

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



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)	1 st output 25% to 100%, 2 nd 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.

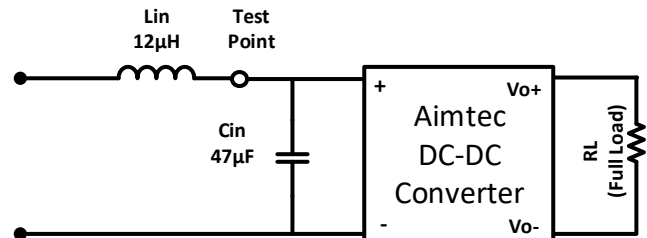
Safety Specifications

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

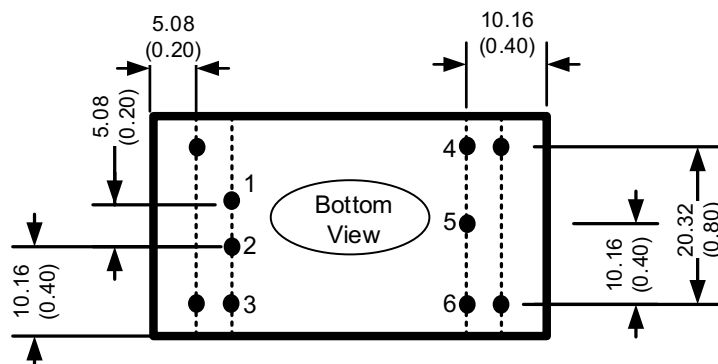
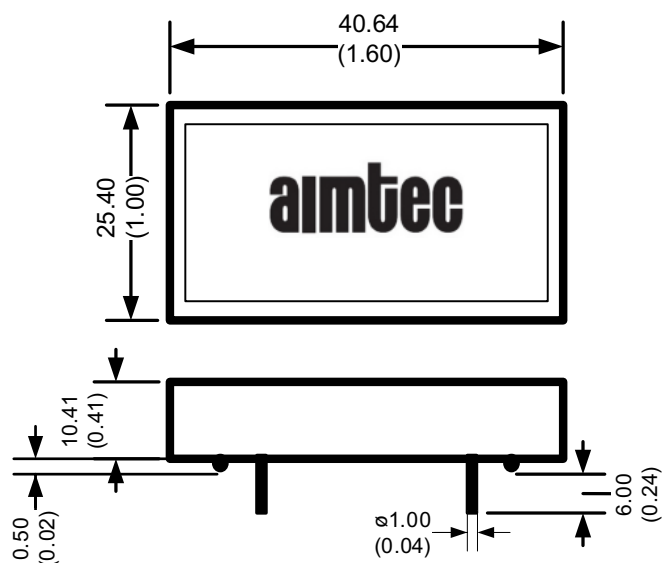
Pin	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	On/Off Control	On/Off Control
4	+V Output	+V Output
5	Trim	Common
6	-V Output	-V Output

Input Reflected Ripple Test Circuit



* Tested at full load, and nominal input

Dimensions

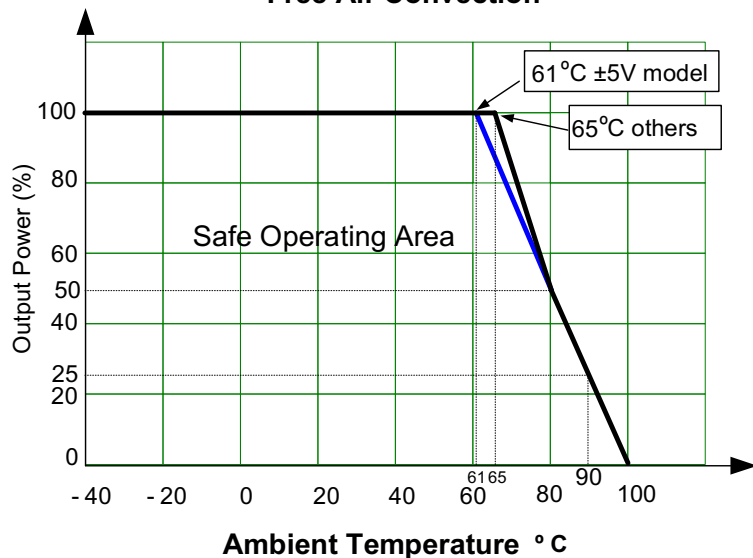


Notes:

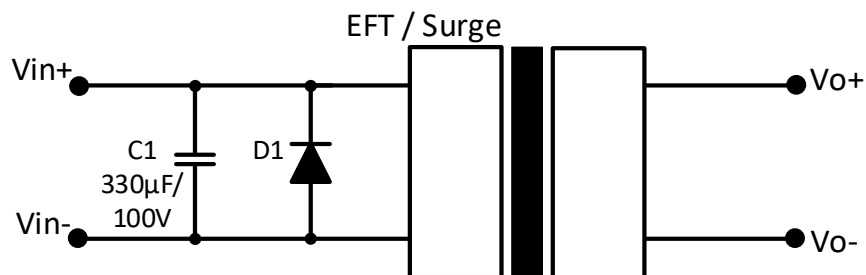
All dimensions are typical in millimeters (inches).
Pin Pitch and Length Tolerance: ± 0.35 (± 0.014)
Pin Diameter & Case Tolerance ± 0.50 (± 0.02)
Stand-off Tolerance: ± 0.10 (± 0.004)

Derating

Free Air Convection

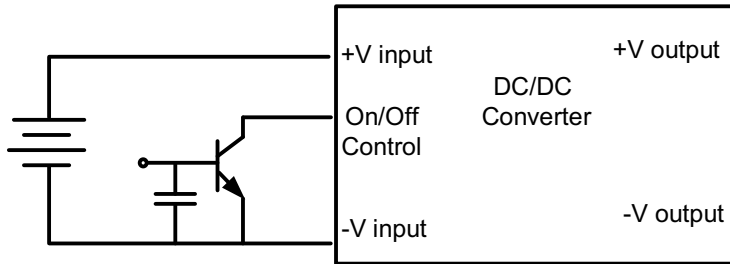


Recommended EMC circuit



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.

NOTE: 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. 2. Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. 3. Mechanical drawings and specifications are for reference only. 4. All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. 5. Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. 6. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.