aimtec
Your Power Partner

Series AM20JW-Z

20 Watt | DC-DC Converter



FEATURES:

- Ultra-Wide 4:1 input range
- Efficiency up to 91%
- Operating temperature -40°C to + 90°C
- Continuous Short Circuit Protection
- Over Current and Over Voltage Protection
- No minimum load required
- Remote on/off control
- Input / Output Isolation 3000VDC
- Voltage Adjustment
- Soft Start, UVLO

RoHS

Models
Single output

Model	Input Voltage (V)	Input Current NL | FL (mA)	Output Voltage (V)	Output Current max (A)	Capacitive load (µF)	Efficiency (%)
AM20JW-2403SH30Z	9-36	10 | 850	3.3	5.5	10,000	89
AM20JW-2405SH30Z	9-36	10 | 936	5	4	6800	89
AM20JW-2412SH30Z	9-36	10 | 944	12	1.67	1000	88.5
AM20JW-2415SH30Z	9-36	15 | 945	15	1.33	680	88
AM20JW-4803SH30Z	18-75	8 | 422	3.3	5.5	10,000	89.5
AM20JW-4805SH30Z	18-75	8 | 463	5	4	6800	90
AM20JW-4812SH30Z	18-75	8 | 464	12	1.67	1000	90
AM20JW-4815SH30Z	18-75	8 | 457	15	1.33	680	91

Models
Dual output

Model	Input Voltage (V)	Input Current NL | FL (mA)	Output Voltage (V)	Output Current max (A)	Capacitive load (µF)	Efficiency (%)
AM20JW-2405DH30Z	9-36	10 | 969	±5	±2	±2200	86
AM20JW-2412DH30Z	9-36	15 | 944	±12	±0.837	±470	88.5
AM20JW-2415DH30Z	9-36	15 | 939	±15	±0.665	±330	88.5
AM20JW-4805DH30Z	18-75	8 | 479	±5	±2	±2200	87
AM20JW-4812DH30Z	18-75	8 | 464	±12	±0.837	±470	90
AM20JW-4815DH30Z	18-75	10 | 459	±15	±0.665	±330	90.5

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	24	9-36		VDC
	48	18-75		VDC
Filter	π (Pi) Network			
Remote ON/OFF Control	ON: 3 ~12Vdc or Open Circuit OFF: 0 ~ 1.2Vdc or short pin 2 & 6 (idle current 2mA typical)			
Under Voltage Lockout	24, ON | OFF	8.8 | 7.6		VDC
	48, ON | OFF	17.5 | 16.5		VDC
Startup time		30		ms
Absolute Maximum Rating	24 Vin		50	VDC
	48 Vin		100	VDC
Peak Input Voltage time		100		ms
Input Reflected Ripple Current*		20		mA p-p
Transient recovery time	25% load step	250		µs
Transient Response Deviation	25% load step, 3.3V single output		±5	%
	25% load step, others		±3	%

* The input reflected ripple current should be measured with a 12µH inductor and a 47µF input capacitor (ESR<1Ω at 100 KHz)

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		3000	VDC
Case/ Input & Output			1600	VDC
Resistance		> 1000		MOhm
Capacitance		2000		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±1		%
Cross regulation (Dual Output)	1st output 25% to 100%, 2nd output 100%	±5		%
Line voltage regulation	HL-LL		±0.5	%
Load voltage regulation (Single)	0-100% load		±0.5	%
Load voltage regulation (Dual)	0-100% load, balanced load		±1.0	%
Short Circuit protection	Continuous, auto-recovery			
Over Voltage Protection		140		% of Vout
Over Current Protection		170		% of Iout max
Temperature coefficient		±0.02		%/°C
Ripple & Noise*	At 20Mhz bandwidth	75		mV p-p
Voltage Adjustment	Single output only		±10	% of Vout

*Measured with 10µF/25V MLCC on each output.

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load, 3.3V and 5V output	270		KHz
	100% load, others	330		KHz
Operating temperature	See Derating curve	-40 to +90		°C
Storage temperature		-55 to +125		°C
Maximum Case temperature			105	°C
Cooling	Free air convection (30-65 LFM)			
Humidity			95	%
Case material	Copper			
Weight		29		g
Dimensions (L x W x H)	Tolerance ±0.5mm	1.60 x 1.00 x 0.41inches (40.64 x 25.40 x 10.41mm)		
MTBF	>400 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)			

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.

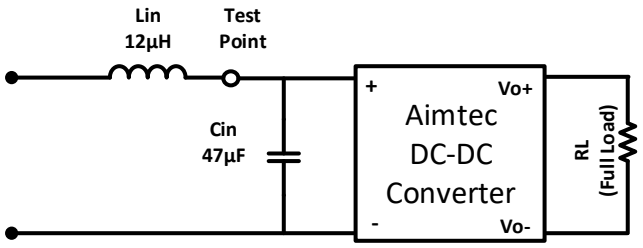
Safety Specifications

Standards	
Standards	Designed to meet IEC/EN60950-1 & IEC/EN62368-1
	EN55032 Class A, EN55024
	IEC61000-4-2, Perf. Criteria B
	IEC61000-4-3, Perf. Criteria A
	IEC61000-4-4, Perf. Criteria A, with the recommended EMC circuit
	IEC61000-4-5, Perf. Criteria A, with the recommended EMC circuit
	IEC61000-4-6, Perf. Criteria A
	IEC61000-4-8, Perf. Criteria A

Pin Out Specifications

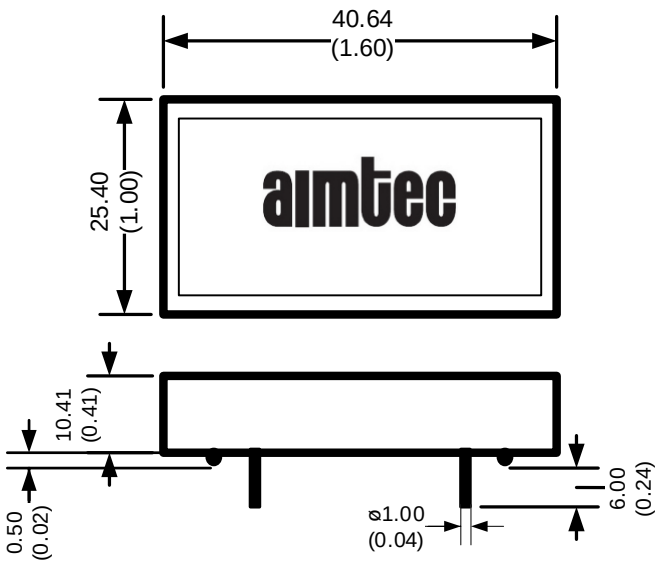
Pin	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	On/Off Control	On/Off Control
4	+V Output	+V Output
5	Trim	Common
6	-V Output	-V Output

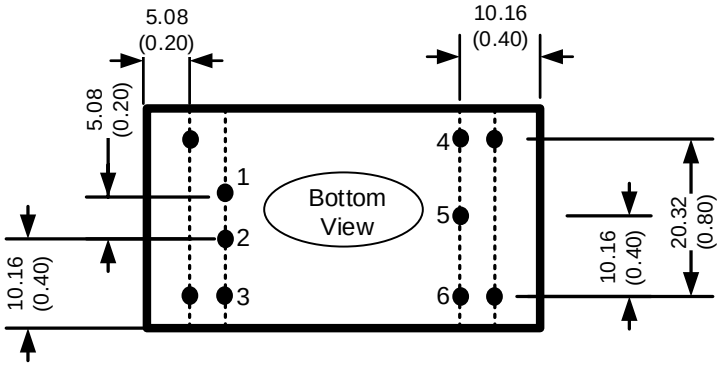
Input Reflected Ripple Test Circuit



* Tested at full load, and nominal input

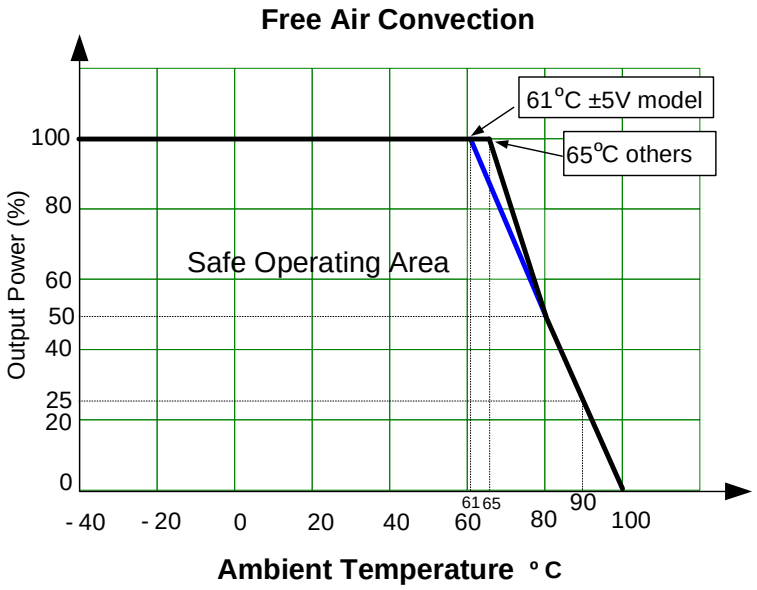
Dimensions



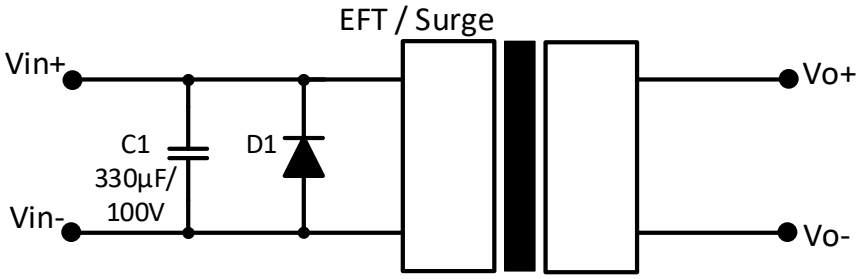


Notes:
All dimensions are typical in millimeters (inches).
Pin Pitch and Length Tolerance: ±0.35 (±0.014)
Pin Diameter & Case Tolerance ±0.50 (±0.02)
Stand-off Tolerance: ±0.10 (±0.004)

Derating

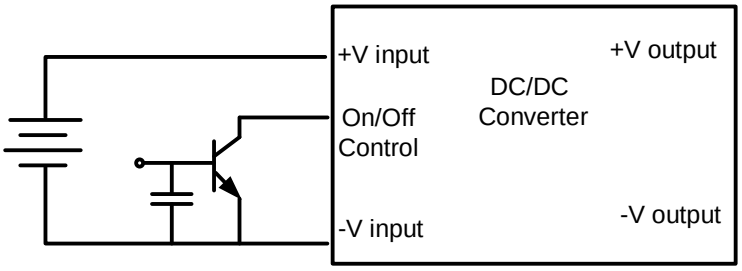


Recommended EMC circuit



Input Voltage	D1
24V	58V,3KW peak pulse power
48V	120V,3KW peak pulse power

On/Off Control



Positive logic turns on the module during high logic and off during low logic.
Module can be controlled by an external switch between the On/Off CTRL terminal and –V input terminal. The switch can be either open collector or open drain.

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