Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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Features

Switching Regulator

- Efficiency up to 91%, no need for heatsinks!
- Pin-out compatible with LM78XX Linear Regs.
- Low profile (L*W*H=11.6*8.5*10.4mm)
- Wide input range (7V - 28V)
- Short Circuit Protection
- IEC/EN60950-1, Am2 Certified

RECOM
DC/DC Converter

R-78E-1.0

1.0 AMP SIP3 Single Output

3 YEAR 3 Warranty

Description

The R-78E series is a switching regulator module that has been designed to offer all the advantages of a switching regulator (high efficiency, wide input range, accurate output voltage regulation) but with a low cost for production quantities. Due to the R-78E's high efficiency of up to 91% at an output voltage of 5V/1A at the output, no heat sink is required. The compact TO- 220 compatible SIP3 package measures only 11.6 x 8.5 x 10.4 mm, so it saves precious board space. The warranty is 3 years.

Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ @ min Vin. [%]	Max. Capacitive Load [µF]
R-78E3.3-1.0	7 - 28	3.3	1000	87	220
R-78E5.0-1.0	8 - 28	5.0	1000	91	220

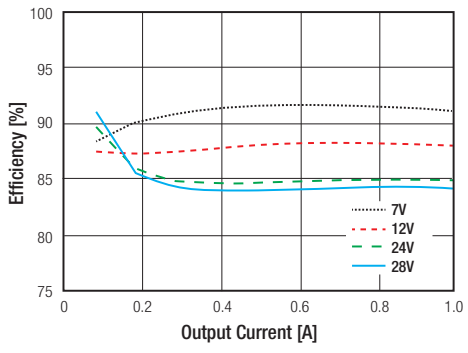
Specifications (measured at ta= 25°C, full load, nominal input voltage and after warm-up)

BASIC CHARACTERISTICS				
Parameter	**Condition**	**Min.**	**Typ.**	**Max.**
Input Voltage Range	3.3V 5.0V	7VDC 8VDC	24VDC	28VDC
Input Current	min. Vin	1.5mA		1000mA
No Load Input Current	typ. Vin		1.5mA	
Operating Frequency	Vin= 12VDC		330kHz	
Output Ripple and Noise	typ. Vin, full load and 20MHz BW limited			120mVp-p

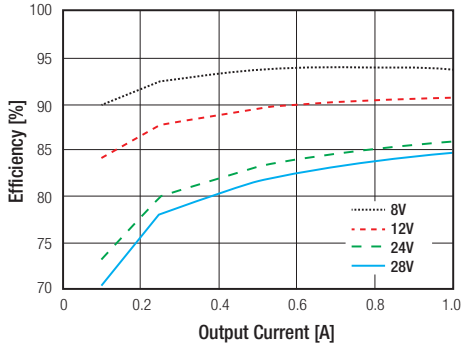
IEC60950-1 Certified
EN60950-1 Certified

Efficiency vs. Load

R-78E3.3-1.0



R-78E5.0-1.0



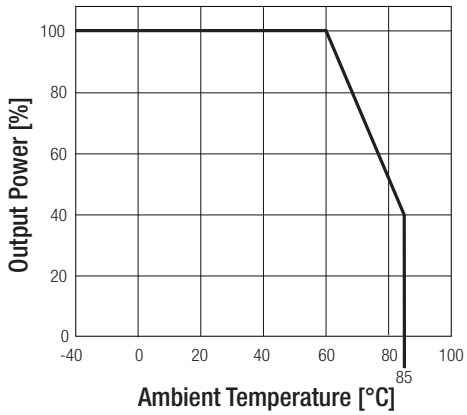
Specifications (measured at ta= 25°C, full load, nominal input voltage and after warm-up)

REGULATIONS		
Parameter	**Condition**	**Value**
Output Voltage Accuracy		±3% typ. / ±5% max.
Line Voltage Regulation	low line to high line, full load	±1% max.
Load Voltage Regulation	typ Vin. and 10% to 100% load	±1.5% max.

PROTECTIONS		
Parameter	**Condition**	**Value**
Short Circuit Protection (SCP)		automatic recovery
Over Current Protection (OCP)	100% = 1A	200% Load

ENVIRONMENTAL		
Parameter	**Condition**	**Value**
Operating Temperature Range	natural convection and with derating (see graph)	-40°C to +85°C
Humidity	non-condensing	95%, RH max.
MTBF	MIL-HDBK 217F, +25°C	3875 x 10^3 hours

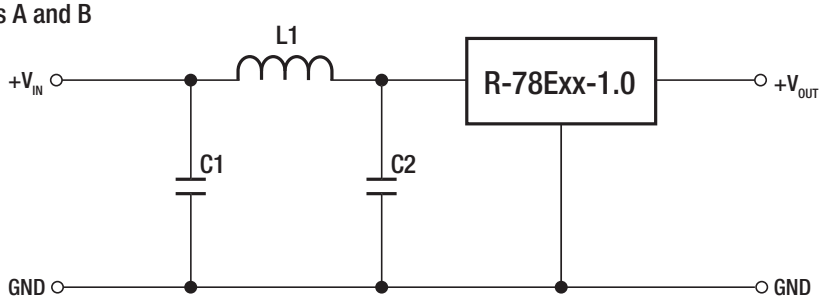
Derating Graph



SAFETY AND CERTIFICATIONS		
Certificate Type (Safety)	**Report / File Number**	**Standard**
Information Technology Equipment, General Requirements for Safety (LVD)	LVD1603123	IEC/EN60950-1, 2nd Edition, Am2:2013

EMC Compliance	**Condition**	**Standard / Criterion**
Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	with external filter	EN55022, Class A or B

EMI Filter suggestion Class A and B



MODEL	C1/C2	L1
Class A	1210 10µF, 50V MLCC	10µH
Class B		33µH

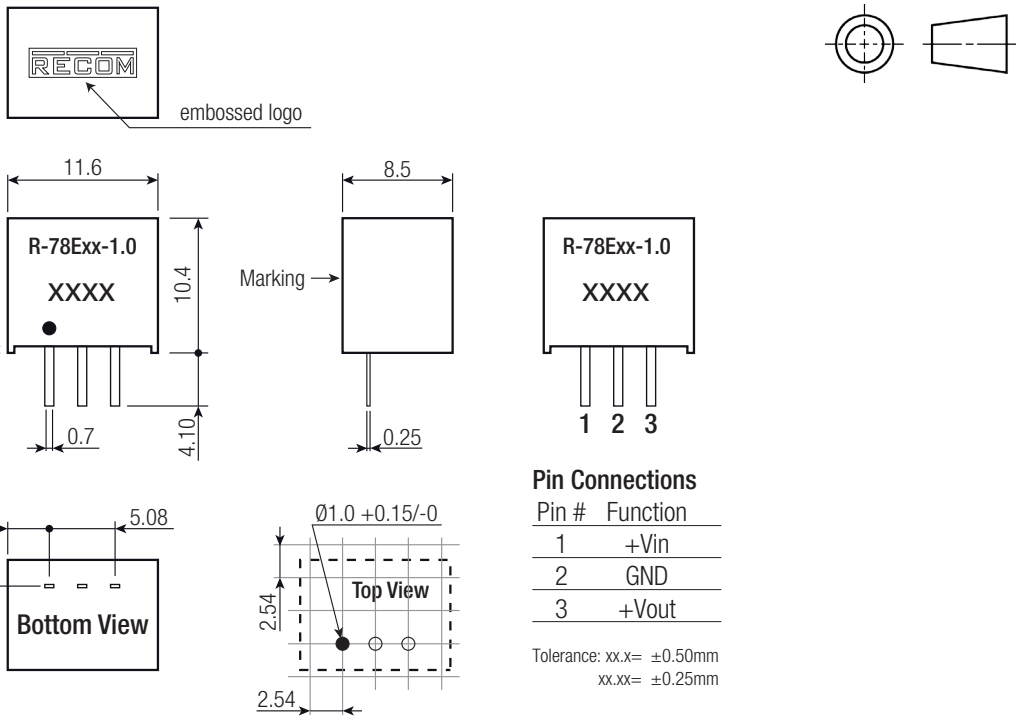
R-78E-1.0 Series

Specifications (measured at ta= 25°C, full load, nominal input voltage and after warm-up)

DIMENSION and PHYSICAL CHARACTERISTICS

Parameter	Value
Case Material	UL94V-0, non-conductive black plastic
Potting Material	UL94V-0, Silicone
Package Dimension (LxWxH)	11.6 x 8.5 x 10.4mm
Package Weight	2g typ.

Dimension Drawing (mm)



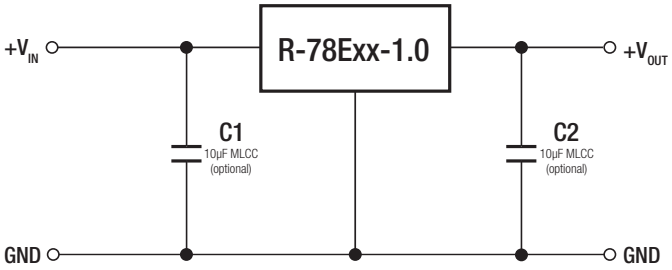
Pin Connections

Pin #	Function
1	+Vin
2	GND
3	+Vout

Tolerance: xx.x= ±0.50mm
xx.xx= ±0.25mm

INSTALLATION AND APPLICATION

Standard Application:



To protect the converter during power-up, use soft start power supply.

Notes:

Note1: The R-78Exx-1.0 can`t be used as positive to negativ converter.

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	Tube	520 x 18.2 x 11.2mm
Packaging Quantity		42pcs.
Storage Temperature Range		-55°C to +125°C