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## AMSR2-78JZ



Aimtec introduces the new AMSR2-78JZ, a 2A Switching Regulator which is designed to be a plug and play alternative to the traditional 78xx series three-terminal linear regulators.

The series features an ultra-wide input voltage range of 6-36V, 0.1mA ultra-low no load input current, continuous short-circuit protection, low ripple noise (typ.: 30mV) and much more.

The new 2A series has operating temperature from -40°C to +85°C, meets EN62368 standard (Pending) and has delivers efficiencies up to 95%, eliminating the need for a heat sink and cutting additional design space and installation cost. This series is suitable for use in applications such as industrial controls, medical, mining, railway and other related industries.

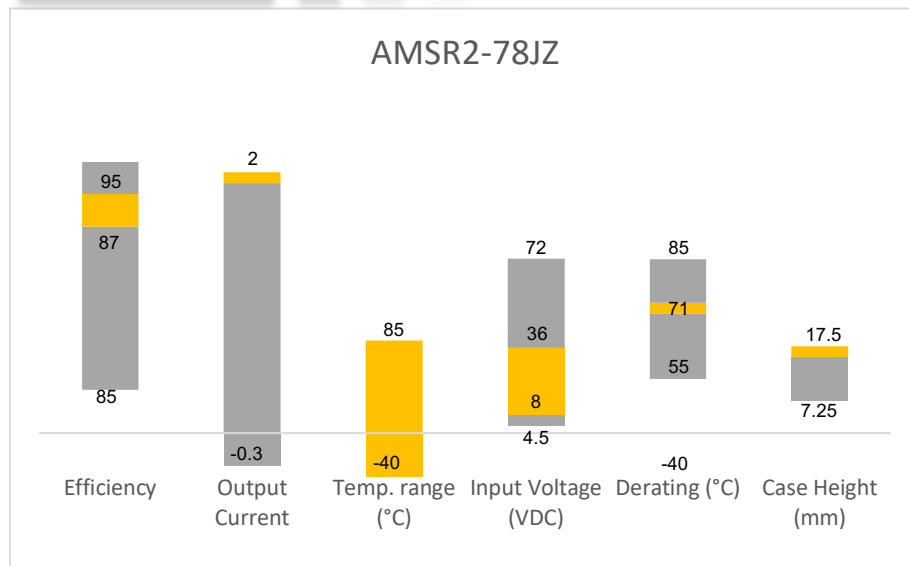
## Features



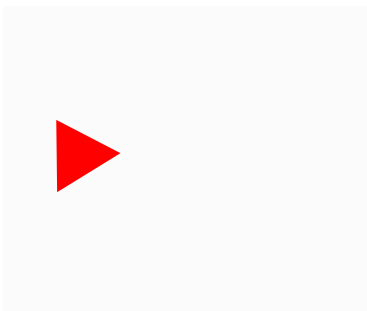
- Input Voltage up to 36V
- Operating Temp: -40 °C to +85 °C
- Ultra-low no load input current: 0.1mA typ.
- Low ripple & noise, 30mV typ.
- Continuous Short Circuit Protection
- Design to meet EN62368



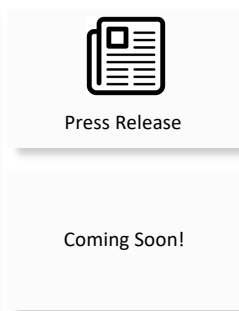
## Summary



## Training



Product Training Video  
(click to open)



Application Notes

## Applications



IoT



Industrial



Railway

## Models & Specifications



### Single Output

Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max (mA)	Maximum capacitive Load ( $\mu$ F)	Efficiency Vin Max. @full load (%)	Efficiency Vin Min. @full load (%)
AMSR2-782.5JZ	24 (4.5 - 36)	2.5	2000	2000	83	89
AMSR2-783.3JZ	24 (6 - 36)	3.3	2000	1800	83	87
AMSR2-7805JZ	24 (8 - 36)	5	2000	1000	87	90
AMSR2-7809JZ	24 (13 - 36)	9	2000	680	90	93
AMSR2-7812JZ	24 (16 - 36)	12	2000	470	92	94
AMSR2-7815JZ	24 (19 - 36)	15	2000	470	93	95
AMSR2-783.3LJZ	24 (6 - 36)	3.3	2000	1800	83	87
AMSR2-7805LJZ	24 (8 - 36)	5	2000	1000	87	90
AMSR2-7812LJZ	24 (16 - 36)	12	2000	470	92	94

Add a 22 $\mu$ F/50V electrolytic capacitor at the input end when the input voltage is over 30V to prevent the device from being damaged by the voltage spike.

### Input Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage range	See Models table above			
Filter	Capacitor			
Quiescent Current	Positive output, Others	0.1	1	mA
	Positive output, 5V/12V/15V output	1.5	4	mA
Reverse Polarity Input	Prohibited			

### Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	At 100% load, 3.3V output	$\pm$ 2	$\pm$ 4	%
	At 100% load, Others	$\pm$ 2	$\pm$ 3	
Line regulation	Full load, main input range	$\pm$ 0.4	$\pm$ 0.8	%
Load regulation	0-100% load	$\pm$ 0.5	$\pm$ 1.5	%
Short circuit protection	Continuous, Auto recovery			
Temperature coefficient			$\pm$ 0.03	%/ $^{\circ}$ C
Ripple & Noise	20MHz bandwidth, 100% load, Others	30	75	mV pk-pk
	20MHz bandwidth, 100% load, 5V/12V/15V output	80	120	mV pk-pk
Transient recovery time	25% load step change	0.2	1	ms
Dynamic load stability	25% load step change	50	150	mV

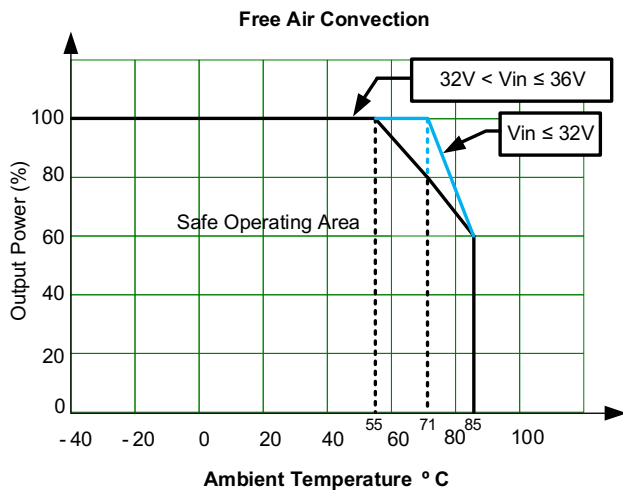
General Specifications (Continued)				
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load, Others	400		KHz
	100% load, 5V output	200		KHz
	100% load, 12V output	270		KHz
	100% load, 15V output	300		KHz
Operating temperature	See derating graph	-40 to +85		°C
Storage temperature		-55 to +125		°C
Lead temperature	1.5mm from case 10 sec.		260	°C
Cooling	Free air convection			
Humidity	Non-condensing	95		% RH
Case material	Black flame-retardant and heat-resistant plastic (UL94 V-0)			
Weight		3.8		g
Dimensions (L x W x H)	0.45 x 0.35 x 0.69 inches, 11.50 x 9.00 x 17.50mm			
MTBF	> 2000 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 and at rated output load unless otherwise specified.				

Safety Specifications		
Parameters		
Standards	EMI - Conducted and radiated emission	Design to meet CISPR32/EN55032, class B, with EMC recommended circuit part B
	Information technology Equipment	Design to meet EN62368
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±6KV, Criteria B
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 ±1KV, Criteria B, with EMC recommended circuit part A
	Surge Immunity	IEC 61000-4-5 L-L ±1KV, Criteria B, with EMC recommended circuit part A
	RF, Conducted Disturbance Immunity	IEC 61000-4-6 3Vr.m.s, Criteria A

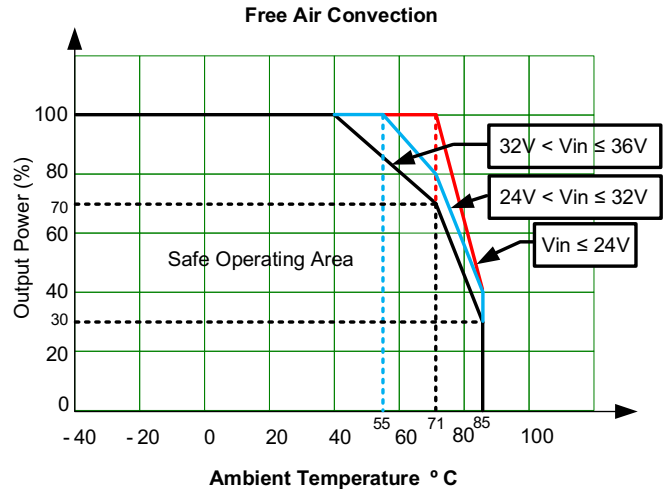
## Derating



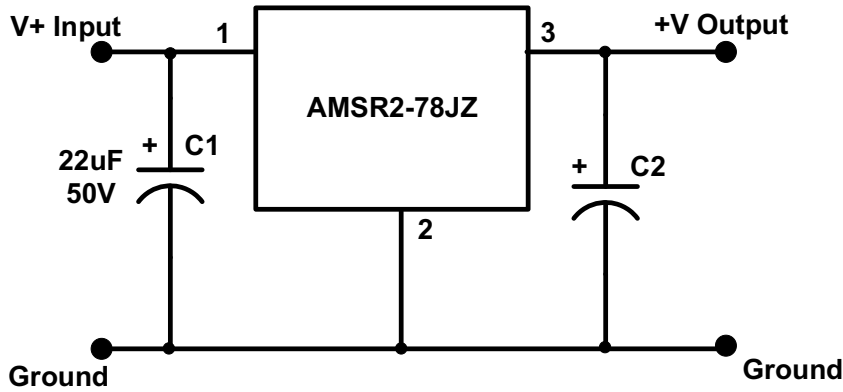
For 2.5/ 3.3/ 5V output models



For 9/ 12/ 15V output models

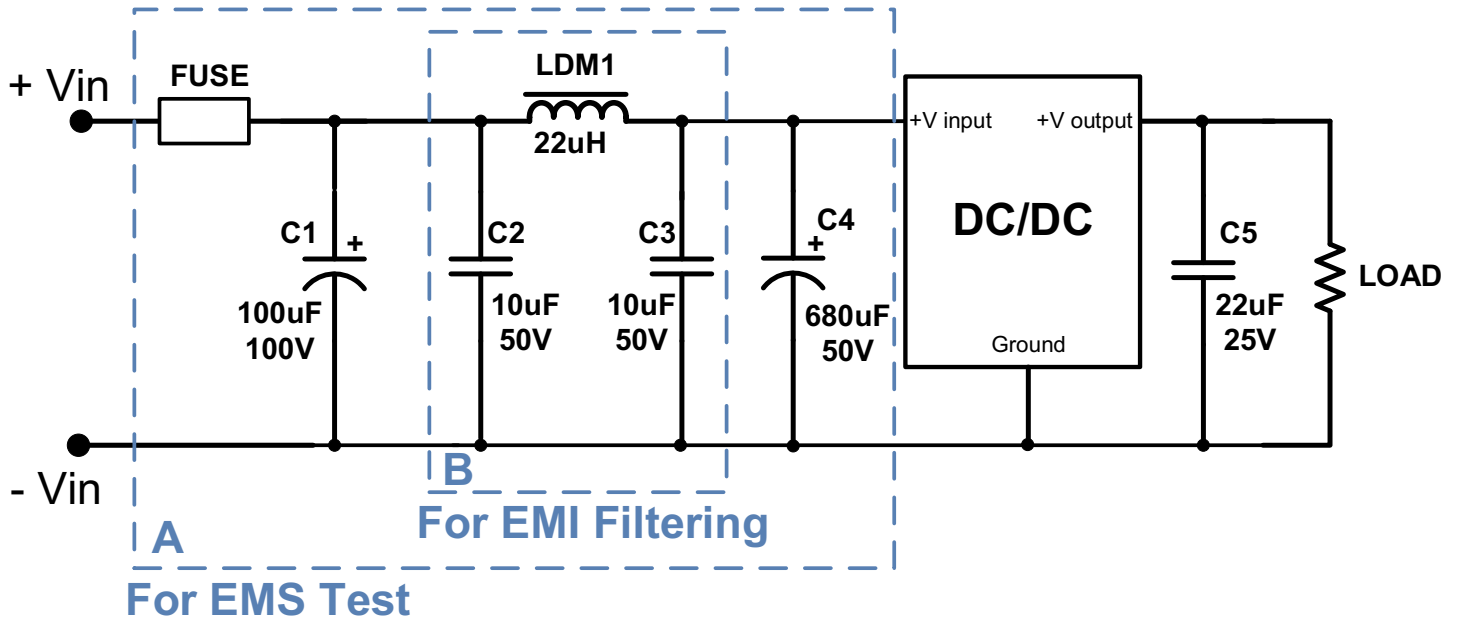


## Typical Application Circuit



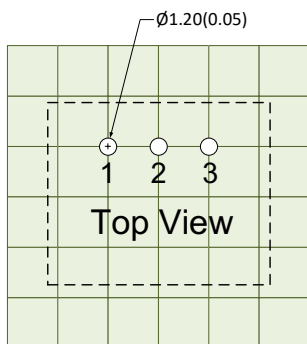
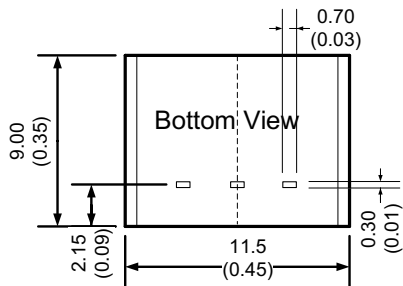
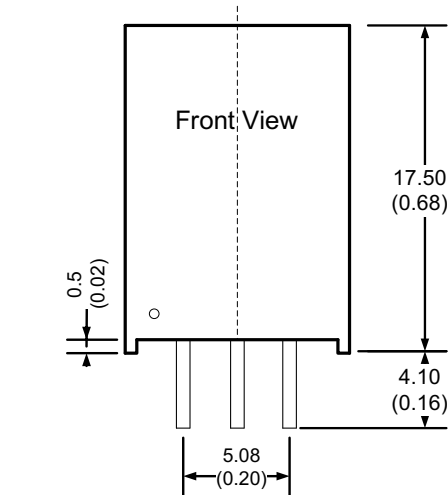
Model	C2
3.3 & 5V output models	22µF/10V
9V output models	22µF/16V
12V & 15V output models	22µF/25V

## EMC Recommended Circuit

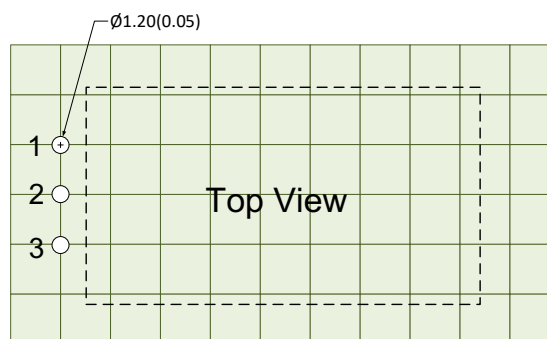
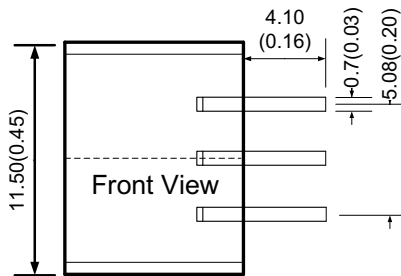
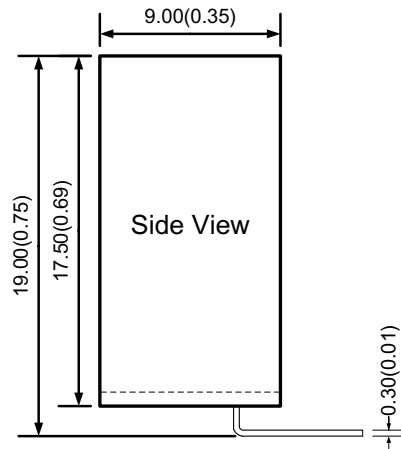


## Dimensions

### Straight pin models



### Right angled pin models



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

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