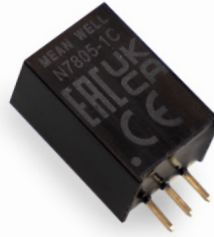


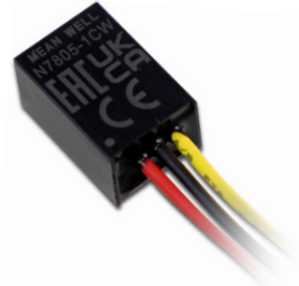
(PV Type)



(PH Type)



(C Type)



(CW Type)



■ Features

- Compact size
- Pin-out compatible with LM78xx / LM79xx linear regulators
- High efficiency up to 96%, no heatsink required
- Wide input range up to 36V
- Support negative output
- Operating temperature range -40 ~ +85°C
- Comply to BS EN/EN55032 radiated Class B without additional components
- Protections: Short circuit / Overload / Over temperature
- Low ripple and noises
- 3 years warranty

■ Applications

- Voltage step down
- Power supplies
- Industrial PC
- Digital set-top boxes
- Data communications
- Microcontroller related applications
- Point of load regulator in distributed power system

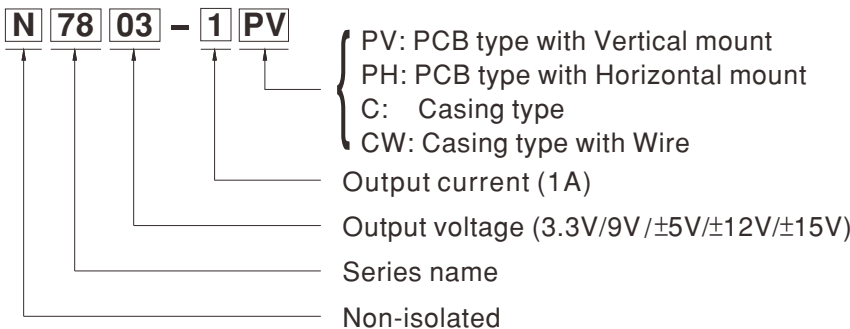
■ GTIN CODE

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

■ Description

N78 series converters is high efficiency switching regulators can suit to replace LM78xx/LM79xx linear regulators and its pin-out can be compatible with LM78xx / LM79xx IC. One of the key features is the model can be chosen positive or negative output voltage according to the application. It also features high efficiency up to 96% meant low power loss, wide working temperature range of -40°C up to +85°C with no additional heat sink, compliance with EN55032 radiated Class B without external components, and so on.

■ Model Encoding



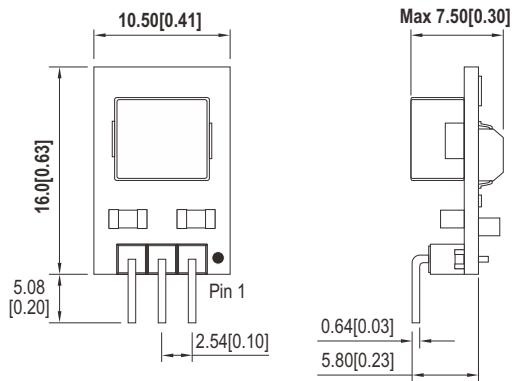
| MODEL SELECTION TABLE | | | | | | | |
|-----------------------|-----------------------|---------------|-----------|----------------|----------------|-------------------|-----------------------|
| ORDER NO. | INPUT | | | OUTPUT | | EFFICIENCY (TYP.) | CAPACITOR LOAD (MAX.) |
| | INPUT VOLTAGE (RANGE) | INPUT CURRENT | | OUTPUT VOLTAGE | OUTPUT CURRENT | | |
| | | NO LOAD | FULL LOAD | | | | |
| N7803-1□ | 12V (6 ~ 36V) | 6mA | 615mA | 3.3V | 0 ~ 1000mA | 91.5% | 680μF |
| N7805-1□ | 12V (8 ~ 36V) | 8mA | 672mA | 5V | 0 ~ 1000mA | 93% | 470μF |
| | 12V (8 ~ 27V) | 11mA | 350mA | -5V | 0 ~ 500mA | 88.5% | 470μF |
| N7809-1□ | 24V (13 ~ 36V) | 10mA | 730mA | 9V | 0 ~ 1000mA | 95% | 220μF |
| N7812-1□ | 24V (16 ~ 36V) | 10mA | 780mA | 12V | 0 ~ 1000mA | 95.5% | 220μF |
| | 12V (8 ~ 20V) | 20mA | 505mA | -12V | 0 ~ 300mA | 89% | 220μF |
| N7815-1□ | 24V (20 ~ 36V) | 10mA | 785mA | 15V | 0 ~ 1000mA | 96% | 150μF |
| | 12V (8 ~ 18V) | 24mA | 635mA | -15V | 0 ~ 300mA | 88% | 150μF |

| SPECIFICATION | | | | |
|--------------------------------------|--|---|------------------------|--------------------------|
| INPUT | VOLTAGE RANGE | 36V max.(Please refer to page 2) | | |
| | SURGE VOLTAGE (100ms max.) | 40V max. | | |
| | FILTER | Capacitor | | |
| | PROTECTION | Fuse recommended. 1500mA Slow-Blow Type for all models | | |
| | INTERNAL POWER DISSIPATION | 500mW | | |
| OUTPUT | VOLTAGE ACCURACY | ±3.0% max. | | |
| | RATED POWER | 3.3W ~ 15W | | |
| | RIPPLE & NOISE <small>Note.2</small> | 100mVp-p max. | | |
| | LINE REGULATION <small>Note.3</small> | ±0.3% | | |
| | LOAD REGULATION <small>Note.4</small> | 3.3V: ±0.3% other: ±0.4% | | |
| | SWITCHING FREQUENCY (Typ.) | 500KHz | | |
| PROTECTION | SHORT CIRCUIT | Continuous, automatic recovery | | |
| | OVERLOAD | 200% ~ 300% Protection type : recovers automatically after fault condition is removed | | |
| | OVER TEMPERATURE | Protection type : shut down o/p voltage, automatic recovery | | |
| ENVIRONMENT | COOLING | Free-air convection | | |
| | WORKING TEMP. | -40 ~ +85°C (Refer to "Derating Curve") | | |
| | CASE TEMPERATURE | +110°C max. | | |
| | WORKING HUMIDITY | 5% ~ 95% RH non-condensing | | |
| | STORAGE TEMP., HUMIDITY | -55 ~ +125°C, 10 ~ 95% RH non-condensing | | |
| | TEMP. COEFFICIENT | 0.03% / °C (0 ~ 71°C) | | |
| | SOLDERING TEMPERATURE | 1.5mm from case of 3 ~ 5sec./265°C max. | | |
| | VIBRATION | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes | | |
| SAFETY & EMC <small>(Note.5)</small> | SAFETY STANDARDS | EAC TP TC 020/2011 approved | | |
| | ISOLATION VOLTAGE | Non-Isolation | | |
| | EMC EMISSION | Parameter | Standard | Test Level / Note |
| | | Conducted | BS EN/EN55032(CISPR32) | N/A |
| | | Radiated | BS EN/EN55032(CISPR32) | Class B |
| | EMC IMMUNITY | Parameter | Standard | Test Level / Note |
| | | ESD | BS EN/EN61000-4-2 | Level 2, ±4KV contact |
| | | Radiated Susceptibility | BS EN/EN61000-4-3 | Level 2, 3V/m |
| | | EFT/Bursts | BS EN/EN61000-4-4 | Level 1, 0.5KV |
| | | Surge | BS EN/EN61000-4-5 | Level 1, 0.5KV Line-Line |
| Conducted | BS EN/EN61000-4-6 | Level 2, 3V(e.m.f.) | | |
| OTHERS | MTBF | 1800Khrs MIL-HDBK-217F(25°C) | | |
| | DIMENSION (L*W*H) | Open frame size: 10.5*7.5*16mm; Case size: 11.5mm*9.0mm*17.5mm | | |
| | CASE MATERIAL | Non-Conductive plastic (UL 94V-0 rated) | | |
| | PACKING | PV/PH type : 2g ; 150pcs/Box, 1800pcs/12 Box/per carton C type : 4g ; 42pcs/per tube, 3360pcs/80 tube/per carton CW type : 5.5g ; 70pcs/Box, 840pcs/12 Box/per carton | | |
| NOTE | <p>1.All parameters are specified at normal input, rated load, 25°C 70% RH ambient.</p> <p>2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1µf & 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 0% 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 http://www.meanwell.com)</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</p> | | | |

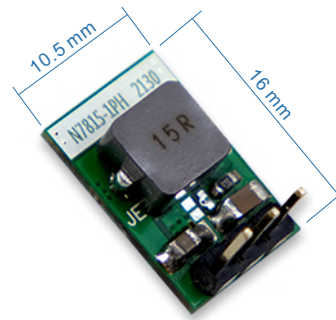
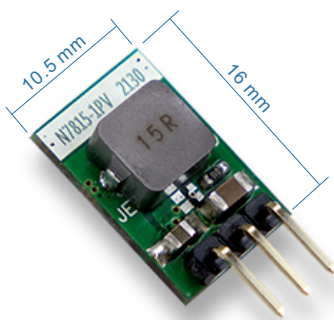
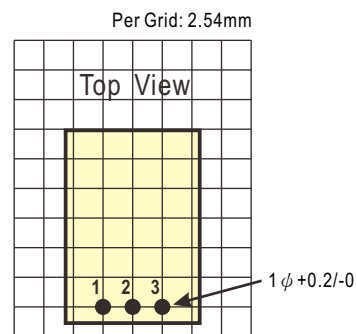
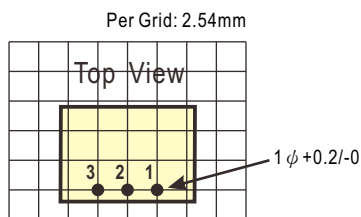
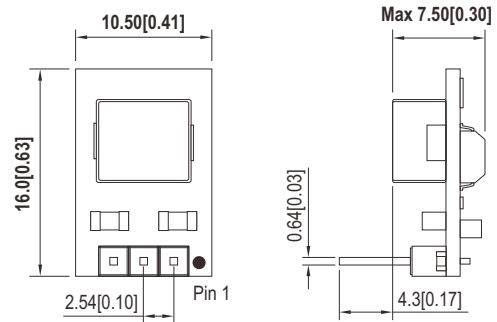
Mechanical Specification

- All dimensions in mm (inch)
- Tolerance: x.x or x.xx ± 0.5mm (x.x or x.xx ± 0.01")
- Pin size is: 0.64*0.64 ± 0.1mm (± 0.003")

※ **PV Type:**
(PCB type with Vertical mount)



※ **PH Type:**
(PCB type with Horizontal mount)

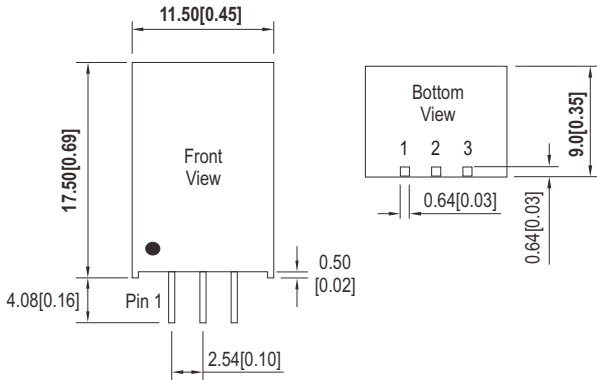


Plug Assignment

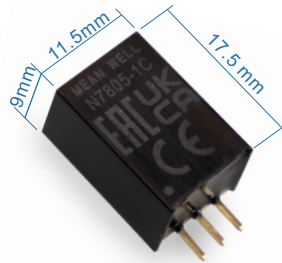
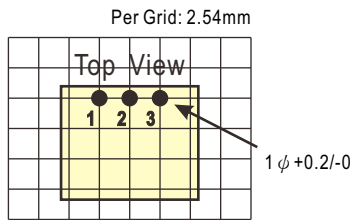
| Pin-Out | | |
|---------|---------------|---------|
| Pin No. | N78xx - PV/PH | |
| | +Output | -Output |
| 1 | +Vin | +Vin |
| 2 | GND | -Vout |
| 3 | +Vout | GND |

※ C Type:
(Casing type)

■ Plug Assignment

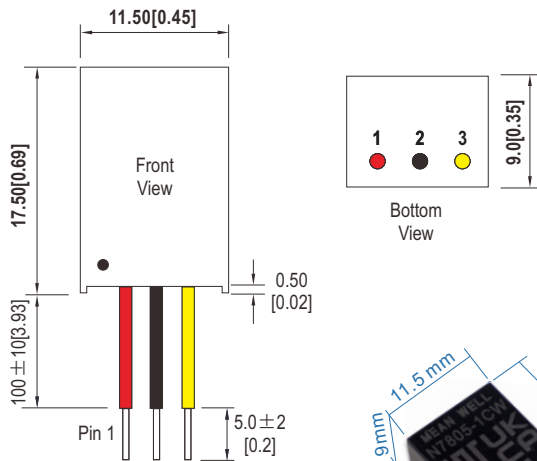


| Pin No. | N78xx - C | |
|---------|-----------|---------|
| | +Output | -Output |
| 1 | +Vin | +Vin |
| 2 | GND | -Vout |
| 3 | +Vout | GND |

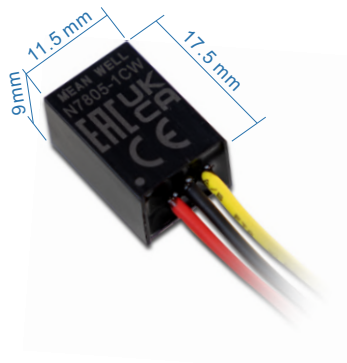


※ CW Type:
(Casing type with Wire)

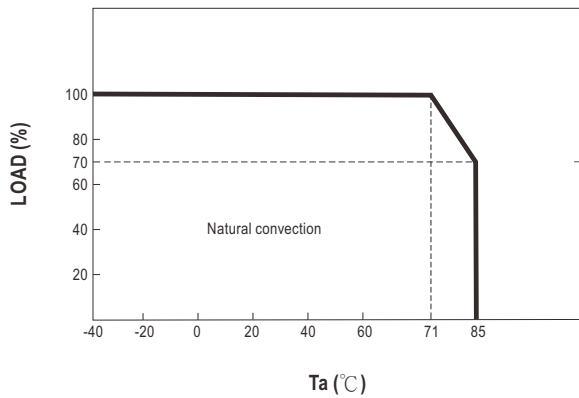
■ Plug Assignment



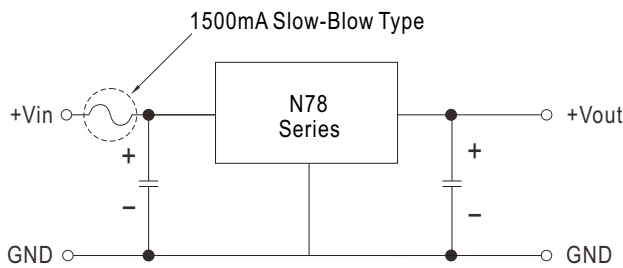
| Pin No. | N78xx - CW | |
|---------------|------------|---------|
| | +Output | -Output |
| 1 (Red) | +Vin | +Vin |
| 2 (Black) | GND | -Vout |
| 3 (Yellow) | +Vout | GND |



■ Derating Curve

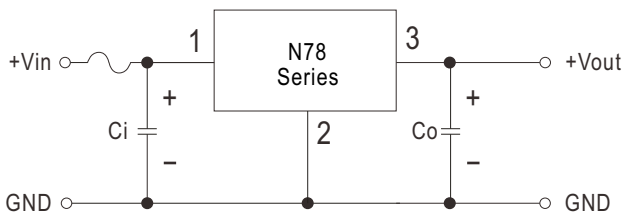


■ External Input Fuse Recommended

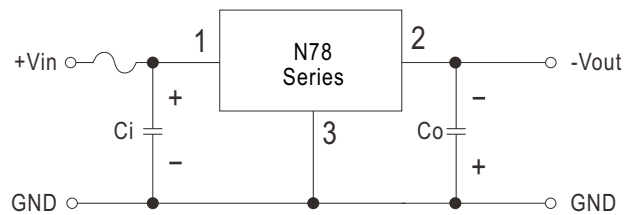


■ Positive or Negative Typical Applications

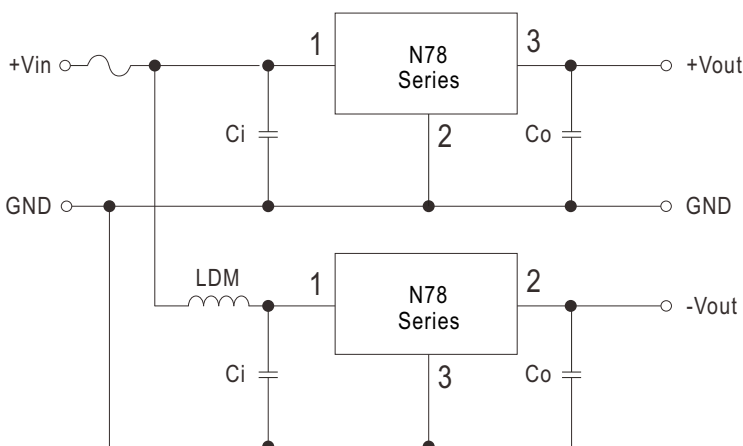
Positive output application circuit



Negative output application circuit



Positive and negative output paralleling application circuit



External capacitor table

| Model No. | Ci (MLCC) | Co (MLCC) |
|-----------|-----------|-----------|
| N7803-1 □ | 10µF/50V | 22µF/10V |
| N7805-1 □ | 10µF/50V | 22µF/10V |
| N7809-1 □ | 10µF/50V | 22µF/25V |
| N7812-1 □ | 10µF/50V | 22µF/25V |
| N7815-1 □ | 10µF/50V | 22µF/25V |

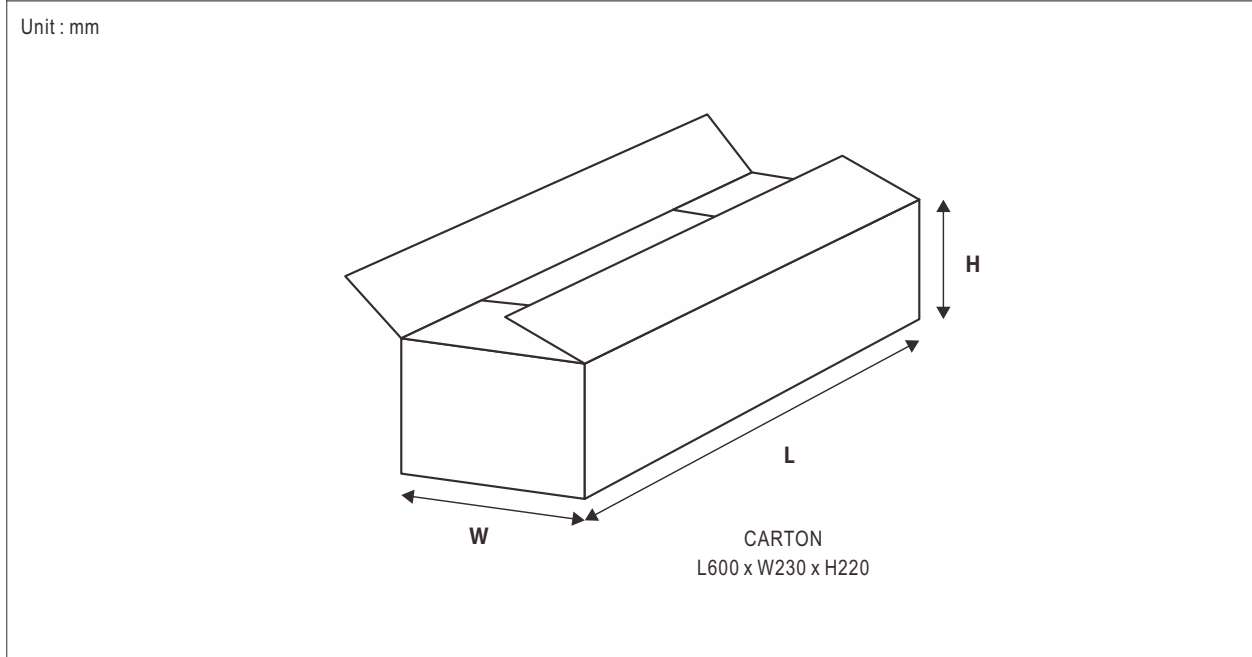
※ In using parallel application circuit, input voltage range should be taken notice of and a 10µH LDM component is recommended to reduce the interference.

Packing

| Standard Packing | N78-1PV(PH) | | | |
|---|--------------------|---------------|------------------------|-----------------|
| | MPQ per(Box) | One Box G.W. | Max. Q'TY/ Carton(PCS) | One Carton G.W. |
| <p>Unit : mm</p> <p>Product</p> <p>Box</p> <p>Antistatic Foam</p> | 150pcs | 395g | 1800 | 6.2Kg |
| Standard Packing | N78-1C | | | |
| | MPQ Per Tube (PCS) | One Tube G.W. | Max. Q'TY/ Carton(PCS) | One Carton G.W. |
| <p>Unit : mm</p> <p>Product</p> <p>Tube Plugs</p> <p>Tube pattern</p> | 42 | 200g | 3360 | 17Kg |

| Standard Packing | N78-1CW | | | |
|------------------|--------------|--------------|------------------------|-----------------|
| | MPQ per(Box) | One Box G.W. | Max. Q'TY/ Carton(PCS) | One Carton G.W. |
| <p>Unit : mm</p> | 70 | 460g | 840 | 6.3Kg |

Standard Packing



Installation Manual

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