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
- Soft Start
- Operating temperature -40ºC to + 85ºC
- 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	2000	3000	1330	83
AM8TW-2405SH30Z	13-70	5	1500	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	2000	3000	1330	81
AM8TW-11005SH30Z	42-176	5	1500	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	24 for 1600VDC models	9-36		VDC
	48 for 1600VDC models	18-75		
	24V or 48V for 3000VDC models	13-70		
	110V	42-176		
Filter	π (Pi) Network			
Startup time	For 1600VDC Isolation models	20		ms
	For 3000VDC Isolation models	30		
Absolute Maximum Rating	24 for 1600VDC models		-0.7-50	VDC
	48 for 1600VDC models		-0.7-100	
	24V or 48V for 3000VDC models		100	
	110V		185	
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 12uH inductance	20		mAp-p
Under voltage Lockout (On/Off)	24V or 48V for 3000VDC models	On – 12V/ Off – 11.7		VDC
	110V	On – 39.5V/ Off – 38		
Transient recovery time	25% load step change, 1A/us	250		uS
Transient recovery deviation			±3	%
	3.3V output models only		±5	

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		1600 & 3000	VDC
Tested metal case to Input and Output	60 sec		1000	VDC
Resistance		>1000		MOhm
Capacitance	For 1600VDC Isolation models	1500		pF
	For 3000VDC Isolation models	1000		

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±1		%
	48V nom 3000VDC models only	±1.5		
Over voltage protection	Zener Diode Clamp			%
Over load protection	For 1600VDC Isolation models	150		%
	For 3000VDC Isolation models	160		
	For 3000VDC Isolation models 48V nom	170		
Short Circuit protection	Continuous, hiccup, auto recovery			
Line voltage regulation	HL-LL 1600VDC models	±0.2		% of Vin
	HL-LL 3000VDC models	±0.5		
Load voltage regulation (Single)	0 – 100% load		±0.5	%
Load voltage regulation (Dual)	0 – 100% load		±1	%
Cross regulation (Dual)	25% load on one - 100% load on second output	±5		%
Temperature coefficient		±0.02		%/ºC
Ripple & Noise*	20MHz Bandwidth		75	mV p-p

*Measured with 1uF ceramic capacitor.

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load 1600VDC models	270		KHz
	24 & 48V nom 3000VDC models	330		
	110V	220		
Operating temperature	Derating above +70	-40 to +85		ºC
Storage temperature	-55 to +125			ºC
Maximum case temperature			105	ºC

Cooling	Free air convection			
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	> 1,000,100 hours(MIL-HDBK-217F , Ground Benign, t=+25ºC)			
Manual soldering temperature	1.5mm from case for 10sec		260	ºC

Environment Approval (for 3000V models)

Parameters	Conditions
Cooling & heating	EN50155, Class TX
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

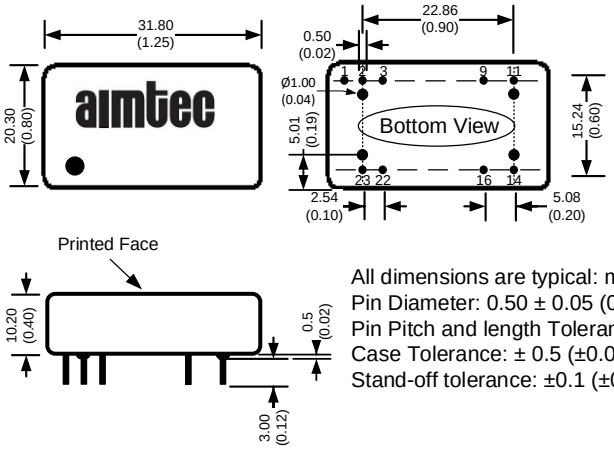
Parameters	
Agency Approval	CE, UL (1600VDC models)
Standards for 1600VDC models	EN55032 Class A, with recommended circuit
	IEC61000-4-2, Perf. Criteria A
	IEC61000-4-3, Perf. Criteria A
	IEC61000-4-4, Perf. Criteria A (external 330uF/100V cap required)
	IEC61000-4-5, Perf. Criteria A (external 330uF/100V cap required)
	IEC61000-4-6, Perf. Criteria A
	IEC61000-4-8, Perf. Criteria A
	IEC/EN/UL 60950-1:2001 & IEC/EN/UL 62368-1
Standards for 3000VDC models	EN50155, with external circuit
	IEC61000-4-2, ±8KV/±6KV, Perf. Criteria A
	IEC61000-4-3, Perf. Criteria A
	IEC61000-4-4, ±2KV, Perf. Criteria A, with external circuit
	IEC61000-4-5, ±2KV, Perf. Criteria A, with external circuit
	IEC61000-4-6, Perf. Criteria A
	IEC61000-4-8, 10A/m, Perf. Criteria A

Pin Out Specifications

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

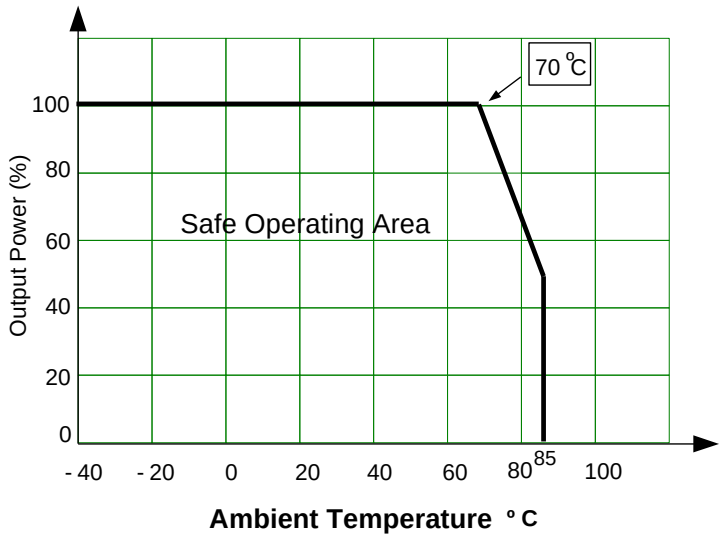
N.C.: Not Connected

Dimensions



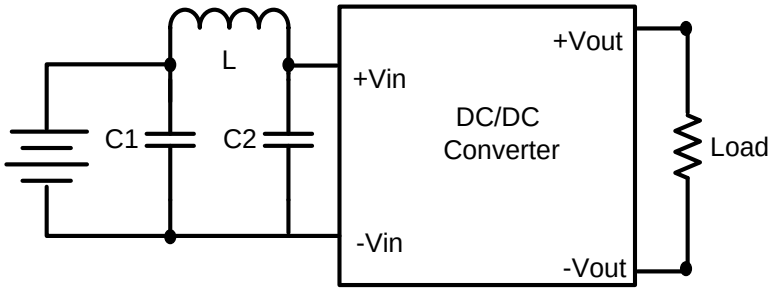
All dimensions are typical: millimeters (inches)
Pin Diameter: 0.50 ± 0.05 (0.02 ± 0.002)
Pin Pitch and length Tolerance: ± 0.35 (±0.014)
Case Tolerance: ± 0.5 (±0.02)
Stand-off tolerance: ±0.1 (±0.004)

Derating



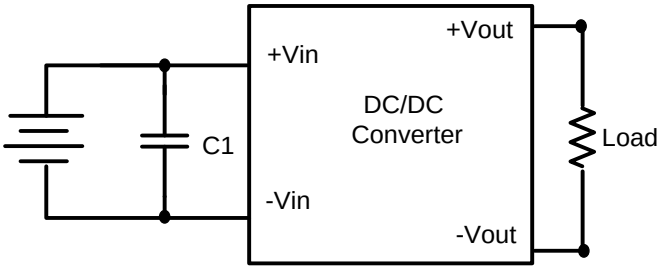
Recommended Circuits for 1600VDC isolated models

Conducted Emissions



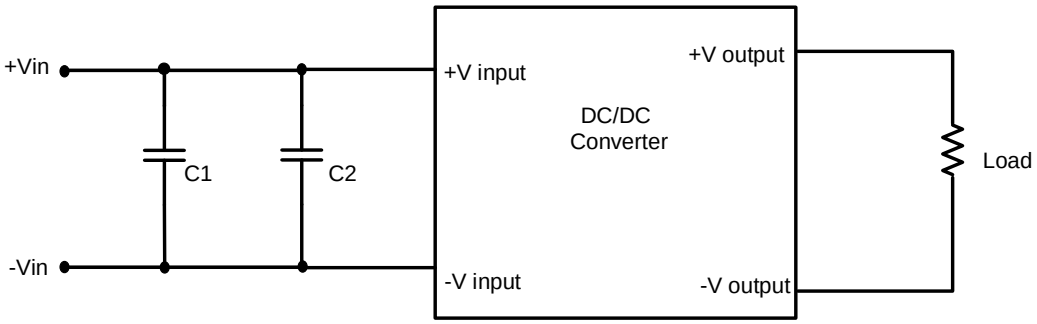
C1	L	C2
2.2uF, 100V	12uH	2.2uF, 100V

Surge/EFT



C1
330uF, 100V

Recommended Circuits for 3000VDC isolated models



Models	C1	C2
AM8TW-24xxxH30z	330uF,100V	-
AM8TW-110xxxH30z	100uF, 250V	100uF, 250V

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