aimtec
Your Power Partner

Series AMSRI-78-NZ

Up to 7.5Watt | DC-DC Switching Regulator

FEATURES:

- Short Circuit Protection
- Thermal Shutdown
- Non-Isolated
- Low ripple and noise
- Pin Compatible to LM78xx
- Operating temperature -40°C to +85°C
- Very high efficiency up to 93%
- Ultra-low no load power consumption
- 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)
AMSRI-783.3-NZ	24 / 4.75-36	3.3	500	78	81	680
AMSRI-7805-NZ	24 / 6.5-36	5	500	82	85	680
	12 / 7-31	-5	-300	78	81	330
AMSRI-7809-NZ	24 / 12-36	9	500	87	90	680
AMSRI-7812-NZ	24 / 15-36	12	500	89	92	680
	12 / 8-24	-12	-150	82	85	330
AMSRI-7815-NZ	24 / 19-36	15	500	90	93	680
	12 / 8-21	-15	-150	82	85	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			VDC
Filter	Capacitor			
Quiescent current	Vin=(LL-HL) at 0% load	0.2	1.5	mA

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	100% load	±2	±4	%
Short Circuit protection	Continuous			
Short circuit restart	Auto recovery			
Thermal shutdown	Internal IC junction	170		ºC
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	-40°C to +85°C ambient	±0.02		%/ºC
Ripple & Noise	20MHz Bandwidth, 10 – 100% load	50		mV p-p
Transient response deviation	Nom Vin, 25% load step change	55	250	mV
Transient recovery time		0.5	2	ms

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	550	850	KHz
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	Black flame retardant and heat resistant plastic (UL94V-0 rated)			
Weight	2			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, 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.

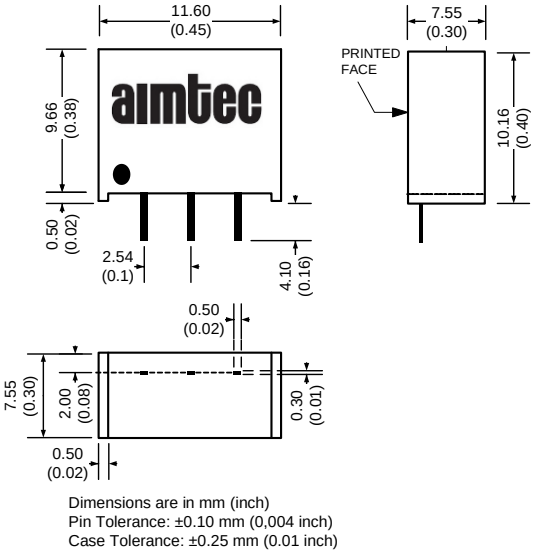
Safety Specifications

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)
	IEC61000-4-6 (Conducted Disturbance Immunity): 3Vr.m.s, Perf. Criteria A
	IEC61000-4-29 (VDDSI): 0%-70%, Perf: Criteria B

Pin Out Specifications

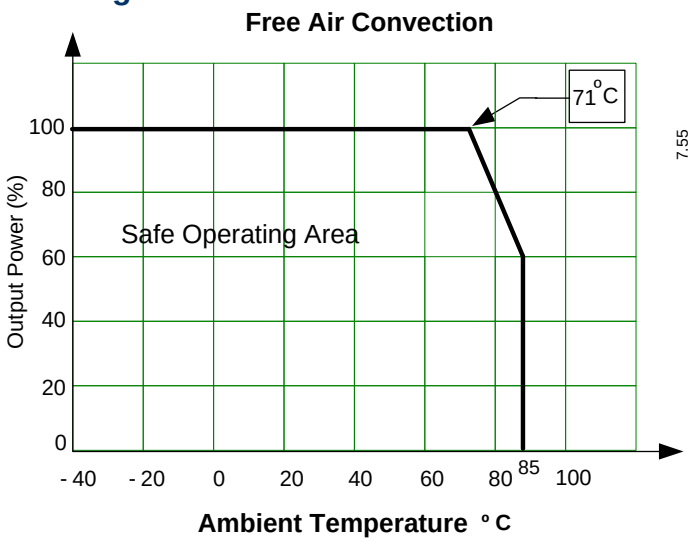
Pin	Positive	Negative
1	+V Input	+V Input
2	Ground	-V Output
3	+V Output	Ground

Dimensions

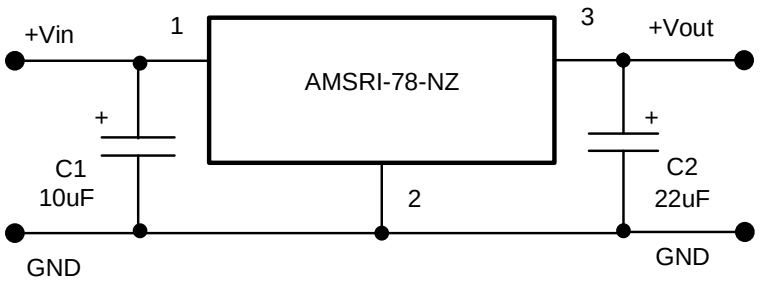


Dimensions are in mm (inch)
Pin Tolerance: ±0.10 mm (0,004 inch)
Case Tolerance: ±0.25 mm (0.01 inch)

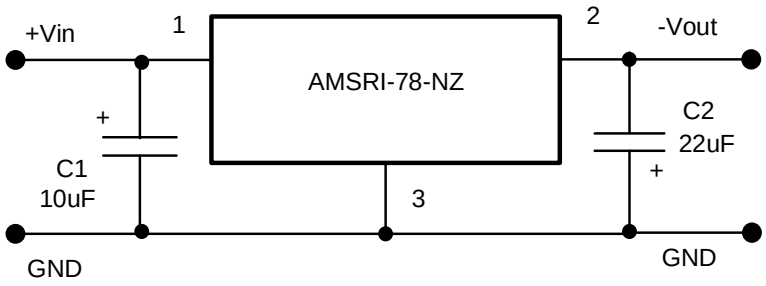
Derating



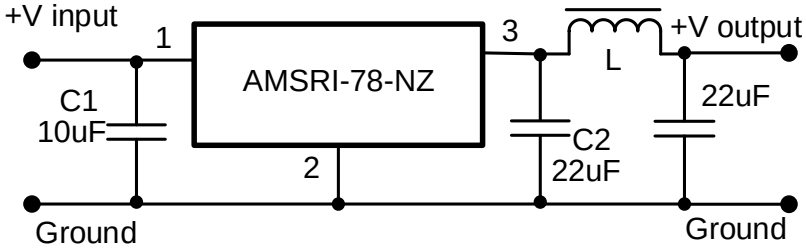
Standard Application circuit – positive output



Standard Application circuit – negative output

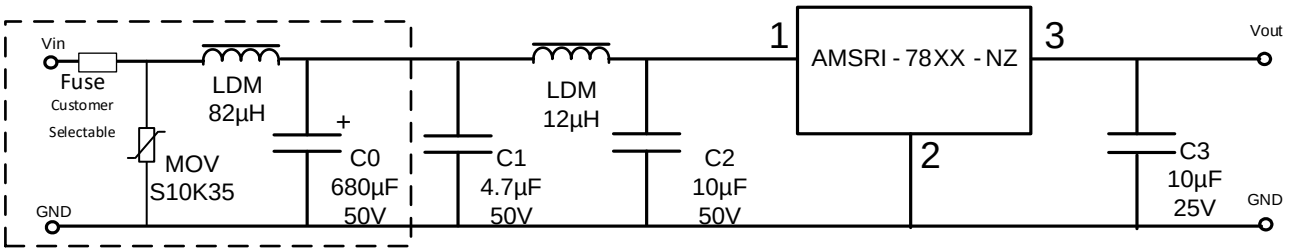


Ripple and Noise Reduction

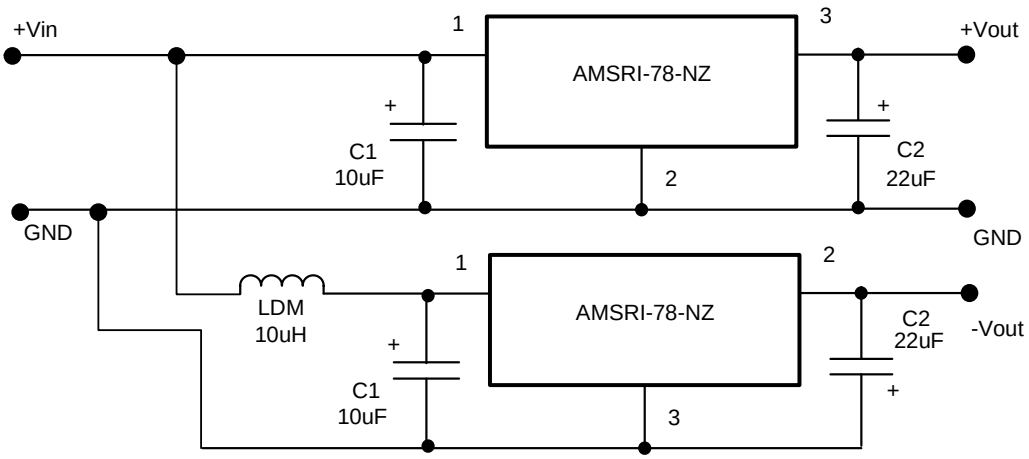


Recommended value of inductor L is between 10uH to 47uH

Recommended EMC circuit



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



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