



## LMP78\_1.0 series

Wide Input Non-Isolated & Regulated, Single Positive/Negative Output

### Switching Regulator (POL)

- ⊕ Internal Transient Voltage Suppression (TVS)
- ⊕ Low profile (L\*W\*H = 11.6\*6.0( 7.5)\*10.2)
- ⊕ Wide 4.5V to 42V operating input range
- ⊕ Compatible with LM78 pin-out
- ⊕ Short circuit protection (SCP)
- ⊕ Special outputs available from 1.2V to 15V
- ⊕ Low ripple/noise and efficiency up to 97%
- ⊕ Low quiescent current (no load) 200uA typ.

The LMP78\_1.0 series high efficiency switching regulators are ideally suited to replace LM78xx linear regulators and are pin compatible.



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:	110°C MAX
Case thermal impedance:	70°C/W
Temperature coefficient:	-40°C to +85°C ambient 0.02%/°C MAX
Storage humidity range:	< 95%
MTBF (using MIL-HDBK-217F):	+25°C 2844x10 <sup>3</sup> hours +71°C 2088x10 <sup>3</sup> hours
Packing quantities:	42pcs per Tube
Case material:	Non Conductive Black Plastic UL94-V0
Potting material:	Epoxy UL94-V0
Soldering profile:	265°C/10sec. MAX
Weight:	1.5g

Output specifications						
Item	Test conditions	Min	Typ	Max	Units	
Output voltage accuracy	Full load			±2	%	
Output current			1.0		A	
Output shorted current limit	Vout= 0VDC			2.0	A	
Internal power dissipation			0.7		W	
Line regulation	Vin= min. to max. at full load			0.4	%	
Load regulation	0% to 100% load			0.6	%	
Ripple + Noise	20MHz Bandwidth		30	60	mVp-p	
Dynamic load stability	100%-50% load			±150	mV	
Switching frequency				600	KHz	
Quiescent current	Vin=min. to max. at 0% load			250	uA	
Thermal shutdown	Internal IC junction		150		°C	
Max capacitance load				470	µF	

#### Note:

1. All specifications measured at TA = 25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.

#### Example:

**LMP78\_05-1.0**

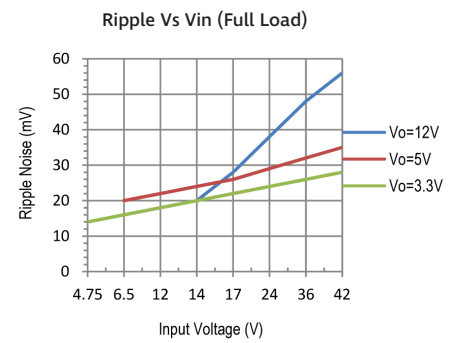
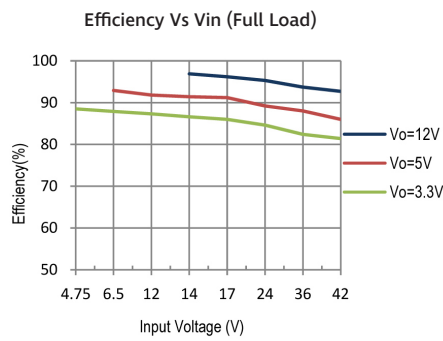
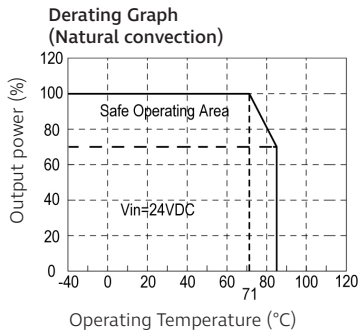
LMP = Series; 05 = 5Vout; 1.0 = 1.0A

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [A]	Efficiency [Vin. min]	Efficiency [Vin. max]	TVP limited [Vp-p]	Package
LMP78_1.2-1.0	4.5-42	1.2	1.0	72	63	55	SIP3
LMP78_1.5-1.0	4.5-42	1.5	1.0	77	68	55	SIP3
LMP78_1.8-1.0	4.5-42	1.8	1.0	80	71	55	SIP3
LMP78_2.5-1.0	4.5-42	2.5	1.0	85	77	55	SIP3
LMP78_03-1.0	4.75-42	3.3	1.0	88	81	55	SIP3
LMP78_05-1.0	6.5-42	5	1.0	93	86	55	SIP3
LMP78_6.5-1.0R	8-42	6.5	1.0	93	88	55	SIP3
LMP78_09-1.0R	11-42	9	1.0	95	91	55	SIP3
LMP78_12-1.0R	14-42	12	1.0	97	93	55	SIP3
LMP78_15-1.0R	17-42	15	1.0	97	93	55	SIP3

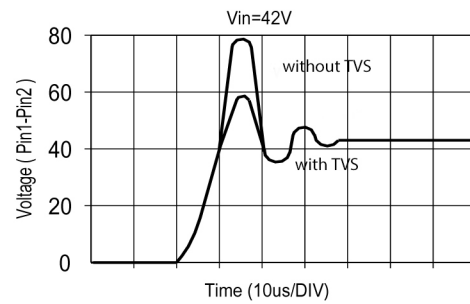
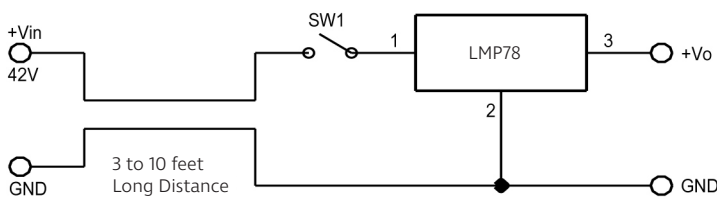
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## Typical characteristics

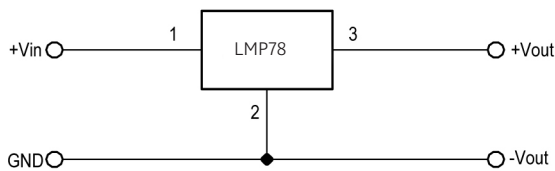


Internal Transient Voltage Suppression and waveform (No External Components Required)

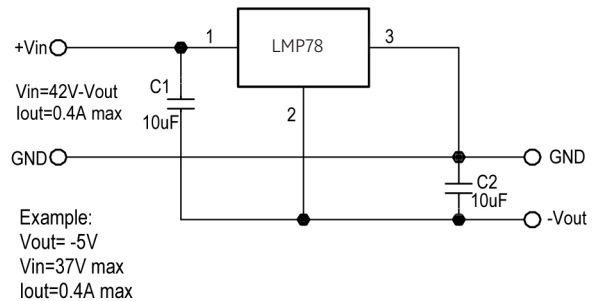


## Standard application circuit

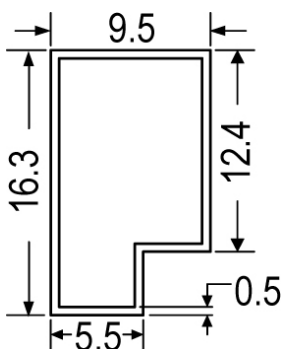
General Application



Negative Output Application (1.2V-15V Modes)



## Tube outline dimensions



Tolerance:  
XX.X ± 0.5 mm

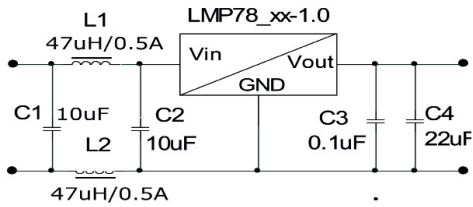
Note:  
L=520 ± 2 mm  
Devices per tube quantity: 42 PCS

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### EMC solution-recommended circuit

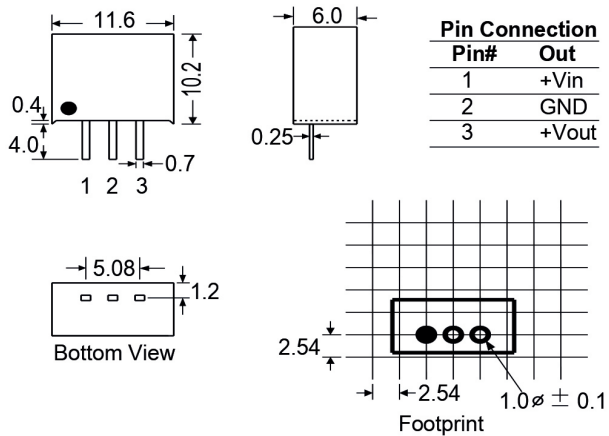
The Filtering Circuit for LMP78\_xx-1.0



Part Number	C1, C2 (Ceramic Capacitor)	C3 (Ceramic Capacitor)	C4 (Ceramic Capacitor)	L1, L2 (SD5825D1M-470K) SDE (SR0602 470K) ABC
LMP78_xx-1.0	10uF	0.1uF	22uF	47uH/0.5A
LMP78_xx-1.0R	10uF	0.1uF	22uF	47uH/0.5A

### Mechanical dimensions/footprint

Package LMP78\_xx-1.0



Package for models LMP78\_6.5-1.0R, LMP78\_09-1.0R, LMP78\_12-1.0R and LMP78\_15-1.0R

