AMSR-78LPZ

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SIP3 Package

The AMSR-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 4.75-36VDC 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 AMSR-78LPZ is suitable for instrumentation, industrial control and electric power.

Features

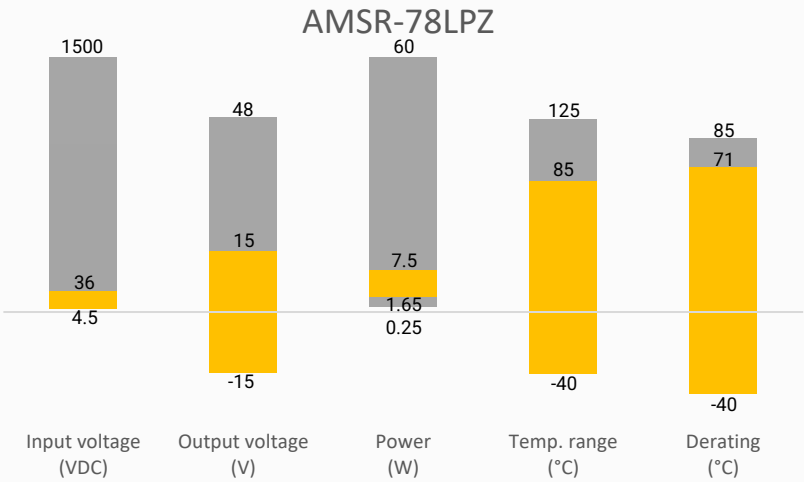
- Pin-out compatible with LM78XX Linear
- Non isolated, heatsinks not required
- Efficiency up to 95%
- Operating Temp: -40 °C to +85 °C
- Short circuit protection: Continuous, Auto recovery
- No-load input current as low as 0.2mA
- Regulated output

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 (%)
AMSR-783.3LPZ	4.75-36	3.3	500	680	86	80
AMSR-7805LPZ	6.5-36	5	500	680	90	84
	7-31	-5	-300	330	80	80
AMSR-7809LPZ	12-36	9	500	680	93	90
AMSR-7812LPZ	15-36	12	500	680	94	91
	8-24	-12	-150	330	85	84
AMSR-7815LPZ	19-36	15	500	680	95	93
	8-21	-15	-150	330	87	85

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage range	See models table			VDC
No load input current		0.2	1.5	mA
Filter	Capacitor			
Reverse polarity Input	Avoid / Not protected			

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	100% load, 3.3Vout model	±2	±4	%
	100% load, Others	±2	±3	%
Line regulation	100% load	±0.2	±0.4	%
Load regulation	10-100% load, 3.3/5Vout models	±0.6		%
	10-100% load, Others	±0.3		%
Ripple & Noise*		20	75	mV pk-pk
Transient response time	25% load step change	200	1000	µS
Dynamic load stability	25% load step change	50	250	mV

* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the application note for specific detail.

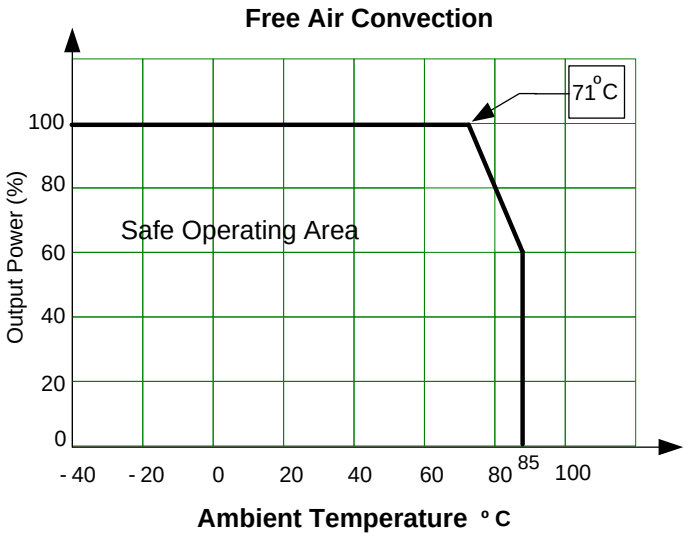
General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	Full load, nominal input	>550	850	KHz
Short circuit protection	Continuous, auto recovery			
Operating temperature	With derating at 71°C	-40 to +85		°C
Storage temperature		-55 to +125		°C
Pin soldering temperature	Soldering spot is 1.5mm away from case, 10 sec max		260	°C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	black plastic (UL94V-0 rated)			
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			

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.

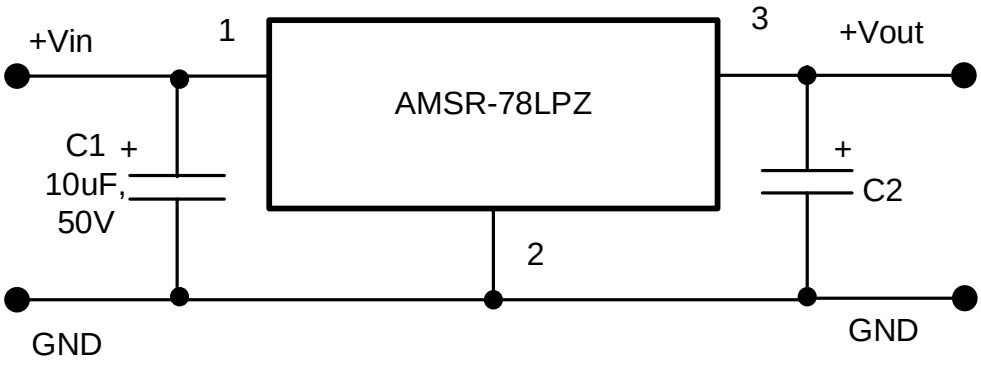
Safety Specifications		
Parameters		
Standards	Designed to meet UL/EN/IEC 62368-1	
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B with the recommended EMI circuit
	Electrostatic Discharge Immunity	IEC/EN 61000-4-2 Contact ±4KV, Criteria B
	RF, Electromagnetic Field Immunity	IEC/EN 61000-4-3 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC/EN 61000-4-4 ±1KV, Criteria B
	RF, Conducted Disturbance Immunity	IEC/EN 61000-4-6 3Vr.m.s, Criteria A

Derating

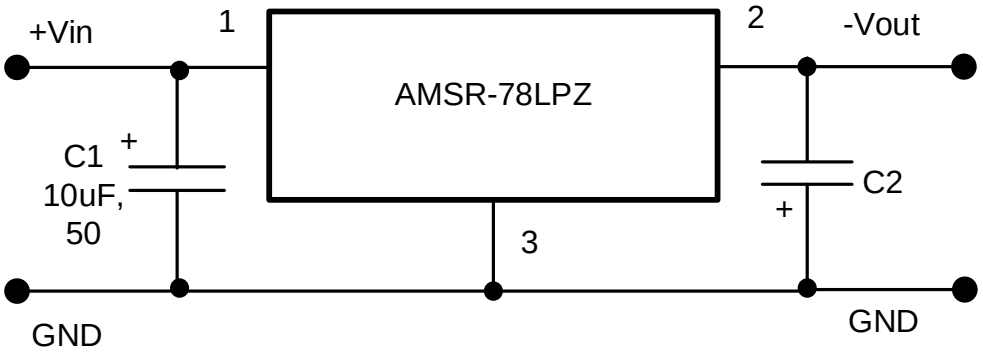


Typical application circuit

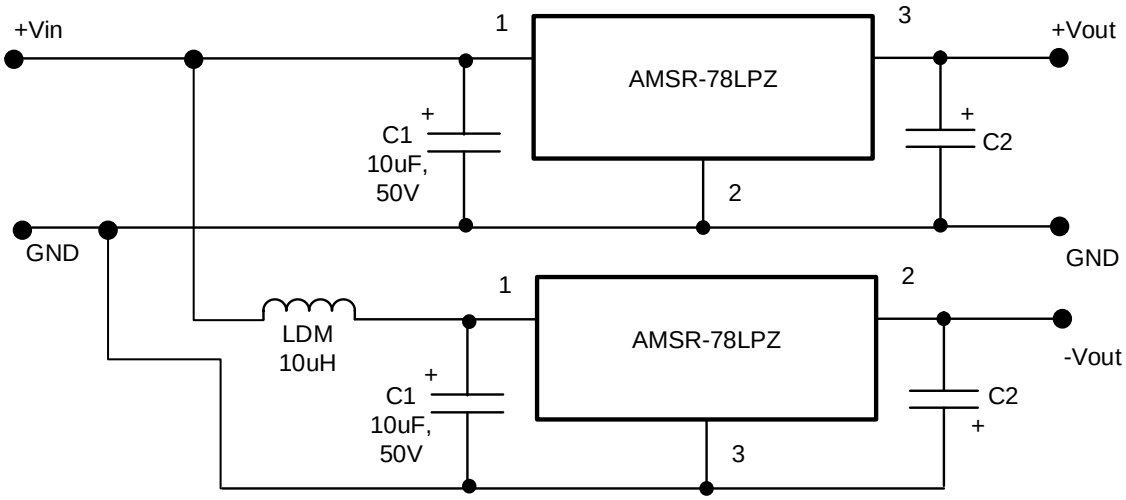
Standard Application circuit – positive output



Standard Application circuit – negative output



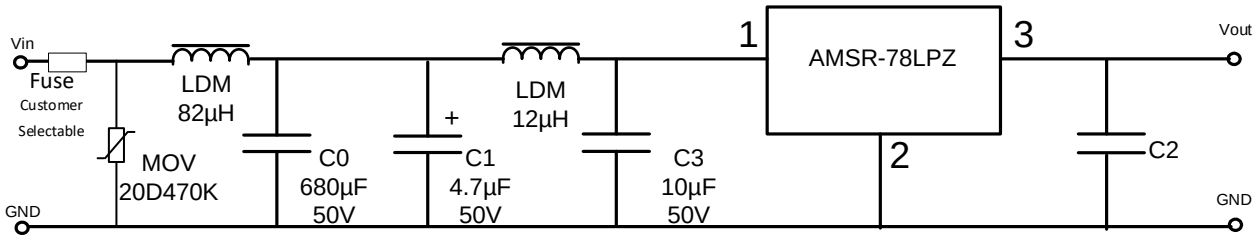
Standard Application circuit – dual output



Vout	C2
3.3V	22µF/10V
5V	22µF/10V
9V	22µF/16V
12V	22µF/25V
15V	22µF/25V

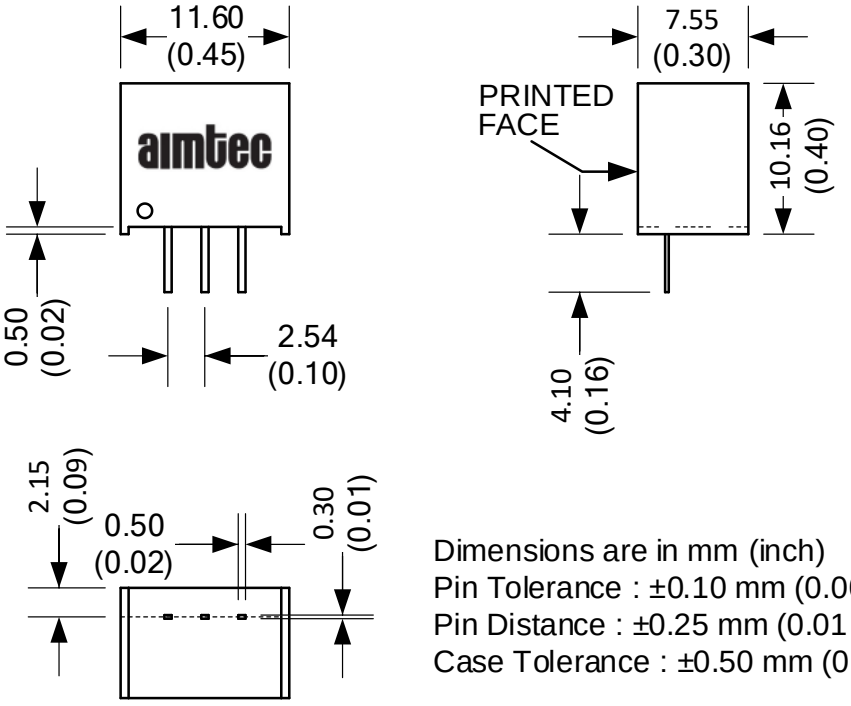
NOTE: This part is not designed for parallel operation, only input parallel supply to achieve positive and negative output

EMI Recommended circuit



NOTE: Refer to above table for C2 values

Dimensions



Dimensions are in mm (inch)
Pin Tolerance : ±0.10 mm (0.004 inch)
Pin Distance : ±0.25 mm (0.01 inch)
Case Tolerance : ±0.50 mm (0.02 inch)

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

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