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.
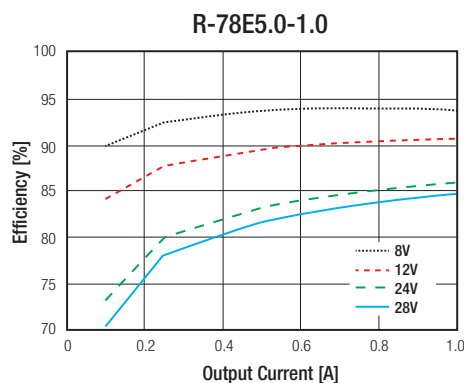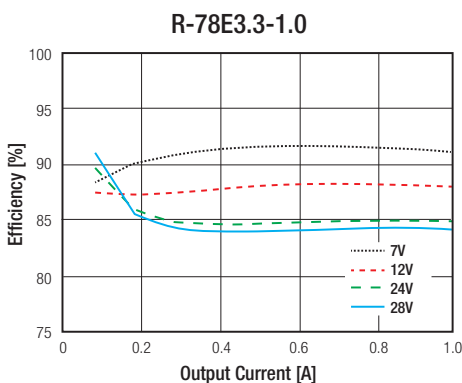
Selection Guide

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

R-78E series

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

R-78E-1.0
Series

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 10³ hours

Derating Graph
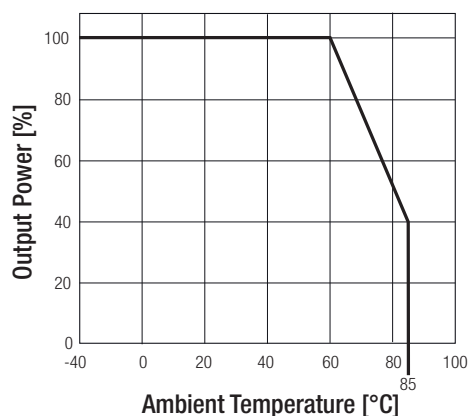
SAFETY AND CERTIFICATIONS

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

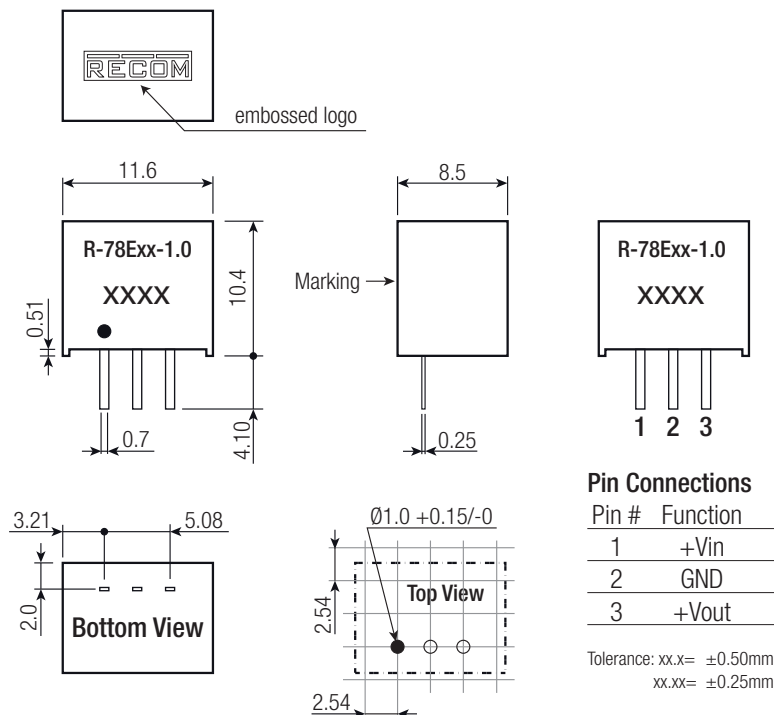| EMC Compliance	Condition	Standard / Criterion
Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	with external filter	EN55022, Class A or B

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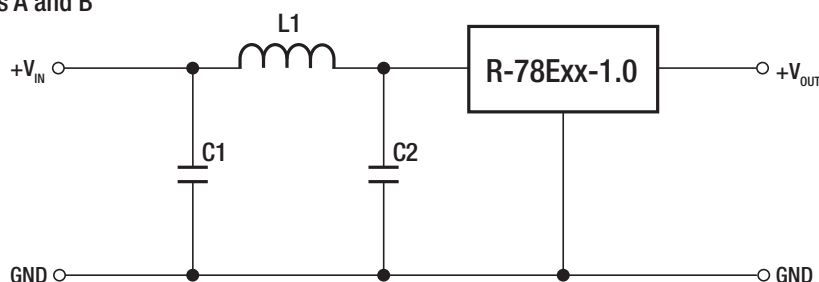
MODEL	C1/C2	L1
Class A	1210 10µF, 50V MLCC	10µH
Class B		33µH

RECOM

DC/DC Converter

R-78E-1.0
Series

DIMENSION and PHYSICAL CHARACTERISTICS

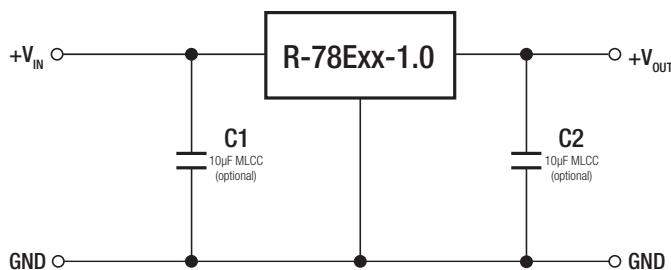| Parameter	Value
Case Material	UL94V-0, non-conductive black plastic
Potting Material	UL94V-0, Silicone
Package Dimension (LxWxH)	11.6 x 8.5 x 10.4mm
Package Weight	2g typ.

Dimension Drawing (mm)

embossed logo

R-78Exx-1.0
XXXX

Marking →

R-78Exx-1.0
XXXX

11.6   8.5   10.4   0.51   0.7   4.10   0.25

Bottom View   3.21   5.08   2.0

Top View   Ø1.0 +0.15/-0   2.54   2.54

1 2 3

Pin Connections

Pin #	Function
1	+Vin
2	GND
3	+Vout

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

INSTALLATION AND APPLICATION

Standard Application:

+V_IN   R-78Exx-1.0   +V_OUT

C1
10µF MLCC
(optional)

C2
10µF MLCC
(optional)

GND   GND

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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[RECOM](#):
  [R-78E5.0-1.0](#)   [R-78E3.3-1.0](#)