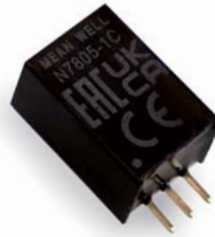


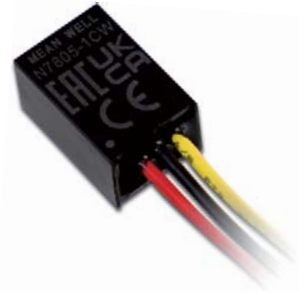
(PV Type)



(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

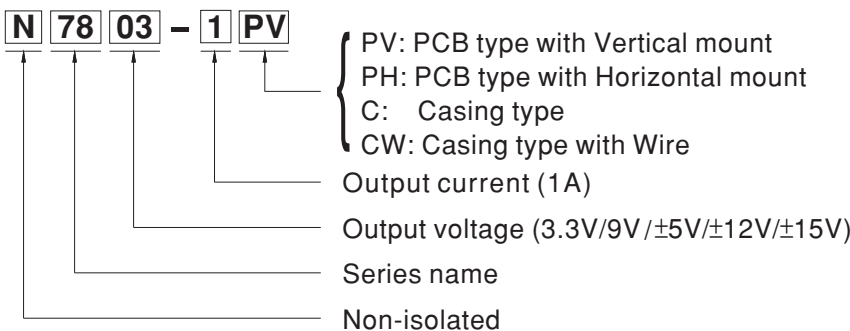
### ■ GTIN CODE

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



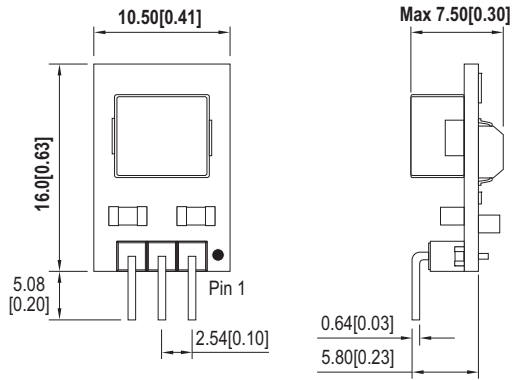
| MODEL SELECTION TABLE |                       |               |           |                |                |                   |                       |
|-----------------------|-----------------------|---------------|-----------|----------------|----------------|-------------------|-----------------------|
| 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<br>(6 ~ 36V)      | 6mA           | 615mA     | 3.3V           | 0 ~ 1000mA     | 91.5%             | 680μF                 |
| N7805-1□              | 12V<br>(8 ~ 36V)      | 8mA           | 672mA     | 5V             | 0 ~ 1000mA     | 93%               | 470μF                 |
|                       | 12V<br>(8 ~ 27V)      | 11mA          | 350mA     | -5V            | 0 ~ 500mA      | 88.5%             | 470μF                 |
| N7809-1□              | 24V<br>(13 ~ 36V)     | 10mA          | 730mA     | 9V             | 0 ~ 1000mA     | 95%               | 220μF                 |
| N7812-1□              | 24V<br>(16 ~ 36V)     | 10mA          | 780mA     | 12V            | 0 ~ 1000mA     | 95.5%             | 220μF                 |
|                       | 12V<br>(8 ~ 20V)      | 20mA          | 505mA     | -12V           | 0 ~ 300mA      | 89%               | 220μF                 |
| N7815-1□              | 24V<br>(20 ~ 36V)     | 10mA          | 785mA     | 15V            | 0 ~ 1000mA     | 96%               | 150μF                 |
|                       | 12V<br>(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%<br>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   | <b>Parameter</b>  | <b>Standard</b>        | <b>Test Level / Note</b> |
|                                      |  | Conducted   | BS EN/EN55032(CISPR32) | N/A                      |
|                                      |  | Radiated  | BS EN/EN55032(CISPR32) | Class B                  |
|                                      | EMC IMMUNITY   | <b>Parameter</b>  | <b>Standard</b>        | <b>Test Level / Note</b> |
|                                      |  | 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;<br>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<br>C type : 4g ; 42pcs/per tube, 3360pcs/80 tube/per carton<br>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 &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 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 <a href="http://www.meanwell.com">http://www.meanwell.com</a>)</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a></p> |   |                        |                          |

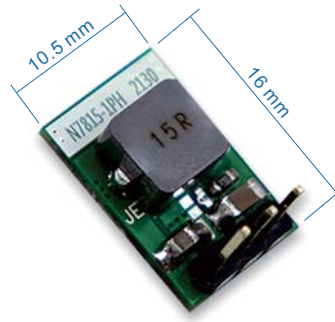
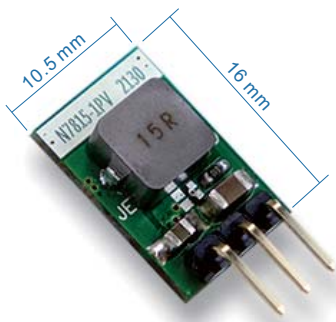
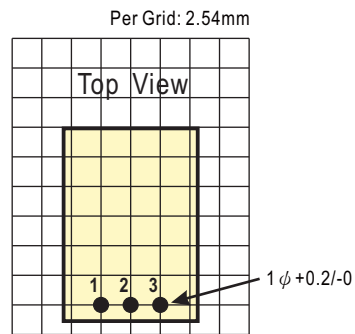
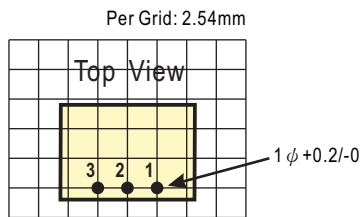
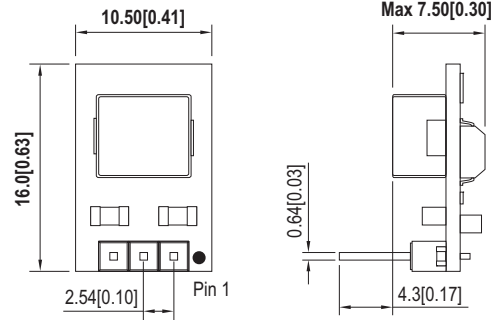
## Mechanical Specification

- 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)

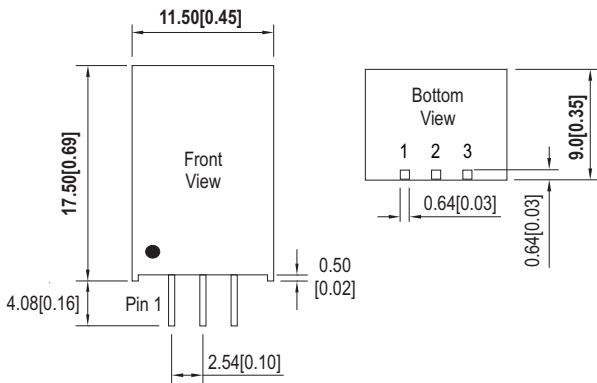


## Plug Assignment

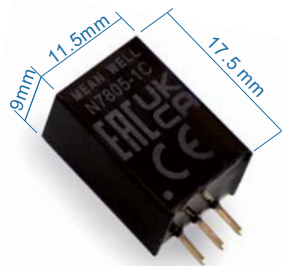
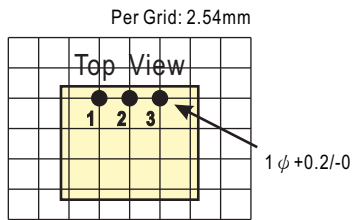
| Pin-Out |               |         |
|---------|---------------|---------|
| Pin No. | N78xx - PV/PH |         |
|         | +Output       | -Output |
| 1       | +Vin          | +Vin    |
| 2       | GND           | -Vout   |
| 3       | +Vout         | GND     |

※ C Type:  
(Casing type)

■ Plug Assignment

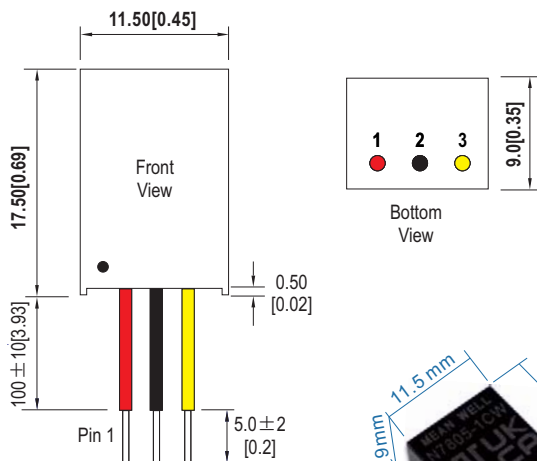


| Pin-Out |           |         |
|---------|-----------|---------|
| Pin No. | N78xx - C |         |
|         | +Output   | -Output |
| 1       | +Vin      | +Vin    |
| 2       | GND       | -Vout   |
| 3       | +Vout     | GND     |

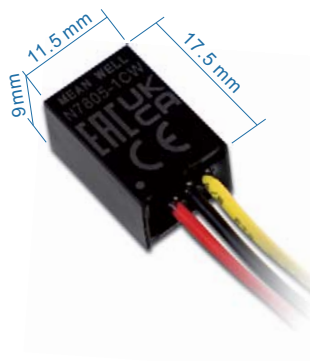


※ CW Type:  
(Casing type with Wire)

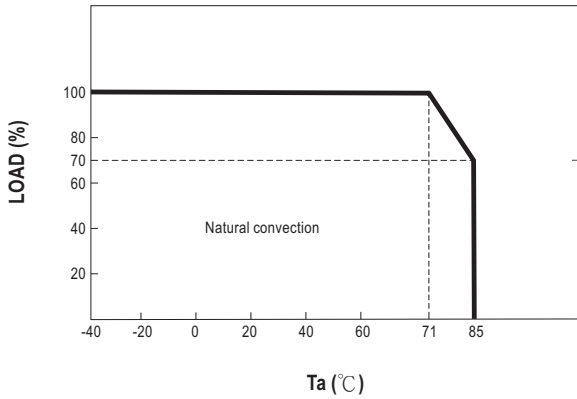
■ Plug Assignment



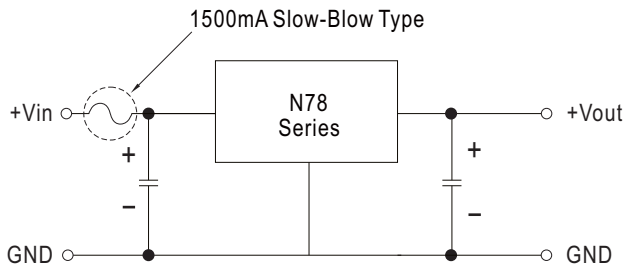
| Pin-Out       |            |         |
|---------------|------------|---------|
| Pin No.       | N78xx - CW |         |
|               | +Output    | -Output |
| 1<br>(Red)    | +Vin       | +Vin    |
| 2<br>(Black)  | GND        | -Vout   |
| 3<br>(Yellow) | +Vout      | GND     |



Derating Curve

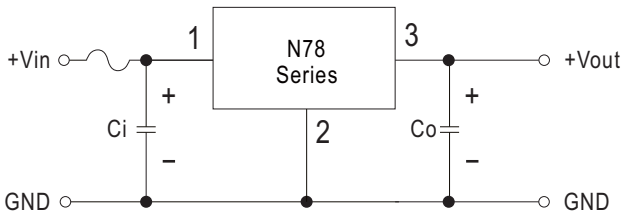


External Input Fuse Recommended

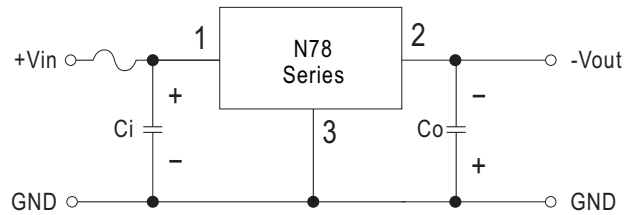


Positive or Negative Typical Applications

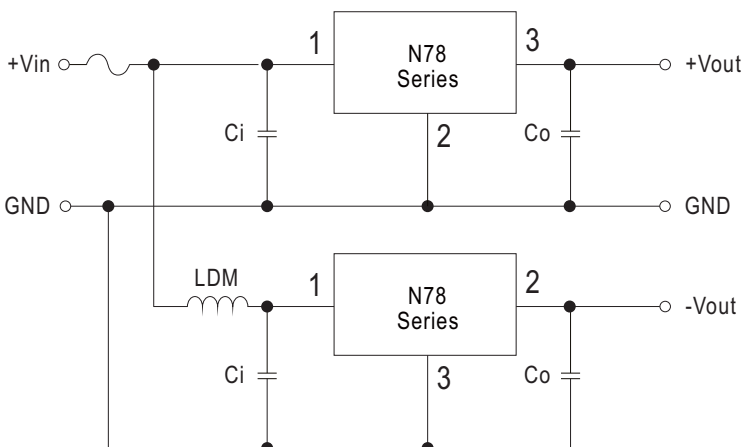
Positive output application circuit



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  |

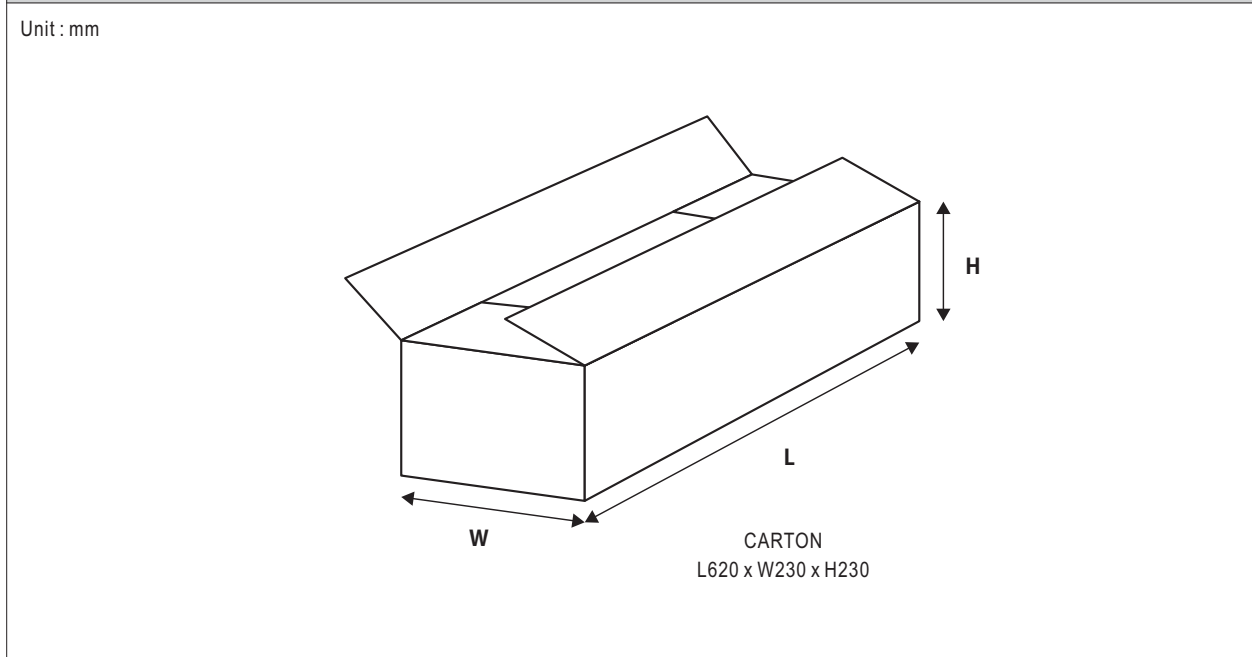
※ In using parallel application circuit, input voltage range should be taken notice of and a 10µH LDM component is recommended to reduce the interference.

**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> | 150pcs             | 395g          | 1800                   | 6.2Kg           |
| <p>Unit : mm</p> | N78-1C             |               |                        |                 |
|                  | MPQ Per Tube (PCS) | One Tube G.W. | Max. Q'TY/ Carton(PCS) | One Carton G.W. |
| 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> <p>5 pcs inside</p> <p>Product</p> <p>Box</p> <p>220</p> <p>45</p> <p>195</p> <p>Antistatic Foam</p> | 70           | 460g         | 840                    | 6.3Kg           |

**Standard Packing**



**Installation Manual**

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