GAPTEC®
GREEN TECHNOLOGY

LC78_2.0 Cost effective Series

Wide Input, Non-Isolated & Regulated, Single Output

Switching Regulator

- High performance switching regulator
- Low profile (L*W*H=11.6*7.5*10.2)
- Wide 4.5V to 30V operating input voltage range
- High efficiency up to 97%
- Compatible with LM78 pin-out
- Short circuit protection (SCP)
- No Heat Sink Required
- Low Quiescent Current

The LC78_1.5 & LC78_2.0 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_05-2.0
LC=Series; ##= 5Vout; pp=2.0A

Common specifications	
Short circut protection:	Continuous, automatic recovery
Temperature rise at full load:	40°C MAX
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C (with derating)
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 impendance:	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 2068x10³ hours +60°C 975x10³ 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

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.

Output specifications					
Item	Test conditions	Min	Typ	Max	Units
Output voltage accuracy	full load			±3	%
Output current					
Output shorted current limit	Vout= 0VDC		3.0		A
Internal power dissipation			0.7		W
Line regulation	Vin= min. to max. at full load		0.4		%
Load regulation	10% to 100% load		40		mV
Ripple + Noise	Vo=5.0VDC at 20MHz Bandwidth			100	mVp-p
Dynamic load stability	100%<->50% load		±150		mV
Switching frequency				600	KHz
No load input current				10	mA
Thermal shutdown	Internal IC junction		150		°C
Max capacitance load				100	µF

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [A]	Efficiency [Vin. min]	Efficiency [Vin. max]	Capacitive load [uF; max]
LC78_1.8-2.0	4.5-30	1.8	2.0	89	81	1000
LC78_2.5-2.0	4.5-30	2.5	2.0	91	84	1000
LC78_03-2.0	4.5-30	3.3	2.0	92	88	1000
LC78_05-2.0	6.5-30	5	2.0	94	91	1000
LC78_12-1.5	15-30	12	1.5	97	94	470

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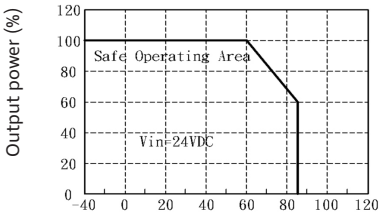
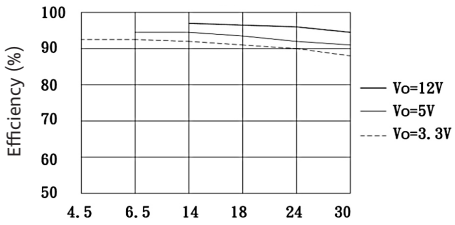
Typical characteristics

Derating Graph (Natural convection)



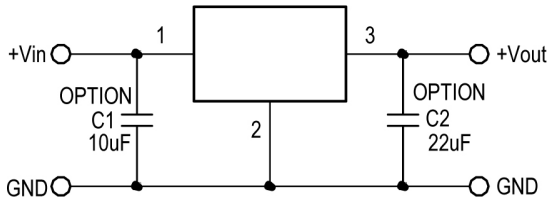
Operating Temperature (°C)

Efficiency Vs Vin (Full Load)

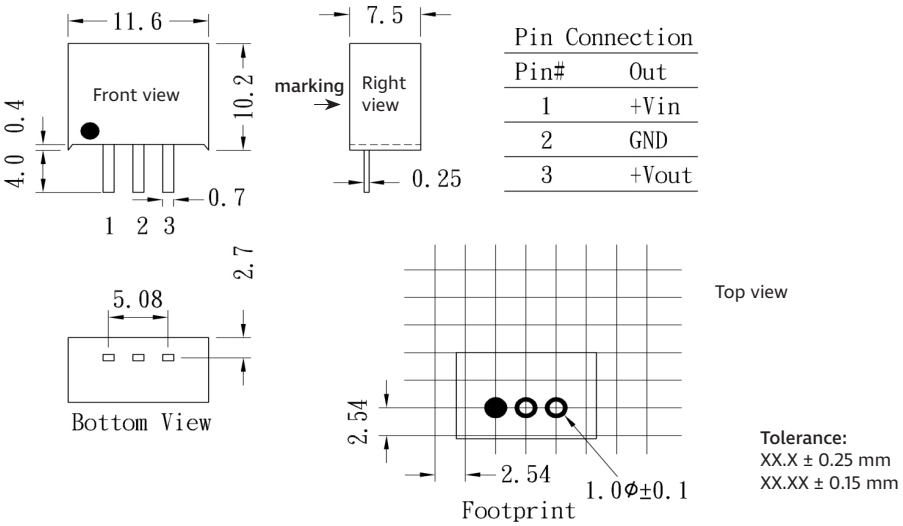


Input voltage (V)

Standard application circuit



Mechanical dimensions



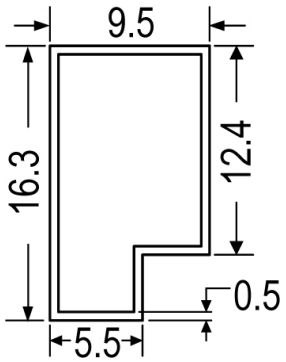
Pin Connection

Pin#	Out
1	+Vin
2	GND
3	+Vout

Top view

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

Tube outline dimensions



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

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