AMSRL10-NZ

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SMD

The AMSRL10-NZ series is a 10A non-isolated switching regulator. The output voltage is accurately adjustable from 0.75V to 5.0V with a single resistor and the product has a high efficiency of 96%, fast transient response, input under-voltage, output short circuit and over-current protection. It meets CLASS B of CISPR32/EN55032 EMI standards with the recommended external filter. This series can be widely used in applications such as telecom, computer networking, power distributed architecture, workstations, servers and LANs/WANs. They also provide high current with fast transient response for high-speed chips such as FPGA, DSP, and ASIC.

The new 10A series has operating temperature range from -40°C to +85°C and meets the EN62368 standard.

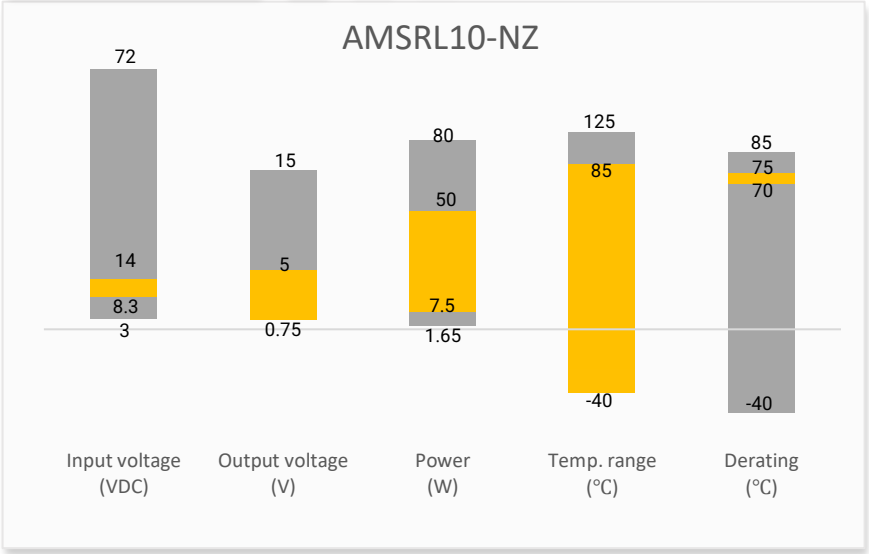
Features

- Input Voltage up to 15V
- Operating Temp: -40 °C to +85 °C
- Ultra-low no load input current: 2mA typ.
- Low ripple & noise, 65mV typ.
- Continuous short circuit, over current Protection
- Design to meet EN62368

RoHS

3yr Warranty

Summary



Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications



Models & Specifications

Single Output

Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max (A)	Maximum Capacitive Load (µF)	Efficiency (%) Typ.
AMSRL10-PNZ	12 (8.3 - 14)	0.75 – 5.0	10	5000/6000*	96
AMSRL10-NNZ	12 (8.3 - 14)	0.75 – 5.0	10	5000/6000*	96

Note: "-P" indicates that the Ctrl pin is positive logic control, "-N" indicates that the Ctrl pin is negative logic control
*Maximum capacitive load is 6000µF when ESR ≥ 10mΩ, 5000µF when 1mΩ ≤ ESR ≤ 10mΩ

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage range	12VDC Nominal	8.3 - 14	15	VDC
Input current	12VDC input, 100% load, 10A output	4340		mA
	12VDC input, No load	70		
Start-up voltage			8.3	VDC
Under voltage lock out		≤6		VDC
Filter	Capacitor			
Quiescent Current	Positive output	2		mA
Reverse Polarity Input	Prohibited			
On/Off Control	Positive logic control	ON – Open or Vin-2.5VDC to Vin OFF – 0 to 0.5V		
	Negative logic control	OFF – Open or Vin-2.5VDC to Vin ON – 0 to 0.5V		

Output Specification

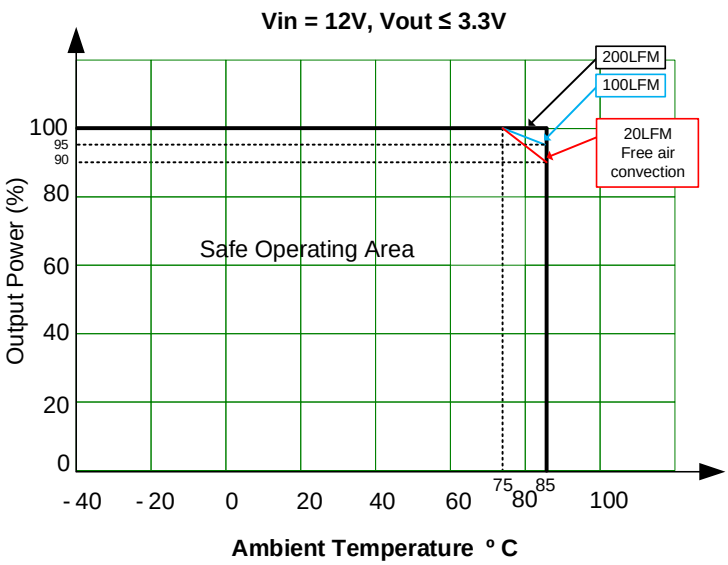
Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	100% load, 12VDC input	±1	±2	%
Line regulation	100% load, 12VDC input	±0.3		%
Load regulation	0-100% load, 12VDC input	±0.4		%
Short circuit protection	Continuous, Auto recovery			
Over current protection	12VDC input, 10A output	320		% of Iout
Temperature coefficient	100% load	±0.02		%/°C
Ripple & Noise	20MHz bandwidth, 100% load, 12VDC input	65	100	mV pk-pk
Transient recovery time	50% load step change, with 470 µF capacitor	20		µS
Transient response deviation	50% load step change, with 470 µF capacitor	±75		mV
Trim		≥0.75	5	VDC
Remote sense*			110	% of Vout

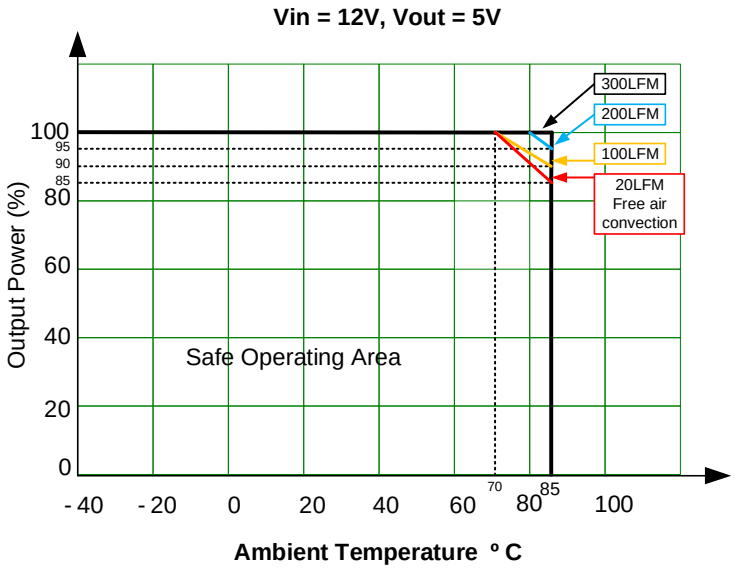
Note: Remote sense trace should be as short as possible. If the function is not used, it must be connected to the +V output pin.

General Specifications				
Parameters	**Conditions**	**Typical**	**Maximum**	**Units**
Switching frequency	100% load	300		KHz
Operating temperature	See derating graph	-40 to +85		°C
Storage temperature		-55 to +125		°C
Lead temperature	>217°C for less than 60s		245	°C
Lead-free reflow solder process	IPC/JEDEC J-STD-020D.1			
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Weight		8.6		g
Dimensions (L x W x H)	1.30 x 0.53 x 0.33 inches (33.0 x 13.5 x 8.3 mm)			
MTBF	> 1000 000 hrs (MIL-HDBK -217F, t=+25°C)/Full Load			
All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage, 5VDC output voltage and rated output load unless otherwise specified.				

Safety Specifications		
Parameters		
Standards	EMI - Conducted and radiated emission	Design to meet CISPR32/EN55032, class B with recommend EMC circuit
	Information technology Equipment	Design to meet EN62368
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±6KV, Criteria B

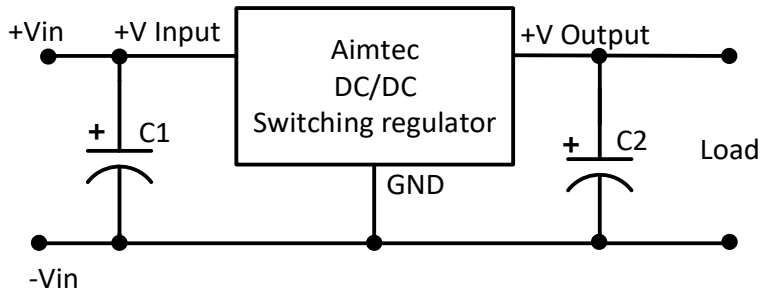
Derating





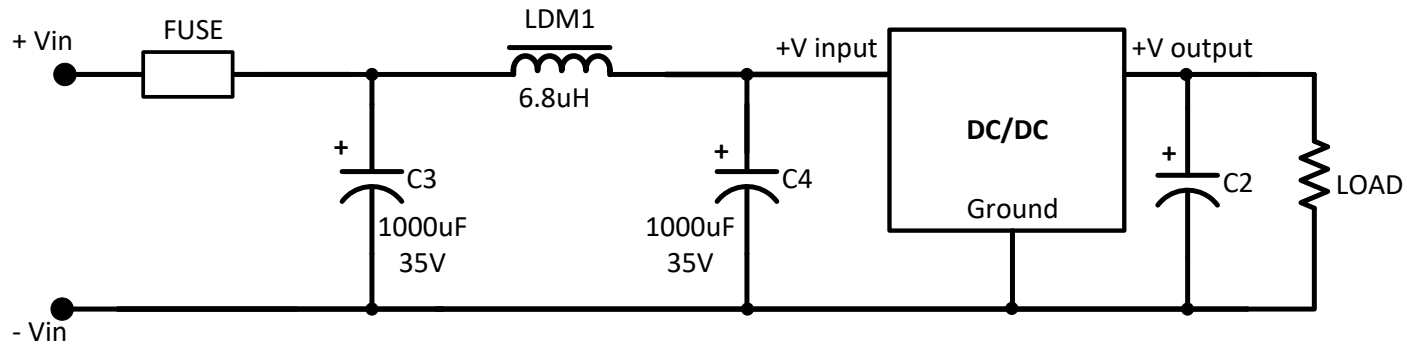
16A output model

Typical Application Circuit

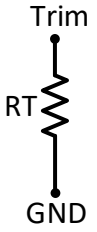


Model	C1	C2
10A output	100μF/35V	22μF/16V
16A output	220μF/35V	47μF/16V

EMC Recommended Circuit



Trim Function

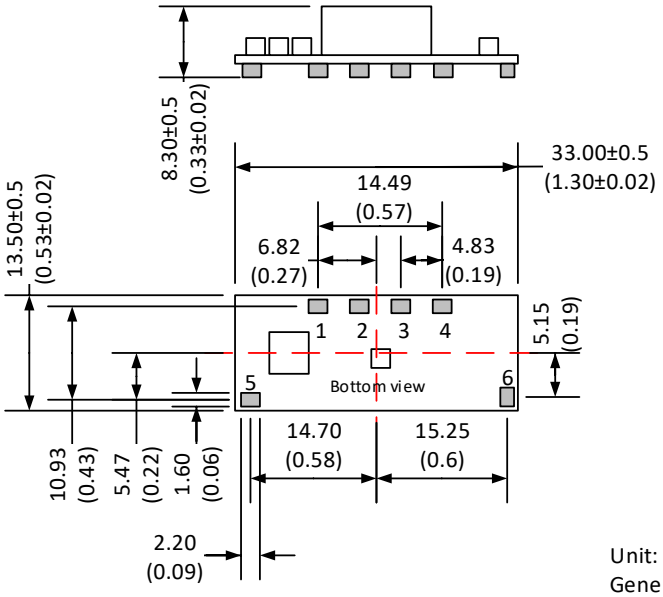


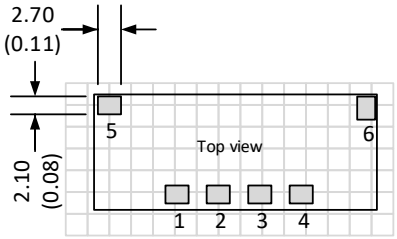
Trim resistor equation:

$$RT(\Omega) = \frac{7200}{V_{out} - 0.7525} - 1000$$

Vout (VDC)	RT (Ω)
0.7525	Open
1.2	15,089
1.8	5,873
2.5	3,120
3.3	1,826
5	695

Dimensions





Grid size: 2.54 x 2.54 mm

Pin Output Specifications	
Pin	Positive output
1	GND
2	+V Output
3	Trim
4	Remote sense
5	+V Input
6	On/Off control

Unit: mm(inch)
General tolerance: ±0.25(0.01)

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