

78SR100 Series

**1.5 AMP POSITIVE STEP-DOWN
INTEGRATED SWITCHING REGULATOR**

Revised 6/30/98

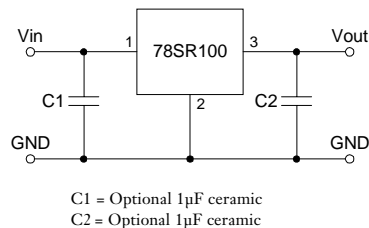


- Very Small Footprint
- High Efficiency > 85%
- Self-Contained Inductor
- Internal Short-Circuit Protection
- Over-Temperature Protection
- Wide Input Range

The 78SR100 is a series of wide input voltage, 3-terminal Integrated Switching Regulators (ISRs). These ISRs have a maximum output current of 1.5A and an output voltage that is laser trimmed to a variety of industry standard voltages.

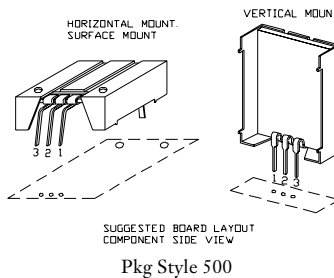
These 78 series regulators have excellent line and load regulation with internal short-circuit and over-temperature protection, are very flexible, and may be used in a wide variety of applications.

Standard Application



Pin-Out Information

Pin	Function
1	V _{in}
2	GND
3	V _{out}



Ordering Information

78SR1 XX Y C

Output Voltage

05 = 5.0 Volts
53 = 5.25 Volts
06 = 6.0 Volts
74 = 7.15 Volts
08 = 8.0 Volts
09 = 9.0 Volts
10 = 10.0 Volts
12 = 12.0 Volts
14 = 13.9 Volts
15 = 15.0 Volts

Package Suffix

V = Vertical Mount
S = Surface Mount
H = Horizontal Mount

Specifications

Characteristics (T _a = 25°C unless noted)	Symbols	Conditions	78SR100 SERIES			
			Min	Typ	Max	Units
Output Current	I _O	Over V _{in} range	0.1*	—	1.5	A
Short Circuit Current	I _{sc}	V _{in} = V _{in min}	—	3.5	—	A _{pk}
Input Voltage Range	V _{in}	0.1 ≤ I _O ≤ 1.5A V _o = 5V V _o = 12V	7 14.5	—	30 30	V
Output Voltage Tolerance	ΔV _o	Over V _{in} range, I _O = 1.5A T _a = 0°C to +60°C	—	±1.0	±2.0	%V _O
Line Regulation	Reg _{line}	Over V _{in} range	—	±0.2	±0.4	%V _O
Load Regulation	Reg _{load}	0.1 ≤ I _O ≤ 1.5A	—	±0.1	±0.2	%V _O
V _o Ripple/Noise	V _n	V _{in} = 9V, I _O = 1.5A V _{in} = 16V, I _O = 1.5A V _o = 5V V _o = 12V	—	50 80	—	mV _{pp} mV _{pp}
Transient Response	t _{tr}	50% load change V _o over/undershoot	—	100 30	—	μSec %V _O
Efficiency	η	V _{in} = 10V, I _O = 1A V _{in} = 17V, I _O = 1A V _o = 5V V _o = 12V	—	85 90	—	% %
Switching Frequency	f _o	Over V _{in} range, I _O = 1.5A	600	650	700	kHz
Absolute Maximum Operating Temperature Range	T _a	—	-40	—	+85	°C
Recommended Operating Temperature Range	T _a	Free Air Convection, (40-60LFM) At V _{in} = 24V, I _O = 1.0A	-40	—	+80**	°C
Thermal Resistance	θ _{ja}	Free Air Convection, (40-60LFM)	—	45	—	°C/W
Storage Temperature	T _s	—	-40	—	+125	°C
Mechanical Shock	—	Per Mil-STD-883D, Method 2002.3	—	500	—	G's
Mechanical Vibration	—	Per Mil-STD-883D, Method 2007.2, 20-2000 Hz, soldered in a PC board	—	5	—	G's
Weight	—	—	—	6.5	—	grams

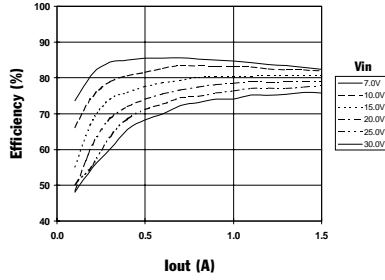
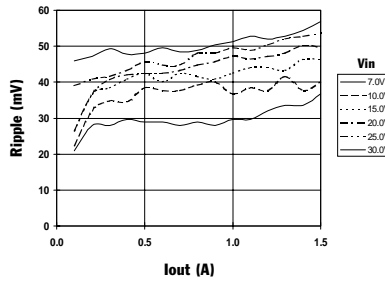
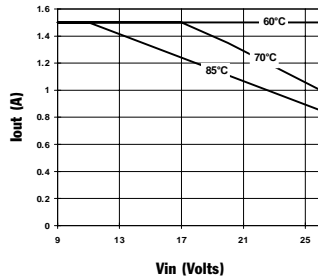
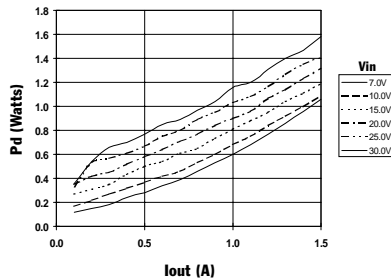
*ISR will operate down to no load with reduced specifications.

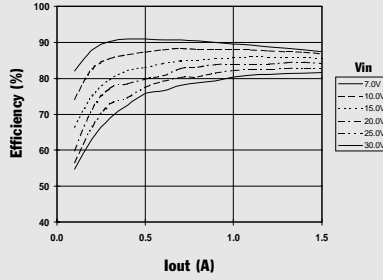
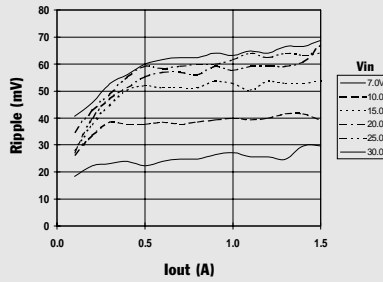
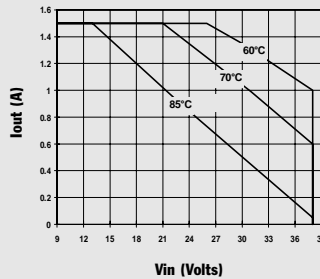
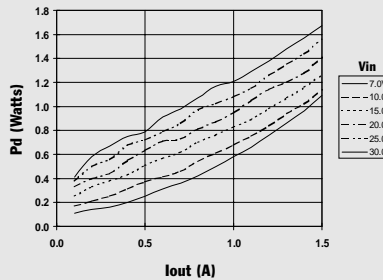
**See Thermal Derating chart.

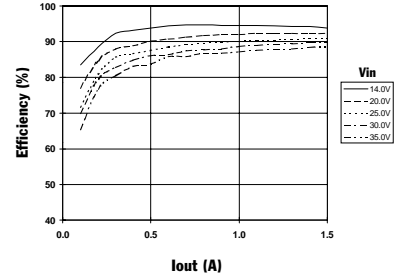
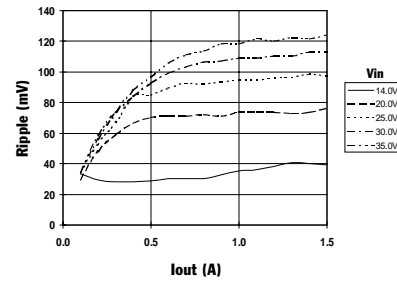
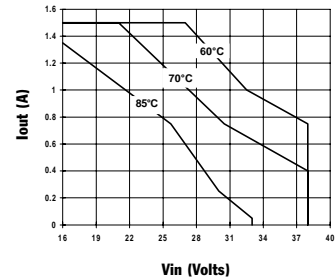
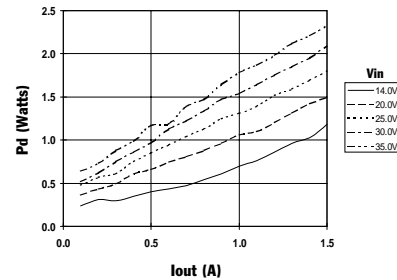
78SR100 Series

CHARACTERISTIC DATA

78SR133 3.3 VDC (See Note 1)

Efficiency vs Output Current

Ripple vs Output Current

Thermal Derating (Ta) (See Note 2)

Power Dissipation vs Output Current

78SR105 5.0 VDC (See Note 1)

Efficiency vs Output Current

Ripple vs Output Current

Thermal Derating (Ta) (See Note 2)

Power Dissipation vs Output Current

78SR112 12.0 VDC (See Note 1)

Efficiency vs Output Current

Ripple vs Output Current

Thermal Derating (Ta) (See Note 2)

Power Dissipation vs Output Current


Note 1: All data listed in the above graphs, except for derating data, has been developed from actual products tested at 25°C. This data is considered typical data for the ISR.

Note 2: Thermal derating graphs are developed in free air convection cooling of 40-60 LFM. (See Thermal Application Notes.)

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