aimtec
Your Power Partner

Series AM8TW-Z

8Watt | DC-DC Converter



FEATURES:

- Wide 4:1 input range
- Remote On/Off control
- High efficiency up to 87%
- Over Voltage/Overload Protection
- Operating temperature -40°C to + 85°C
- Input / Output Isolation 1600 & 3000VDC
- Continuous short circuit protection
- Under voltage lockout for 3000VDC models

Models
Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Max Capacitive Load(uF)	Efficiency (%)
AM8TW-2403SZ	9-36	3.3	2000	1600	1330	80
AM8TW-2405SZ	9-36	5	1500	1600	1330	83
AM8TW-2412SZ	9-36	12	665	1600	288	87
AM8TW-2415SZ	9-36	15	535	1600	200	87
AM8TW-4803SZ	18-75	3.3	2000	1600	1330	80
AM8TW-4805SZ	18-75	5	1500	1600	1330	84
AM8TW-4812SZ	18-75	12	665	1600	288	87
AM8TW-4815SZ	18-75	15	535	1600	200	87
AM8TW-2403SH30Z	13-70	3.3	2400	3000	1330	83
AM8TW-2405SH30Z	13-70	5	1600	3000	1330	86
AM8TW-2412SH30Z	13-70	12	665	3000	330	85
AM8TW-2415SH30Z	13-70	15	535	3000	220	86
AM8TW-11003SH30Z	42-176	3.3	2400	3000	1330	81
AM8TW-11005SH30Z	42-176	5	1600	3000	1330	84
AM8TW-11012SH30Z	42-176	12	665	3000	330	84
AM8TW-11015SH30Z	42-176	15	535	3000	220	83

Models
Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Max Capacitive Load(uF)	Efficiency (%)
AM8TW-2405DZ	9-36	±5	±800	1600	±900	86
AM8TW-2412DZ	9-36	±12	±335	1600	±133	86
AM8TW-2415DZ	9-36	±15	±265	1600	±90	87
AM8TW-4805DZ	18-75	±5	±800	1600	±900	84
AM8TW-4812DZ	18-75	±12	±335	1600	±133	87
AM8TW-4815DZ	18-75	±15	±265	1600	±90	87
AM8TW-2405DH30Z	13-70	±5	±800	3000	±900	83
AM8TW-2412DH30Z	13-70	±12	±335	3000	±220	85
AM8TW-2415DH30Z	13-70	±15	±265	3000	±100	86
AM8TW-11005DH30Z	42-176	±5	±800	3000	±900	80
AM8TW-11012DH30Z	42-176	±12	±335	3000	±220	82
AM8TW-11015DH30Z	42-176	±15	±265	3000	±100	83

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.

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	24V for 1600VDC models	9-36		VDC
	48V for 1600VDC models	18-75		VDC
	24V for 3000VDC models	13-70		VDC
	110V for 3000VDC models	42-176		VDC
Filter	π (Pi) Network			
Startup time	For 1600VDC Isolation models	20		ms
	For 3000VDC Isolation models	30		ms
Absolute Maximum Rating	24V for 1600VDC models		-0.7-50	VDC
	48V for 1600VDC models		-0.7-100	VDC
	24V for 3000VDC models		100	VDC
	110V for 3000VDC models		185	VDC
Peak Input Voltage time			100	ms
On/Off control	ON – 3.0 ~ 12VDC (or open)			
	OFF -0~1.2VDC (or short between pin 1 and 2/3), Idle current 5mA, typ.			
No Load Input Current		15		mA
Input reflected ripple current	With a 12µH inductance and a 33µF capacitor	20		mAp-p
Under voltage Lockout (On/Off)	24V for 3000VDC models, Module On/Off	12.6 / 11.4		VDC
	110V, Module On/Off	41 / 37		VDC
Transient recovery time	25% load step change, 1A/us	250		uS
Transient recovery deviation	3.3Vout 3000VDC models		±5	%
	Other models		±3	%

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		1600	VDC
	60 sec, H30 models		3000	VDC
Tested case to I/O	60 sec		1600	VDC
	60 sec, H30 models		1000	VDC
Resistance		>1000		MOhm
Capacitance	For 1600VDC Isolation models	1500		pF
	For 3000VDC Isolation models	1000		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±1		%
Over voltage protection	Zener Diode Clamp, 3.3Vout	3.9		%
	Zener Diode Clamp, 5Vout	6.2		VDC
	Zener Diode Clamp, 12Vout	15		VDC
	Zener Diode Clamp, 15Vout	18		VDC
	Zener Diode Clamp, ±5Vout	±6.2		VDC
	Zener Diode Clamp, ±12Vout	±15		VDC
	Zener Diode Clamp, ±15Vout	±18		VDC
Over load protection	For 1600VDC Isolation models	150		%
	For 3000VDC Isolation models	160		%
Short Circuit protection	Continuous, hiccup, auto recovery			
Line voltage regulation	HL-LL 1600VDC models		±0.2	% of Vin
	HL-LL 3000VDC models		±0.5	% of Vin
Load voltage regulation	0-100% load, 1600VDC isolation dual output models		±1	%
	0-100% load, other models		±0.5	%
Cross regulation (Dual)	25-100% load on one output, 100% load on second output	±5		%
Temperature coefficient		±0.02		%/°C
Ripple & Noise*	20MHz Bandwidth		75	mV p-p

*1600VDC isolation models are measured with a 1µF ceramic capacitor. 3000VDC isolation models are measured with a 1µF ceramic capacitor and a 10µF electrolytic capacitor.

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	1600VDC models	270		KHz
	24V for 3000VDC models	330		KHz
	110V for 3000VDC models	220		KHz
Operating temperature	Derating above +70°C	-40 to +85		°C
Storage temperature		-55 to +125		°C
Maximum case temperature			105	°C
Cooling	Free air convection (30-60LFM)			
Humidity			95	% RH
Case material	Nickel plated Copper			
Weight		18		g
Dimensions (L x W x H)	1.25 x 0.80 x 0.40 inches 31.80 x 20.30 x 10.20 mm			
MTBF	> 1,000,000 hours(MIL-HDBK-217F , Ground Benign, t=+25°C) for 1600VDC isolation models			
	> 800,000 hours(MIL-HDBK-217F , Ground Benign, t=+25°C) for 3000VDC isolation models			
Manual soldering temperature	1.5mm from case for 10sec		260	°C

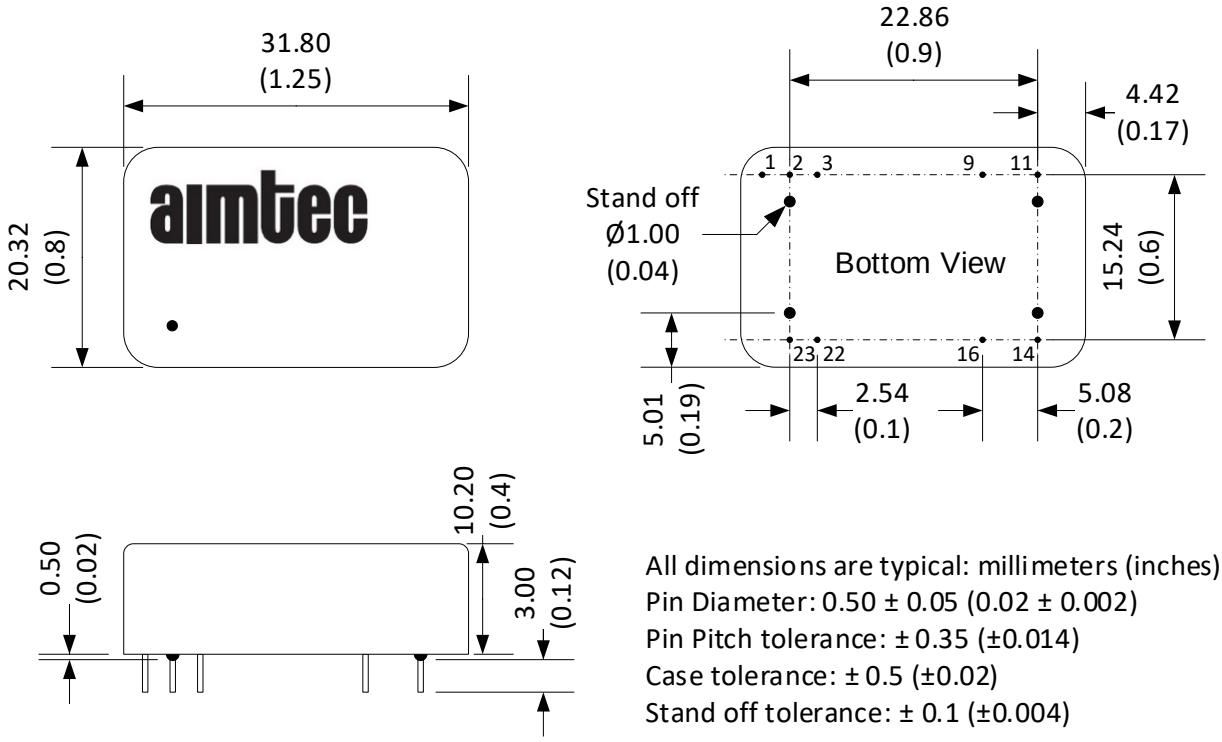
Environment Approval (for 3000V models)

Parameters	Conditions
Thermal shock	EN60068
Shock	According to EN61373, category 1, class B
	Wave form: Half sine wave
	Acceleration amplitude: Axis X – 5G, Axis Y and Z – 3G
	Bump duration: 30 ms
	Number of bumps: 18 (3 in each direction for every axis)
	Converter operation before and after test, body mounted (on chassis)
Vibrations	According to EN61373, category 1, class B
	5-150Hz
	10min per axis & 5h per axis

Safety Specifications

	Parameters	
Agency Approval	CE, UL (1600VDC models)	
Standards for 1600VDC models	EMC - Conducted and radiated emission	EN55032 Class A, with the recommended circuit
	Electrostatic Discharge Immunity	IEC61000-4-2, Perf. Criteria A
	RS, Electromagnetic Field Immunity	IEC61000-4-3, Perf. Criteria A
	Electrical Fast Transient/Burst Immunity	IEC61000-4-4, Perf. Criteria A (external 330uF/100V cap required)
	Surge Immunity	IEC61000-4-5, Perf. Criteria A (external 330uF/100V cap required)
	RF, Conducted Disturbance Immunity	IEC61000-4-6, Perf. Criteria A
	Power-frequency magnetic field immunity	IEC61000-4-8, Perf. Criteria A
	Information technology Equipment	IEC/EN/UL 60950-1:2001 & IEC/EN/UL 62368-1
Standards for 3000VDC models	EMC - Conducted and radiated emission	EN50121-3-2, 40dbuV, 30 - 230MHz 47dbuV, 230 - 1000MHz 99dbuV, 0.15 - 0.5MHz 93dbuV, 0.5 - 30MHz 79dbuV, 0.15 - 0.5MHz with the recommended circuit 73dbuV, 0.5 - 30MHz with the recommended circuit
	Electrostatic Discharge Immunity	EN50121-3-2, Air ±8KV/ Contact ±6KV, Perf. Criteria A
	RS, Electromagnetic Field Immunity	EN50121-3-2, 20V/m, Perf. Criteria A
	Electrical Fast Transient/Burst Immunity	EN50121-3-2, 2KV, Perf. Criteria A (external 330uF/100V cap required)
	Surge Immunity	EN50121-3-2, 2KV, Perf. Criteria A (external 330uF/100V cap required)
	RF, Conducted Disturbance Immunity	EN50121-3-2, 10V, Perf. Criteria A
	Power-frequency magnetic field immunity	EN50121-3-2, 10A/m, Perf. Criteria A

Dimensions

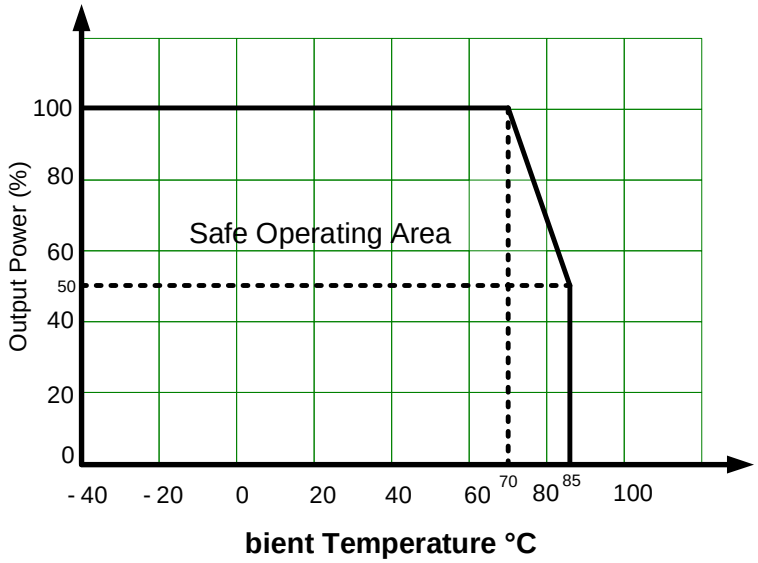


All dimensions are typical: millimeters (inches)
Pin Diameter: 0.50 ± 0.05 (0.02 ± 0.002)
Pin Pitch tolerance: ± 0.35 (±0.014)
Case tolerance: ± 0.5 (±0.02)
Stand off tolerance: ± 0.1 (±0.004)

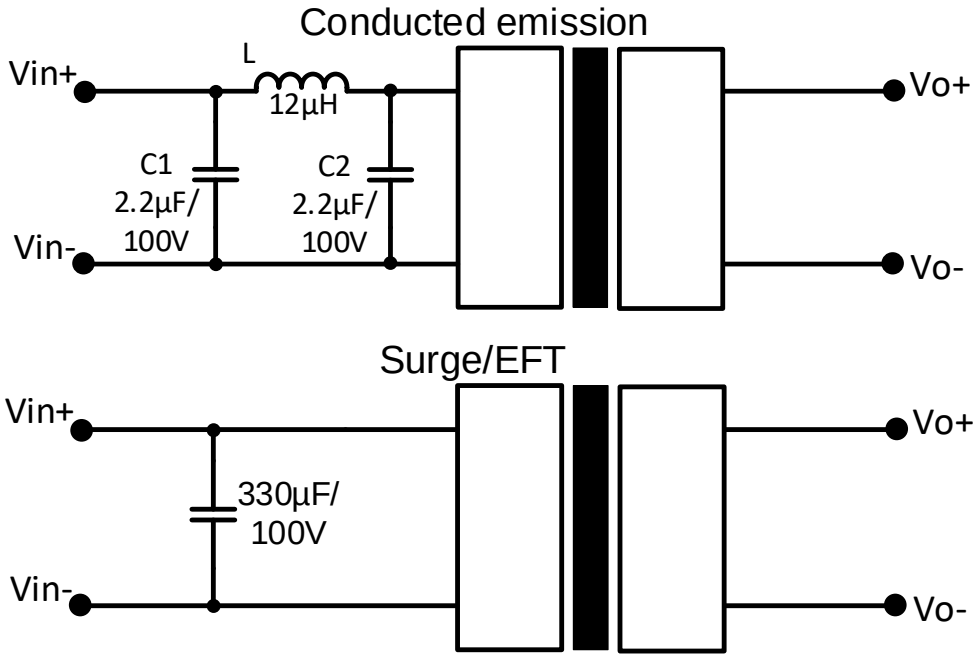
Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2	-V Input	-V Input
3	-V Input	-V Input
9	No Pin	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

N.C.: Not Connected

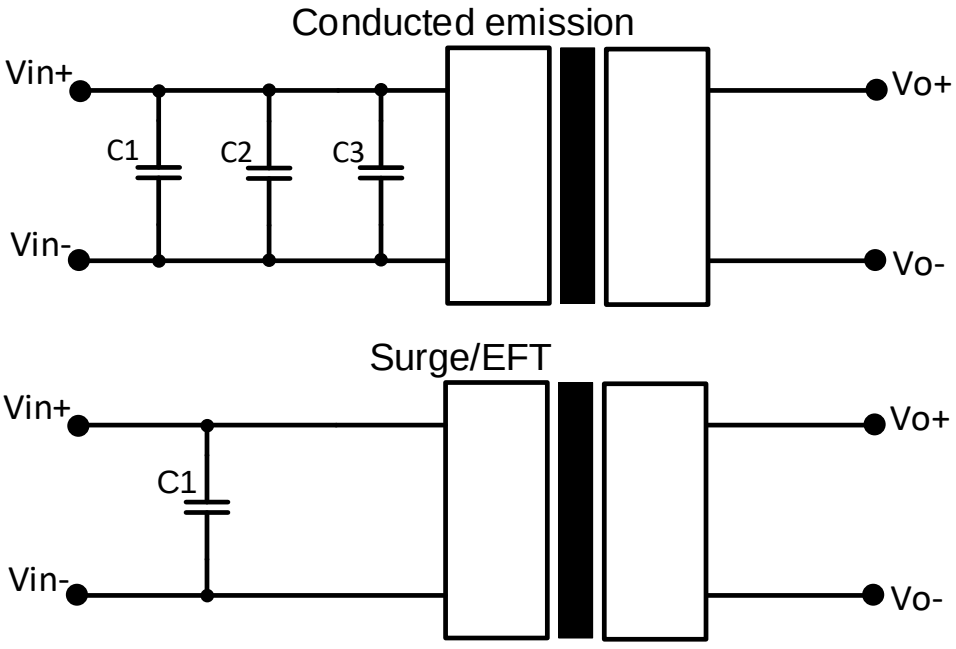
Derating



Recommended Circuits for 1600VDC isolated models



Recommended Circuits for 3000VDC isolated models



Models	C1, C2, C3
AM8TW-24xxxH30z	-
AM8TW-110xxxH30z	1µf/250V

Models	C1
AM8TW-24xxxH30z	330µF/100V
AM8TW-110xxxH30z	100µF/250V

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.