Features

- Efficiency up to 94%, non-isolated, no need for heatsinks!
- Pin-out compatible with LM78XX Linears
- Very low profile (L*W*H=11.5*7.5*10.2mm)
- Wide input range (4.75V ~ 18V)
- Short circuit protection, thermal shutdown
- Non standard outputs available as specials between 1.5V ~5.5V
- Low ripple and noise

INNOLINE
DC/DC-Converter

R-78xx-1.0 Series

1.0 AMP
SIP3
Single Output

Selection Guide

Part Number	Input Range	Output Voltage	Output Current	Efficiency Min. Vin	Efficiency Max. Vin
SIP3	(V)	(V)	(A)	(%)	(%)
R-781.8-1.0	4.75 – 18	1.8	1.0	82	76
R-782.5-1.0	4.75 – 18	2.5	1.0	87	81
R-783.3-1.0	4.75 – 18	3.3	1.0	90	84
R-785.0-1.0	6.5 – 18	5.0	1.0	94	89

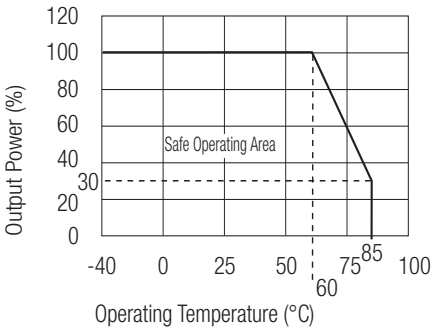
Description

The R-78xx-1.0 series high efficiency switching regulators are ideally suited to replace 1 Amp 78xx linear regulators and are pin compatible. The efficiency of up to 97% means that very little energy is wasted as heat so there is no need for any heat sinks with their additional space and mounting costs. Low ripple and noise figures and a short circuit input current of typically only 10mA round off the specifications of this versatile converter series.

Specifications (refer to the standard application circuit, Ta: 25°C)

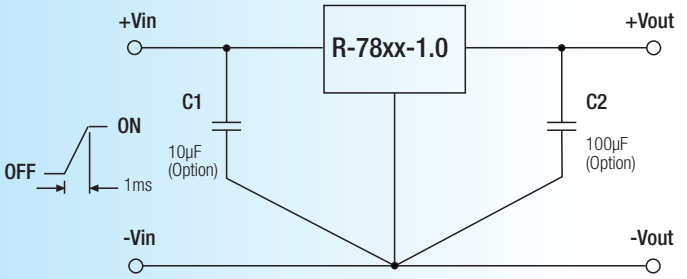
Characteristics	Conditions	Min.	Typ.	Max.
Input Voltage Range	All Series	4.75		18V
Output Voltage Range	All Series	1.5		5.5V
Output Current	All Series	100		1000mA
Output Current Limit	All Series			3000mA
Short Circuit Input Current	All Series		10	30mA
Internal Power Dissipation				0.4W
Short Circuit Protection			Continuous, automatic recovery	
Output Voltage Accuracy (At 100% Load)	All Series		±2	±3%
Line Regulation (100% Load, Vin max.)	All Series		0.2	0.4%
Load Regulation (10 to 100% full load)	All Series		0.4	0.6%
Dynamic Load Stability	100% <-> 50% load		±85mV	±100mV
Ripple & Noise (20Mhz BW)	All Series		20mVp-p	30mVp-p
Temperature Coefficient	-40°C ~ +85°C ambient			0.015%/°C
Max capacitance Load				220µF
Switching Frequency		280	350	430kHz
Quiescent Current	Vin = min. to max. at 0% load		5	7mA
Operating Temperature Range		-40°C		+85°C
Operating Case Temperature (with derating)				+100°C
Storage Temperature Range		-55°C		+125°C
Case Thermal Impendance				70°C/W
Thermal Shutdown	Internal IC junction		+160°C	
MTBF (+25°C) } *Detailed Information see Application Notes chapter "MTBF"*	using MIL-HDBK 217F		13338 x 10³ hours	
. (+71°C) }	using MIL-HDBK 217F		3880 x 10³ hours	

Derating-Graph
(Ambient Temperature)



R-78xx-1.0 Series

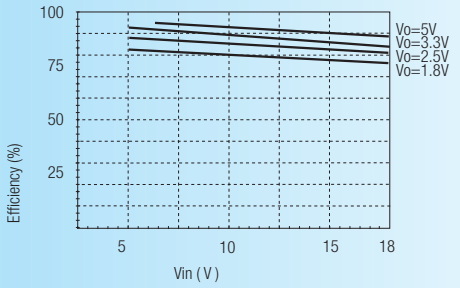
Standard Application Circuit



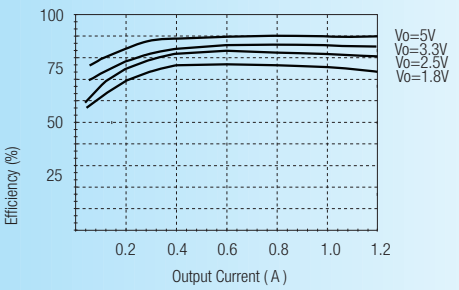
To protect the converter during power-up, use soft start Vin and C1=47µF

Characteristics

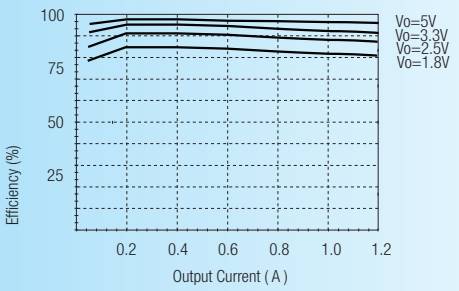
Efficiency



Efficiency Vs Vin (Full Load)

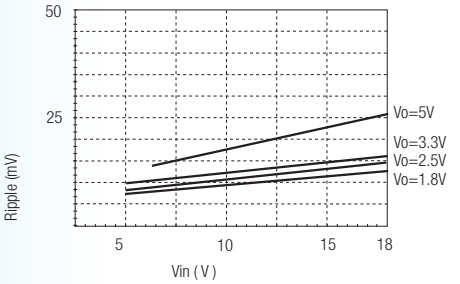


Efficiency Vs Load (Vin=Max)

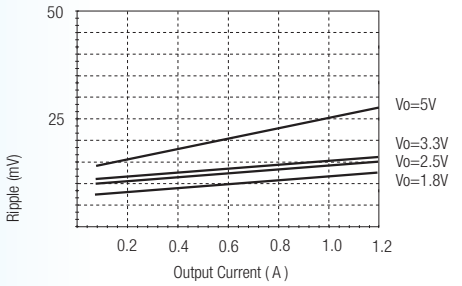


Efficiency Vs Load (Vin=Min)

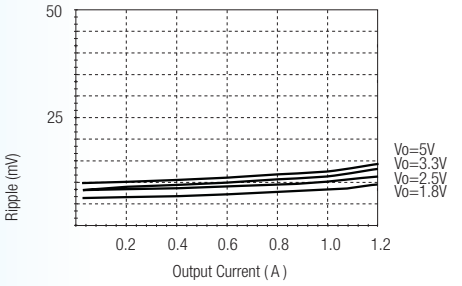
Ripple



Ripple Vs Vin (Full Load)



Ripple Vs Load (Vin=Max)

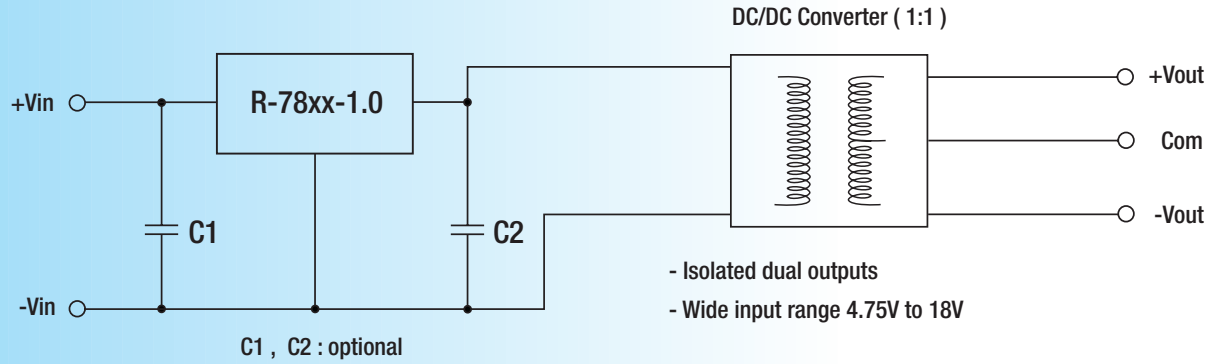


Ripple Vs Load (Vin=Min)

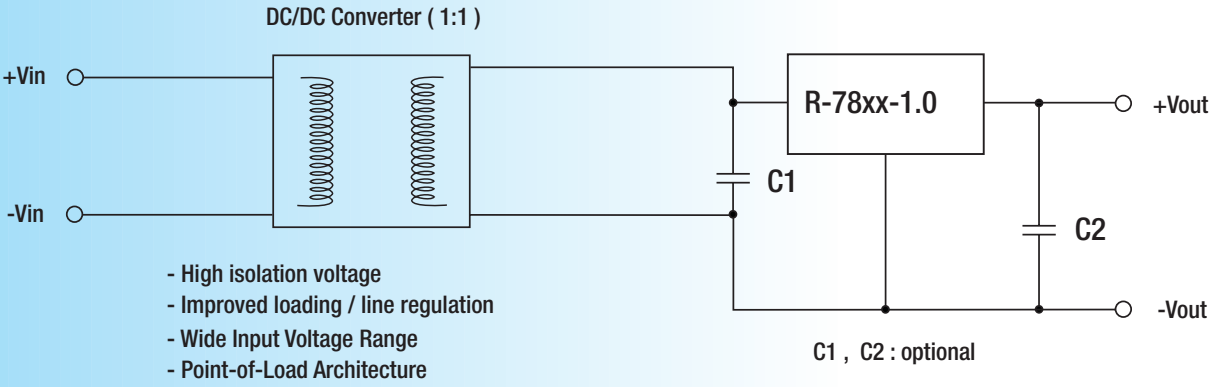
R-78xx-1.0 Series

Application Examples

High efficiency, isolated, dual unregulated outputs



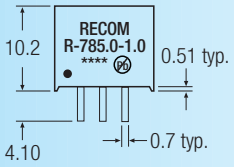
Isolated (up to 6KV), wide Input range regulated output

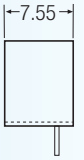


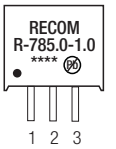
Package Style and Pinning (mm)

SIP3 PIN Package

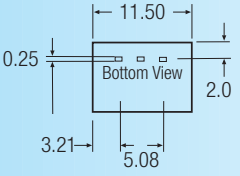
3rd angle projection

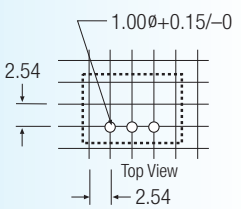






Recommended Footprint Details





Pin Connections	
Pin #	
1	+Vin
2	GND
3	+Vout

xx.x ±0.5mm
xx.xx ±0.25mm