vin    |
| 5            | Common  |
| 6            | -Vout   |
| 8            | +Vout   |
| 3,7,10,11,12 | N.C.    |

**Derating Curve**



**Reflow Soldering Curve**



Remark: The curve applies only to the hot air reflow soldering.

■ Packing

| Standard Tube Packing   | MPQ Per Tube (PCS) | One Box G.W. | Max. Q'TY/ Carton(PCS) | One Carton G.W. |
|---|--------------------|--------------|------------------------|-----------------|
| <p>Unit : mm</p> <p>TUBE PATTERN</p> <p>CARTON<br/>L600 x W230 x H220</p>   | 32                 | 0.061Kg      | 3840                   | 8.12Kg          |
| Optional Reel Packing   | MPQ Per Tube (PCS) | One Box G.W. | Max. Q'TY/ Carton(PCS) | One Carton G.W. |
| <p>Unit : mm</p> <p>Reel Width=32</p> <p>W=32(+0.3/-0.1)<br/>Ao=11.4(±0.1)<br/>Bo=15.5(±0.1)<br/>Ko=7.4(±0.1)<br/>P1=16(±0.1)</p> <p>INNER BOX<br/>L355*W338*H50</p> <p>OUTER CARTON<br/>L375*W284*H370</p> | 500                | 1.3Kg        | 2500                   | 7.3Kg           |

■ Installation Manual

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