AMSRB1-78LPZ

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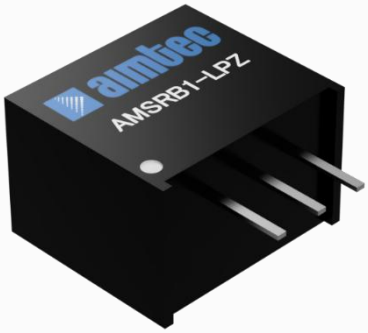


SIP3 Package

The AMSRB1-78LPZ series are SIP3 DC/DC high efficiency switching regulators and ideal substitutes for LM78xx series three-terminal linear regulators. The switching regulators feature high efficiency, low loss, short circuit protection, and there is no need for a heat sink.

It also features excellent reliability and performance while offering a wide input voltage range of 6-36VDC as well as an output voltage of -15~15V. This compact SIP3 design will surely benefit your new system design.

This new series offers great operating temperatures, from -40 to 85°C with full power up to 71°C. Additionally, 2,000,000 hours MTBF comes standard.

The AMSRB1-78LPZ is suitable for instrumentation, industrial control and electric power.

Features

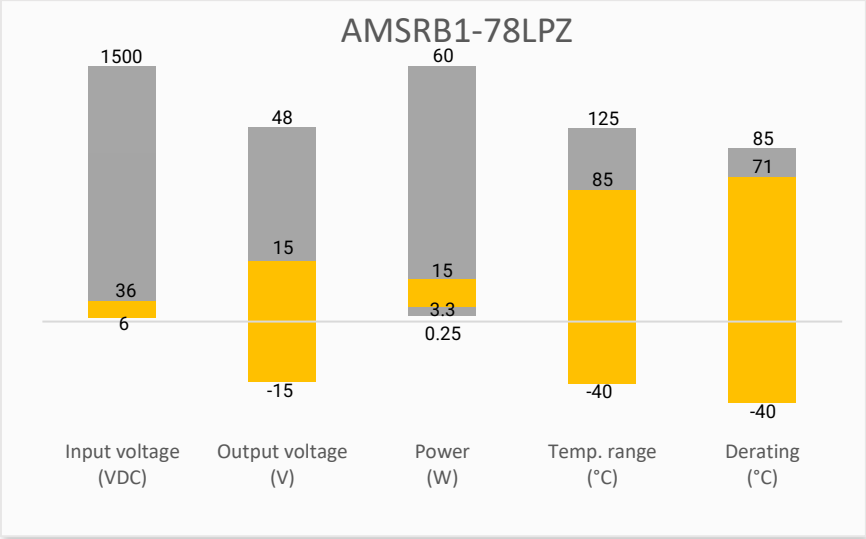
- Pin-out compatible with LM78XX Linear
- Non isolated, heatsinks not required
- Efficiency up to 96%
- Operating Temp: -40 °C to +85 °C
- Short circuit protection: Continuous, Auto recovery
- Low Quiescent Current
- Negative output available

RoHS

3yr Warranty

CE

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

IoT

Industrial

Telecom

Portable Equipment

Models & Specifications

Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max (mA)	Maximum capacitive Load (µF)	Efficiency Vin Min (%)	Efficiency Vin Max (%)
AMSRB1-783.3LPZ	6-36	3.3	1000	680	90	80
AMSRB1-7805LPZ	8-36	5	1000	680	93	85
	8-27	-5	-500	330	85	81
AMSRB1-7806LPZ	10-36	6.5	1000	680	93	85
AMSRB1-7809LPZ	13-36	9	1000	680	94	89
AMSRB1-7812LPZ	16-36	12	1000	680	95	92
	8-20	-12	-300	330	88	87
AMSRB1-7815LPZ	20-36	15	1000	680	96	93
	8-18	-15	-300	330	87	88

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage range	See Models table above			
Quiescent Current	Positive output	0.3	1	mA
	Negative output	1	4	mA
Reverse Polarity Input	Prohibited			
Filter	Capacitor			

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	100% load, 3.3Vout	±2	±4	%
	100% load, others	±1.5	±3	%
Dynamic load stability	Nominal input voltage, 25% load step change	±60	±200	mV
Transient recovery time	Nominal input voltage, 25% load step change	0.2	1	ms
Line regulation	100% load	±0.2	±0.4	%
Load regulation	Nominal input, 10-100% load, Positive output	±0.4	±0.6	%
	Nominal input, 10-100% load, Negative output	±0.4	±0.8	%
Temperature coefficient	Full load, -40°C to 85°C		±0.03	%/°C
Ripple & Noise	20MHz Bandwidth	25	75	mV pk-pk

General Specifications

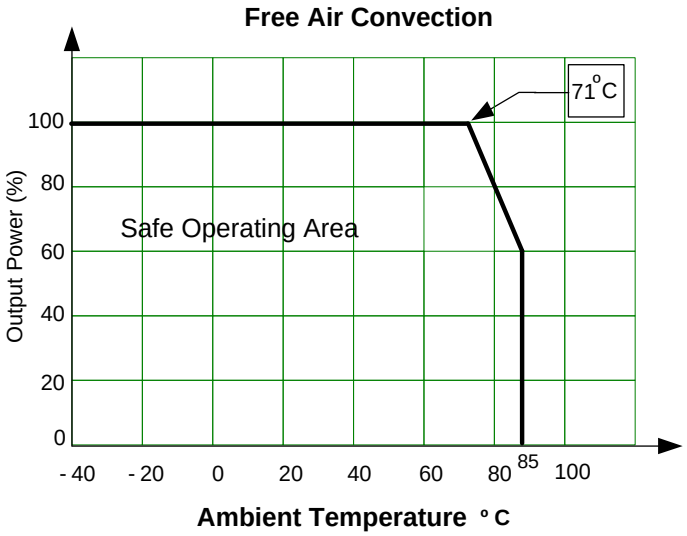
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	Full load	600		KHz
Short circuit protection	Continuous, auto recovery			
Operating temperature	With derating at 71°C	-40 to +85		°C
Storage temperature		-55 to +125		°C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	Black plastic (UL94-V0)			
Weight		1.8		g
Dimensions (L x W x H)		0.46 x 0.30 x 0.40 inches (11.60 x 7.55 x 10.16 mm)		
MTBF	>2 000 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load			

Maximum Soldering Temperature	Welding time: 10s (Max.), 1.5mm away from case		260	°C

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

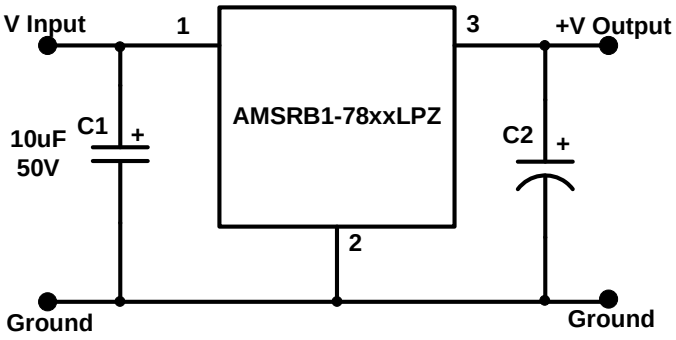
Safety Specifications		
Parameters		
Standards	Designed to meet UL/EN/IEC62368-1	
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B with the recommended EMI circuit
	Electrostatic Discharge Immunity	IEC/EN 61000-4-2
	RF, Electromagnetic Field Immunity	IEC/EN 61000-4-3
	Electrical Fast Transient/Burst Immunity	IEC/EN 61000-4-4
	RF, Conducted Disturbance Immunity	IEC/EN 61000-4-6

Derating

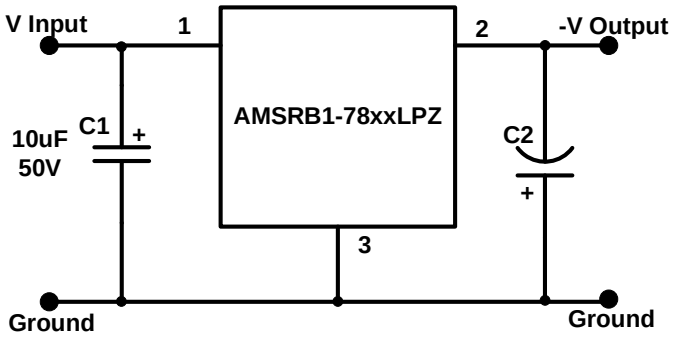


Typical application circuit

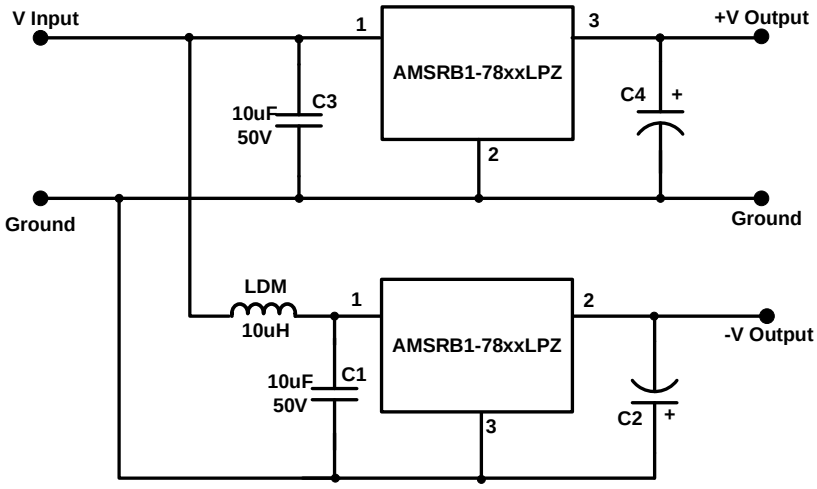
Positive Output Typical Application Circuit



Negative Output Typical Application Circuit



Positive and Negative dual output application circuit

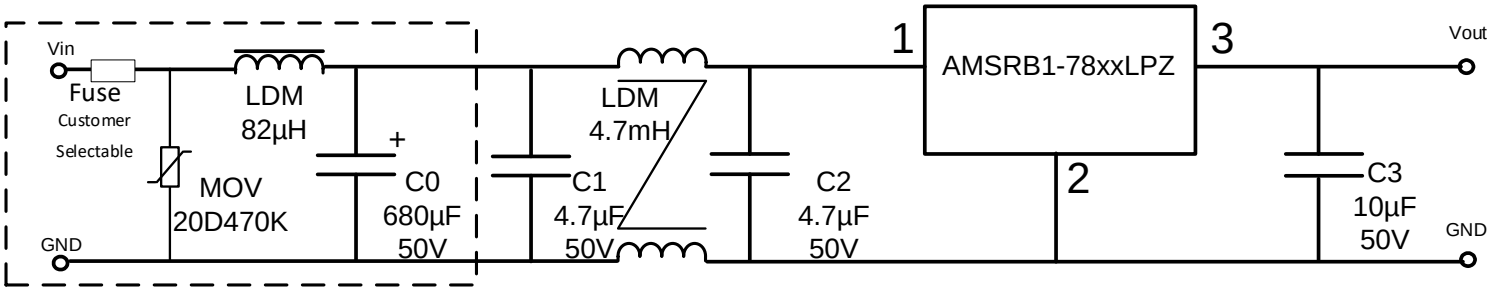


Model	C2/C4(uF)
3.3/5V output	22uF / 10V
6.5/9V output	22uF / 16V
12/15V output	22uF / 25V

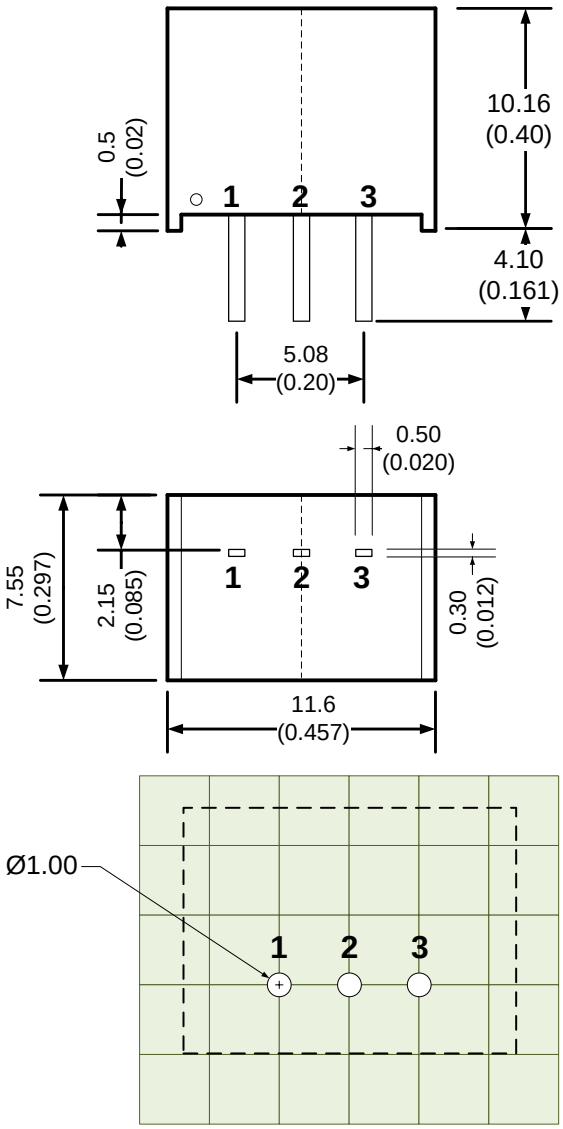
Notes:

1- It is recommended that tantalum capacitor and aluminum electrolytic capacitor of low ESR capacitors are used for C2. C1/C3 & C2/C4 are required and should be installed as close to the converter as possible.
2- The converter can be used both for positive and negative output using the circuit connection shown above.
3- The converter cannot be used in parallel to enlarge the power for the output and hot swap.

EMI Recommended circuit



Dimensions



Grid: 2.54 x 2.54mm
Unit:mm[inch]
General tolerances:±0.5mm [± 0.020inch]

Pin Out Specifications		
Pin	Positive output	Negative output
1	+V Input	+V Input
2	Ground	-V Output
3	+V Output	Ground

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