aimtec
Your Power Partner

Series AMSRI1-78-NZ

Up to 15Watt | DC-DC Switching Regulator

FEATURES:

- Continuous Short Circuit Protection
- Operating temperature -40°C to +85°C
- Ultra-low no load power consumption
- Pin Compatible to LM78xx
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- Very high efficiency up to 96%
- Non-Isolated
- Regulated Outputs

RoHS

Models
Single output

Model	Input Voltage Nom/Range (V)	Output Voltage (V)	Output Current max (mA)	Efficiency Vin Min (%)	Efficiency Vin Max (%)	Max. Capacitive load (µF)
AMSRI1-783.3-NZ	24 / 6-36	3.3	1000	90	81	680
AMSRI1-7805-NZ	24 / 8-36	5	1000	93	86	680
	12 / 8-27	-5	-500	86	82	330
AMSRI1-7809-NZ	24 / 13-36	9	1000	95	90	680
AMSRI1-7812-NZ	24 / 16-36	12	1000	96	93	680
	12 / 8-20	-12	-300	89	88	330
AMSRI1-7815-NZ	24 / 20-36	15	1000	96	94	680
	12 / 8-18	-15	-300	89	89	330
AMSRI1-783.3L-NZ	24 / 6-36	3.3	1000	90	81	680
AMSRI1-7805L-NZ	24 / 8-36	5	1000	93	86	680
	12 / 8-27	-5	-500	86	82	330
AMSRI1-7809L-NZ	24 / 13-36	9	1000	95	90	680
AMSRI1-7812L-NZ	24 / 16-36	12	1000	96	93	680
	12 / 8-20	-12	-300	89	88	330
AMSRI1-7815L-NZ	24 / 20-36	15	1000	96	94	680
	12 / 8-18	-15	-300	89	89	330

Note: For higher than 30VDC input, adding 22µF/50V capacitor required.

Input Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage range	See the table above			
Filter	Capacitor			
No load input current	Positive output	0.1	1	mA

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	100% load	±2	±4	%
Short Circuit protection	Continuous, auto recovery			
Line voltage regulation	Vin=(LL-HL) at full load	±0.2	±0.4	%
Load voltage regulation	10-100% load	±0.4	±0.6	%
Temperature coefficient	Full temperature range	±0.03		%/ºC
Ripple & Noise	20MHz Bandwidth, 20 – 100% load	20	75	mV p-p
Transient response deviation	Nom Vin, 25% load step change	50	300	mV
Transient recovery time		0.1	1	ms

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load, 3.3V and 5V output	520	620	KHz
	100% load, others	680	780	
Operating temperature	With derating above 71ºC	-40 to +85		ºC
Storage temperature		-55 to +125		ºC
Max Case temperature			100	ºC
Cooling	Free air convection			
Humidity	Non-condensing		95	%
Case material	Heat resistant black plastic (UL94V-0 rated)			
Weight		3.8		g
Dimensions (L x W x H)	0.45 x 0.35 x 0.69 inches 11.5 x 9 x 17.5 mm			

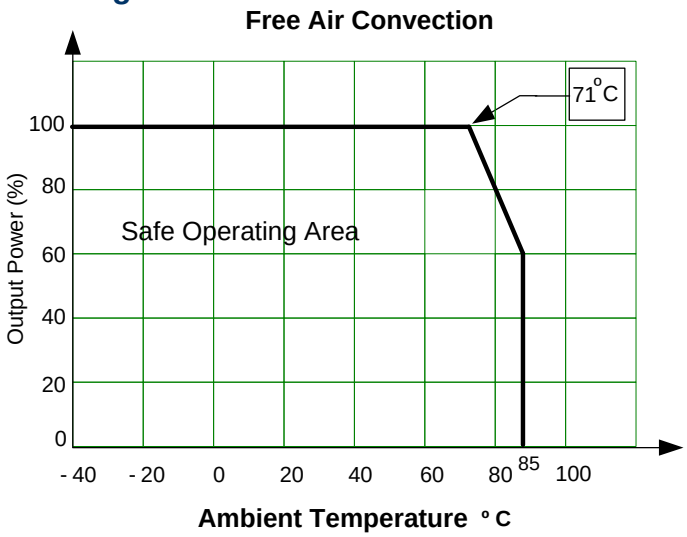
MTBF	>2 000 000 hrs (MIL-HDBK-217F, Ground Benign, t=+25ºC)			
Soldering Temperature	1.5 mm from case for 10 sec		260	ºC

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.

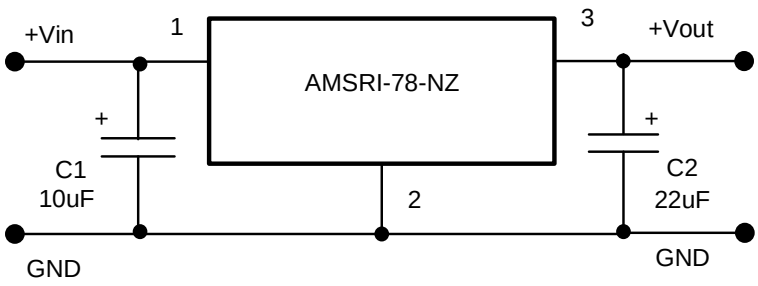
Safety Specifications

Parameters	
Standards	IEC/UL 60950-1
	EN55022: 2006 + A1:2007, Class B (with recommended circuit)
	IEC61000-4-2 (ESD): Contact ±4KV, Perf. Criteria B
	IEC61000-4-3 (Radiation Immunity): 10V/m, Perf. Criteria A
	IEC61000-4-4 (EFT): ±1KV, Perf. Criteria B (with recommended circuit)
	IEC61000-4-5 Line to line: ±1KV, Perf. Criteria B (with recommended circuit)
	IEC61000-4-6 (Conducted Disturbance Immunity): 3Vr.m.s, Perf. Criteria A

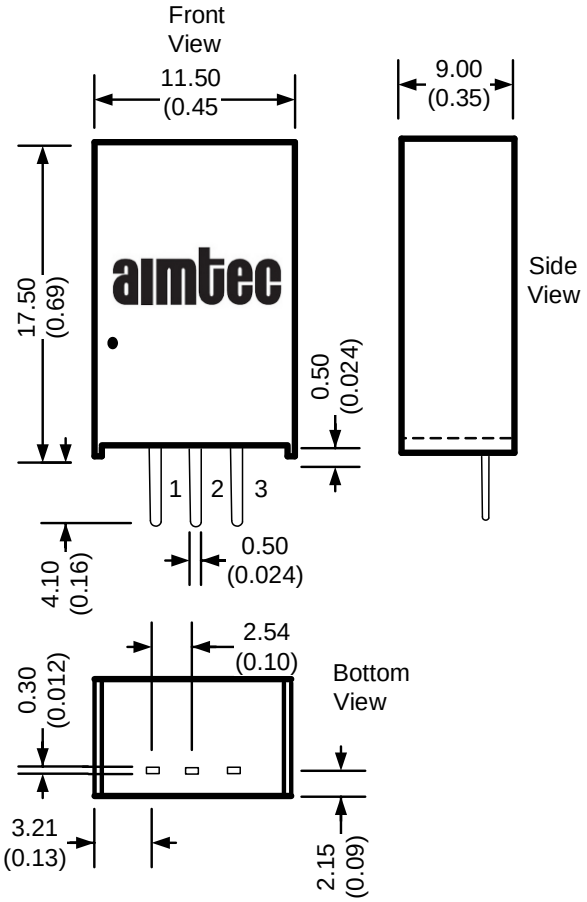
Derating



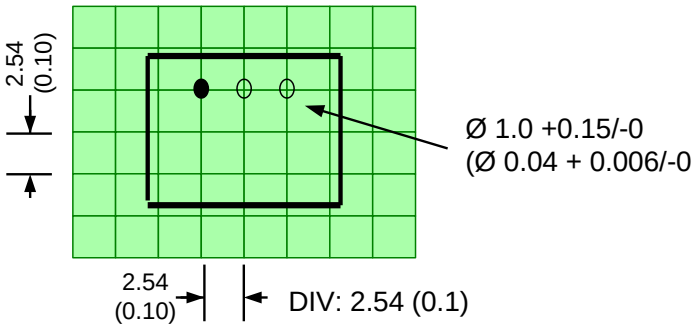
Standard Application circuit – positive output



Dimensions

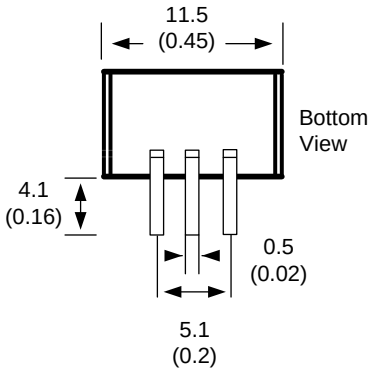


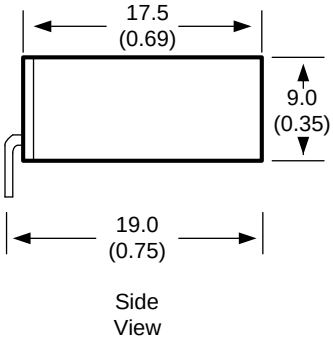
Footprint



Dimensions are typical values: mm (inch)
General Tolerance: ± 0.25 (± 0.01)
Pin Tolerance: ± 0.1 (± 0.004)

L Models





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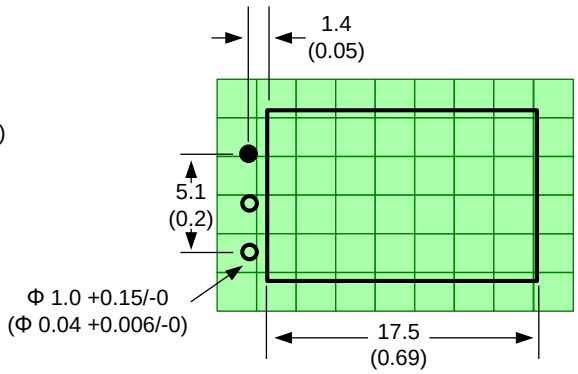
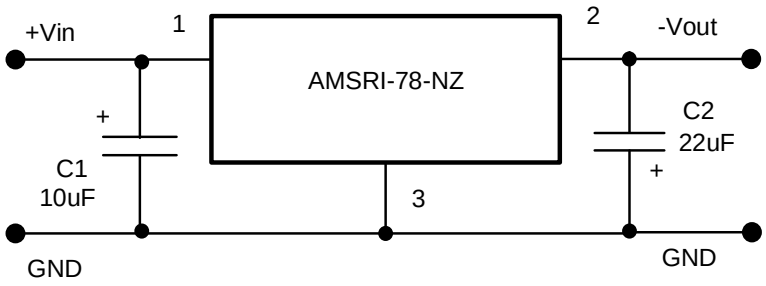


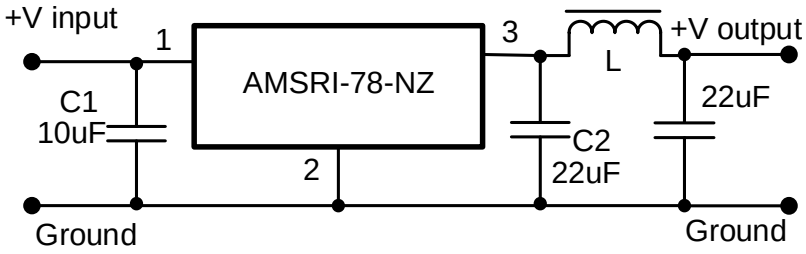
Pin Out Specifications

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

Standard Application circuit – negative output

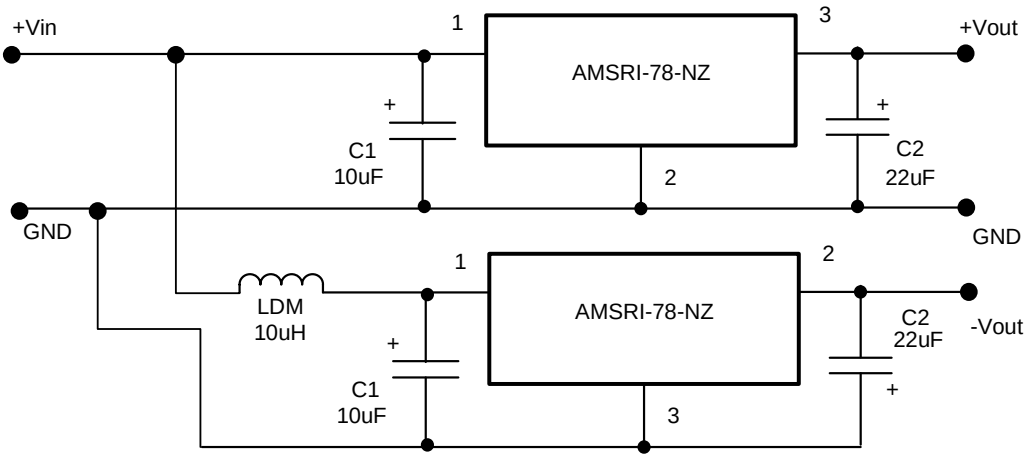


Ripple and Noise Reduction

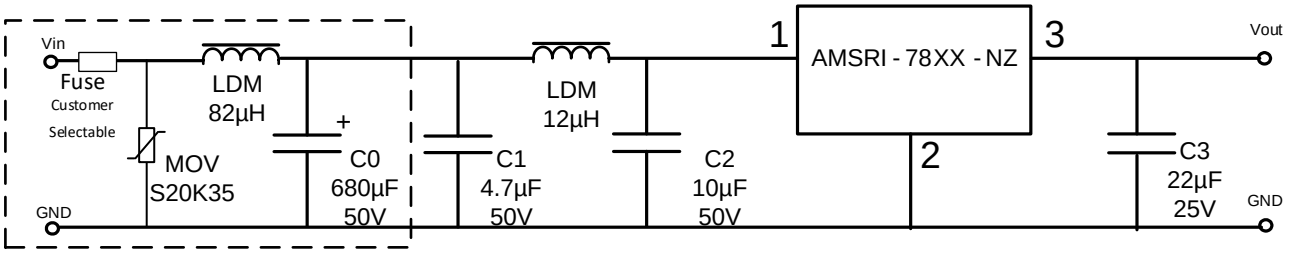


Recommended value of inductor L is between 10uH to 47uH

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



Recommended EMC circuit



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