

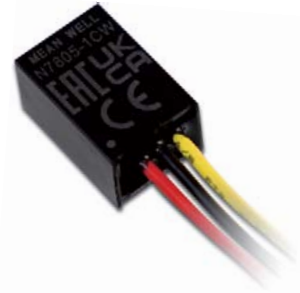
(PV Type)



(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

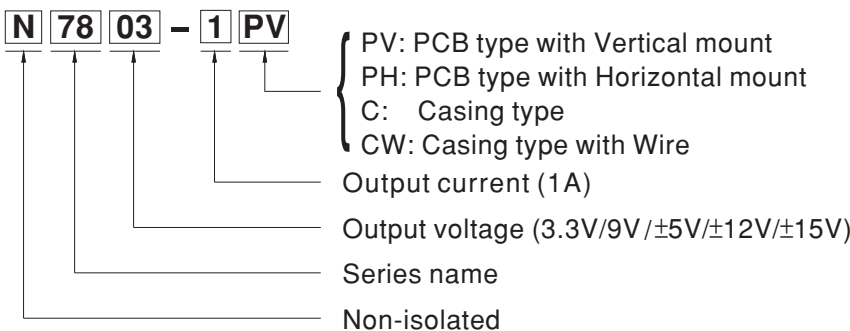
■ Applications

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

■ 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



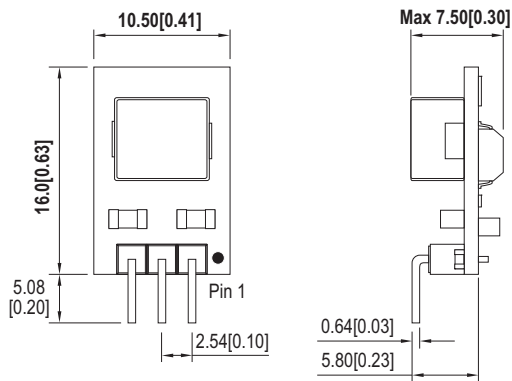
MODEL SELECTION TABLE							
ORDER NO.	INPUT			OUTPUT		EFFICIENCY (TYP.)	CAPACITOR LOAD (MAX.)
	INPUT VOLTAGE (RANGE)	INPUT CURRENT		OUTPUT VOLTAGE	OUTPUT CURRENT		
		NO LOAD	FULL LOAD				
N7803-1□	12V (6 ~ 36V)	6mA	615mA	3.3V	0 ~ 1000mA	91.5%	680μF
N7805-1□	12V (8 ~ 36V)	8mA	672mA	5V	0 ~ 1000mA	93%	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	<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/Burest	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 ; C type : 4g ; CW type : 5.5g		
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>			

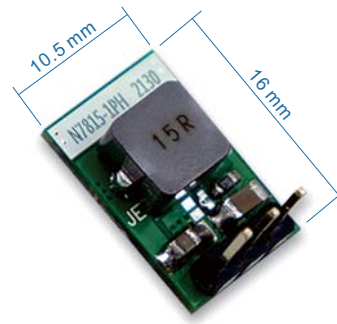
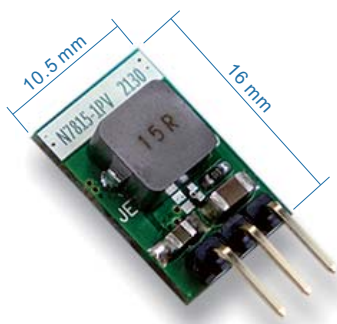
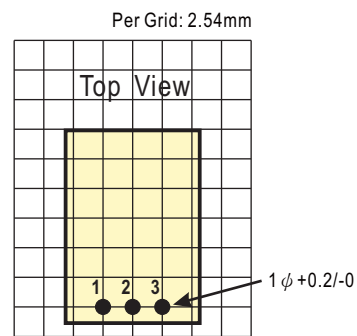
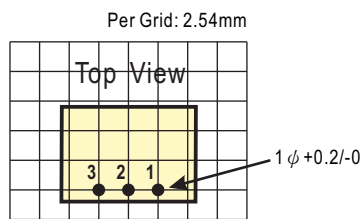
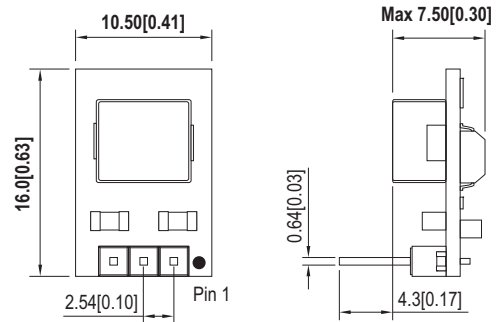
## ■ Mechanical Specification

- 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)

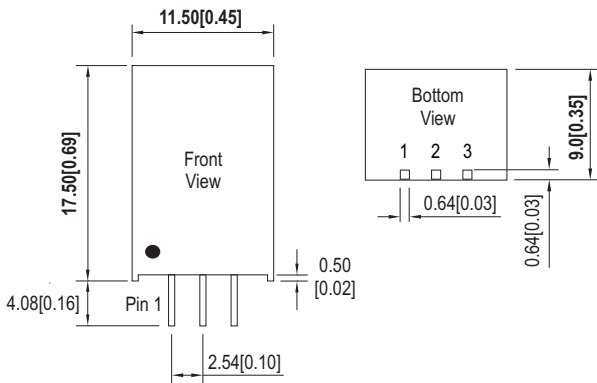


## ■ Plug Assignment

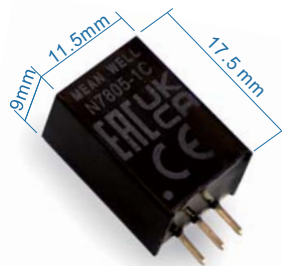
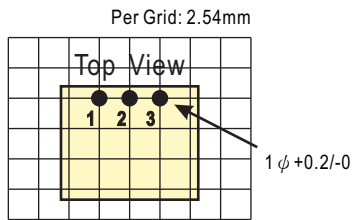
Pin-Out		
Pin No.	N78xx - PV/PH	
	+Output	-Output
1	+Vin	+Vin
2	GND	-Vout
3	+Vout	GND

※ C Type:  
(Casing type)

■ Plug Assignment

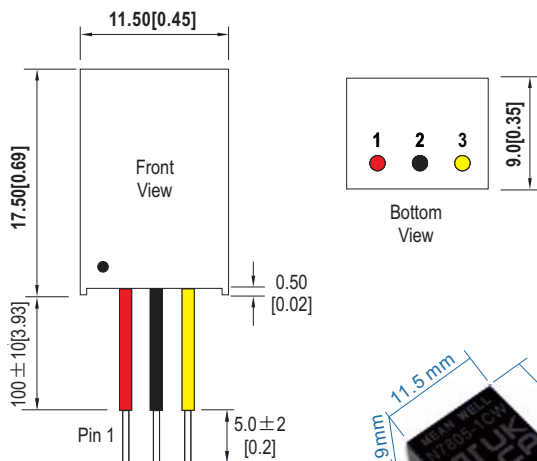


Pin-Out		
Pin No.	N78xx - C	
	+Output	-Output
1	+Vin	+Vin
2	GND	-Vout
3	+Vout	GND

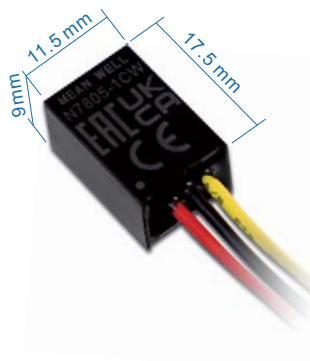


※ CW Type:  
(Casing type with Wire)

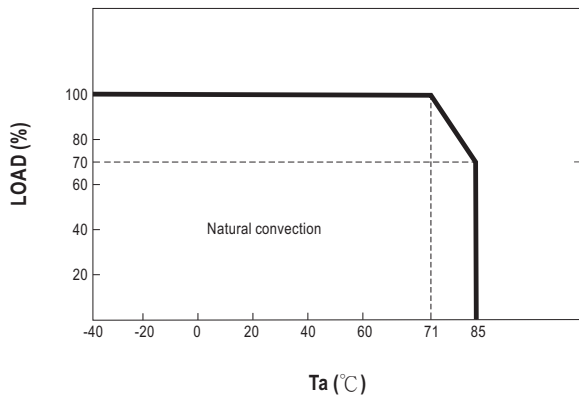
■ Plug Assignment



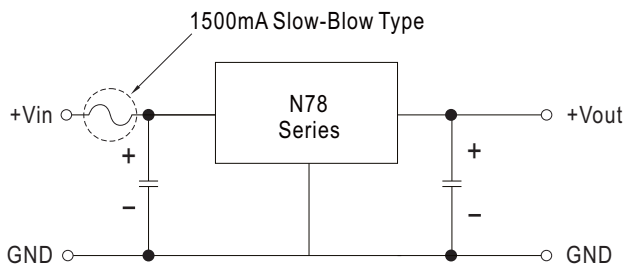
Pin-Out		
Pin No.	N78xx - CW	
	+Output	-Output
1 (Red)	+Vin	+Vin
2 (Black)	GND	-Vout
3 (Yellow)	+Vout	GND



■ Derating Curve

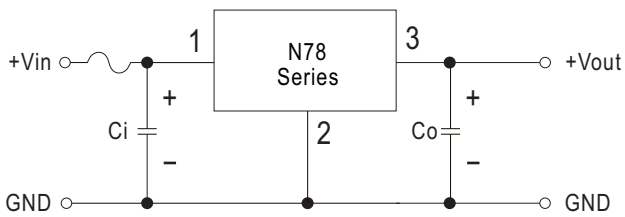


■ External Input Fuse Recommended

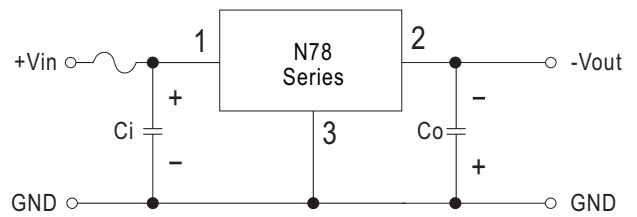


■ Positive or Negative Typical Applications

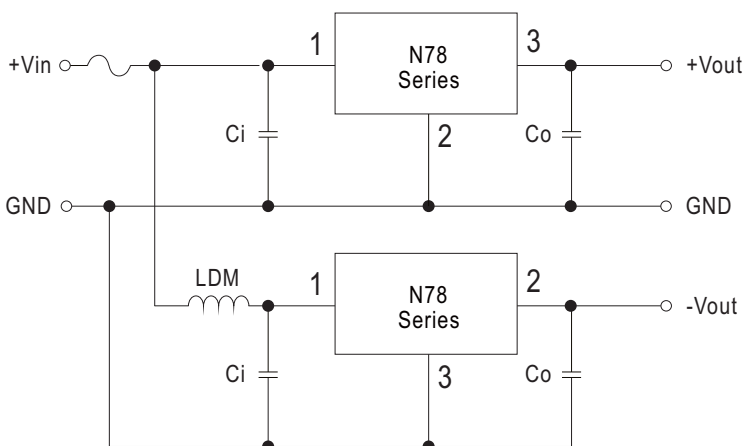
Positive output application circuit



Negative output application circuit



Positive and negative output paralleling application circuit



External capacitor table

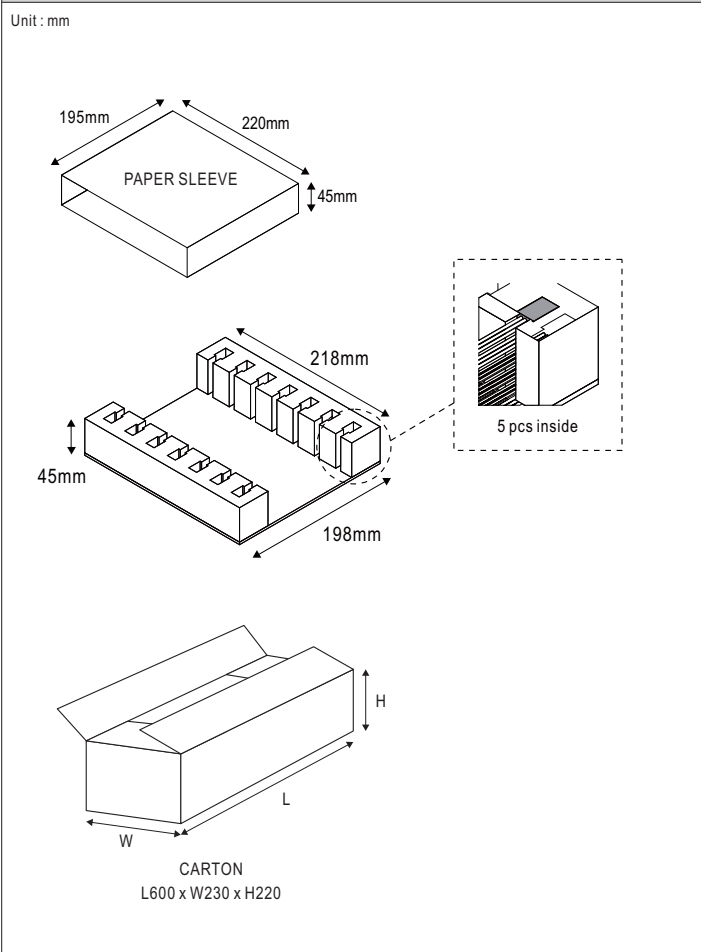
Model No.	Ci (MLCC)	Co (MLCC)
N7803-1 □	10µF/50V	22µF/10V
N7805-1 □	10µF/50V	22µF/10V
N7809-1 □	10µF/50V	22µF/25V
N7812-1 □	10µF/50V	22µF/25V
N7815-1 □	10µF/50V	22µF/25V

※ 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**

PV/PH Type Packing	MPQ (PCS)	One Box G.W.	Max. Q'TY/ Carton(PCS)	One Carton G.W.
<p>Unit : mm</p> <p>PAPER SLEEVE</p> <p>CARTON L600 x W230 x H220</p>	150	0.45Kg	1800	6.2Kg
C type Packing	MPQ Per tube (PCS)	One Box G.W.	Max. Q'TY/ Carton(PCS)	One Carton G.W.
<p>Unit : mm</p> <p>CARTON L600 x W230 x H220</p>	42	0.2Kg	3360	17Kg

**Packing**

CW Type Packing	MPQ (PCS)	One Box G.W.	Max. Q'TY/ Carton(PCS)	One Carton G.W.
<p>Unit : mm</p>  <p>PAPER SLEEVE</p> <p>195mm 220mm 45mm</p> <p>218mm 198mm 45mm</p> <p>5 pcs inside</p> <p>CARTON L600 x W230 x H220</p>	70	0.46Kg	840	6.3Kg

**Installation Manual**

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