

## LC78\_1.0 Cost effective Series

Wide Input Non-Isolated & Regulated, Single Output

## Switching Regulator

- ⊕ Cost Effective Switching Regulator
- ⊕ Low Profile (L\*W\*H=11.6\*6.0\*10.2)
- ⊕ Wide 4.5V to 42V Operating Input Range
- ⊕ Efficiency up to 93%
- ⊕ Compatible With LM78 Pin-Out
- ⊕ Short Circuit Protection (SCP)
- ⊕ No Heat Sink Required
- ⊕ Low Ripple and Noise
- ⊕ Low Quiescent Current (No Load) 200uA typ.

The LC78\_1.0 series cost effective high efficiency switching regulators are ideally suited to replace LM78xx linear regulators and are pin compatible.

**Model selection:**  
 LC78\_yy-pp  
 LC=Series; yy=Vout; pp=output current  
**Example:**  
 LC78\_05-1.0  
 LC=Series; ##= 5Vout; pp=1.0A



Common specifications	
Short circuit protection:	Continuous, automatic recovery
Temperature rise at full load:	40°C MAX
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C
Storage temperature range:	-55°C ~+125°C
Lead temperature:	300°C MAX, 1.5mm from case for 10 sec
Operating case temperature:	100°C MAX
Temperature coefficient:	-40°C to +85°C ambient 0.015%/°C TYP
Storage humidity range:	< 95%
MTBF (using MIL-HDBK-217F):	+25°C 2068x10 <sup>3</sup> hours +60°C 975x10 <sup>3</sup> hours
Packing quantities:	42pcs per Tube
Case material:	Non Conductive Black Plastic UL94-V0
Potting material:	Epoxy UL94-V0
Weight:	1.3g

Output specifications						
Item	Test conditions	Min	Typ	Max	Units	
Output voltage accuracy	Vin=min. to max. at full load			±3	%	
Line regulation	Vin= min. to max. at full load			0.4	%	
Load regulation	0% to 100% load			0.6	%	
Ripple + Noise	Vo=5.0VDC at 20MHz Bandwidth			60	mVp-p	
Dynamic load stability	100%-50% load			±150	mV	
Switching frequency			400		KHz	
No load input current				250	uA	
Thermal shutdown	Internal IC junction		150		°C	
Max capacitance load				220	µF	

**Note:**

1. All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. Only typical models listed. If you need other model, please confirm the power, input voltage and output voltage, and then phone us.

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [A]	Efficiency [Vin. min]	Efficiency [Vin. max]	Package
LC78_03-1.0	4.5-42	3.3	1.0	89	82	SIP3
LC78_05-1.0	6.5-42	5.0	1.0	93	86	SIP3

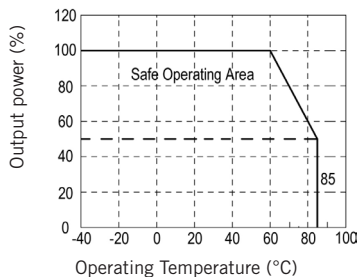
Add suffix "L" for 90° bend pins, for example: LC78\_03-1.0L

# LC78\_1.0 Cost effective Series

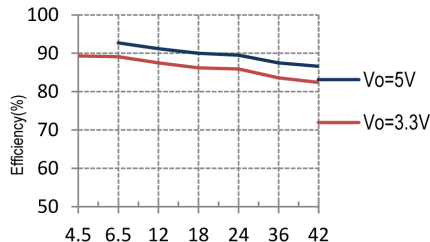
Wide Input Non-Isolated & Regulated, Single Output

## Typical characteristics

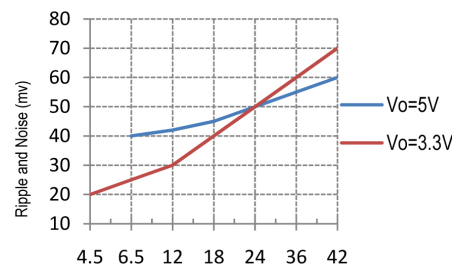
Derating Graph (Natural convection)



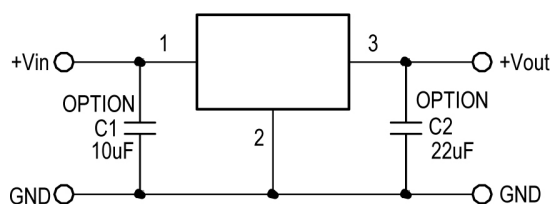
Efficiency Vs Vin (Full Load)



Ripple Vs Vin (Full Load)



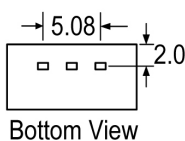
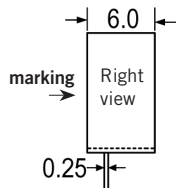
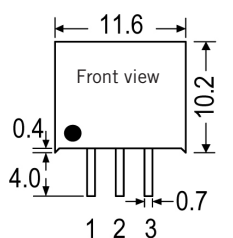
## Standard application circuit



## External capacitor table

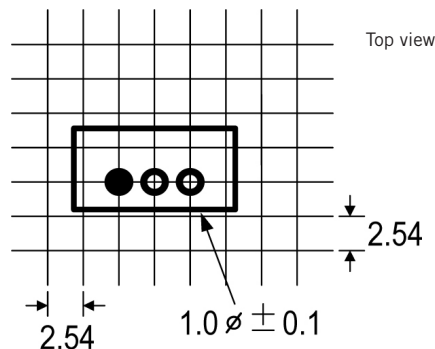
Part number	C1 (Ceramic Capacitor)	C2 (Ceramic Capacitor)
LC78_03-1.0	10µF/50V	22µF/6.3V
LC78_05-1.0	10µF/50V	22µF/10V

## Mechanical dimensions



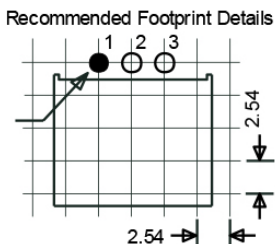
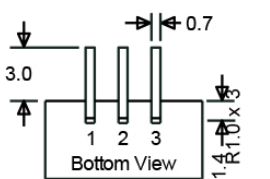
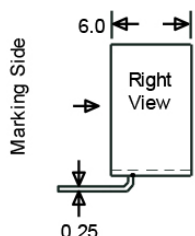
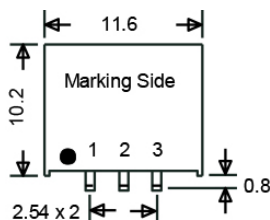
Pin Connection	
Pin#	Out
1	+Vin
2	GND
3	+Vout

## Footprint details

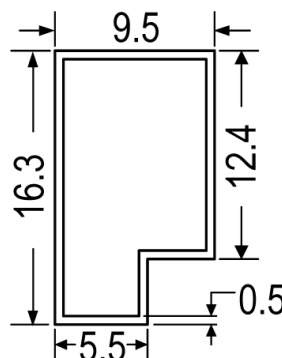


Tolerance:  
 XX.X ± 0.25 mm  
 XX.XX ± 0.15 mm

Bended pins:



## Tube outline dimensions



Note:  
 L=520 ± 2 mm  
 Devices per tube quantity: 42 PCS