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AM3TW-EZ

24PIN DIL Package

The AM3TW-EZ is a 3W 24PIN DIL DC/DC converter that offers great cost savings thanks to an improved manufacturing process. It also features excellent reliability and performance while offering a standard input voltage range of 4.5-75VDC as well as an output voltage of -15 to 24V. This compact 24PIN DIL design will surely benefit your new system design.

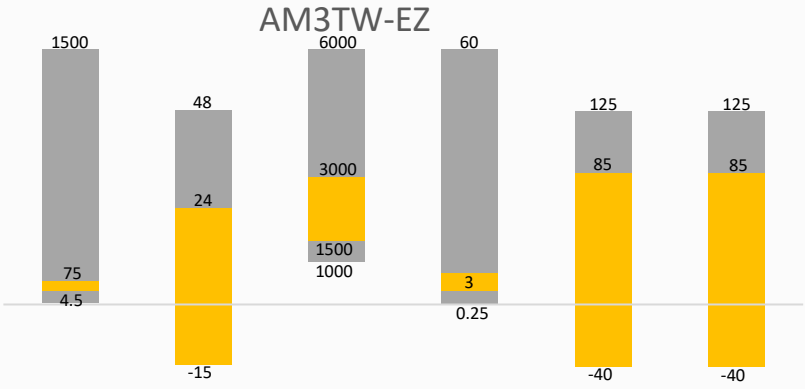
This new series offers a great operating temperature range from -40 to 85°C. Also, an isolation of 1500VDC and 3000VDC for improved reliability and system safety.

The AM3TW-EZ is suitable for many applications such as industrial systems, portable equipment, and internet of things.

Features

- Continuous Short circuit protection
- Operating Temp: -40 °C to +85 °C
- Industry standard 24PIN DIL pin-out
- Efficiency up to 86%
- Regulated output
- 4:1 Wide Input Voltages Range
- Made in Taiwan

Summary



RoHS

3yr Warranty

Training

Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

Industrial

Portable Equipment

IoT

Models & Specifications

Single Output								
Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max (mA)	Input Current		Efficiency Typ. (%)	Maximum Capacitive Load (µF)	Isolation (VDC)
				No Load	Full Load			
				mA	mA			
AM3TW-0503SEZ	5 (4.5-18)	3.3	909	10	810.7	74	1000	1500
AM3TW-0505SEZ	5 (4.5-18)	5	600	10	769.2	78	1000	1500
AM3TW-0509SEZ	5 (4.5-18)	9	333	10	768.5	78	470	1500
AM3TW-0512SEZ	5 (4.5-18)	12	250	10	750	80	330	1500
AM3TW-0515SEZ	5 (4.5-18)	15	200	10	750	80	100	1500
AM3TW-0524SEZ	5 (4.5-18)	24	125	10	750	80	100	1500
AM3TW-2403SEZ	24 (9-36)	3.3	909	5	160.2	78	4700	1500
AM3TW-2405SEZ	24 (9-36)	5	600	5	152.4	82	2200	1500
AM3TW-2409SEZ	24 (9-36)	9	333	5	148.7	84	2200	1500
AM3TW-2412SEZ	24 (9-36)	12	250	5	148.8	84	2700	1500
AM3TW-2415SEZ	24 (9-36)	15	200	5	145.3	86	2200	1500
AM3TW-2424SEZ	24 (9-36)	24	125	5	147.1	85	1800	1500
AM3TW-4803SEZ	48 (18-75)	3.3	909	5	82.2	76	4700	1500
AM3TW-4805SEZ	48 (18-75)	5	600	5	76.2	82	4700	1500
AM3TW-4809SEZ	48 (18-75)	9	333	5	75.2	83	3300	1500
AM3TW-4812SEZ	48 (18-75)	12	250	5	72.7	86	2700	1500
AM3TW-4815SEZ	48 (18-75)	15	200	5	72.7	86	2200	1500
AM3TW-4824SEZ	48 (18-75)	24	125	5	74.4	84	1000	1500
AM3TW-0503SH30EZ	5 (4.5-18)	3.3	909	10	810.7	74	1000	3000
AM3TW-0505SH30EZ	5 (4.5-18)	5	600	10	769.2	78	1000	3000
AM3TW-0509SH30EZ	5 (4.5-18)	9	333	10	768.5	78	470	3000
AM3TW-0512SH30EZ	5 (4.5-18)	12	250	10	750	80	330	3000
AM3TW-0515SH30EZ	5 (4.5-18)	15	200	10	750	80	100	3000
AM3TW-0524SH30EZ	5 (4.5-18)	24	125	10	750	80	100	3000
AM3TW-2403SH30EZ	24 (9-36)	3.3	909	5	160.2	78	4700	3000
AM3TW-2405SH30EZ	24 (9-36)	5	600	5	152.4	82	2200	3000
AM3TW-2409SH30EZ	24 (9-36)	9	333	5	148.7	84	2200	3000
AM3TW-2412SH30EZ	24 (9-36)	12	250	5	148.8	84	2700	3000
AM3TW-2415SH30EZ	24 (9-36)	15	200	5	145.3	86	2200	3000
AM3TW-2424SH30EZ	24 (9-36)	24	125	5	147.1	85	1800	3000
AM3TW-4803SH30EZ	48 (18-75)	3.3	909	5	82.2	76	4700	3000
AM3TW-4805SH30EZ	48 (18-75)	5	600	5	76.2	82	4700	3000
AM3TW-4809SH30EZ	48 (18-75)	9	333	5	75.2	83	3300	3000
AM3TW-4812SH30EZ	48 (18-75)	12	250	5	72.7	86	2700	3000
AM3TW-4815SH30EZ	48 (18-75)	15	200	5	72.7	86	2200	3000
AM3TW-4824SH30EZ	48 (18-75)	24	125	5	74.4	84	1000	3000

Dual Output								
Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max (mA)	Input Current		Efficiency Typ. (%)	Maximum Capacitive Load (µF)	Isolation (VDC)
				No Load	No Load			
				mA	mA			
AM3TW-0505DEZ	5 (4.5-18)	±5	±300	10	769.2	78	1000	1500
AM3TW-0509DEZ	5 (4.5-18)	±9	±167	10	770.8	78	1000	1500
AM3TW-0512DEZ	5 (4.5-18)	±12	±125	10	750	80	470	1500

AM3TW-0515DEZ	5 (4.5-18)	±15	±100	10	750	80	330	1500
AM3TW-2405DEZ	24 (9-36)	±5	±300	5	152.4	82	2200	1500
AM3TW-2409DEZ	24 (9-36)	±9	±167	5	149.1	84	2200	1500
AM3TW-2412DEZ	24 (9-36)	±12	±125	5	148.8	84	1800	1500
AM3TW-2415DEZ	24 (9-36)	±15	±100	5	145.3	86	1000	1500
AM3TW-4805DEZ	48 (18-75)	±5	±300	5	76.2	82	2200	1500
AM3TW-4812DEZ	48 (18-75)	±12	±125	5	74.4	84	1800	1500
AM3TW-4815DEZ	48 (18-75)	±15	±100	5	73.5	85	1000	1500
AM3TW-0505DH30EZ	5 (4.5-18)	±5	±300	10	769.2	78	1000	3000
AM3TW-0509DH30EZ	5 (4.5-18)	±9	±167	10	770.8	78	1000	3000
AM3TW-0512DH30EZ	5 (4.5-18)	±12	±125	10	750	80	470	3000
AM3TW-0515DH30EZ	5 (4.5-18)	±15	±100	10	750	80	330	3000
AM3TW-2405DH30EZ	24 (9-36)	±5	±300	5	152.4	82	2200	3000
AM3TW-2409DH30EZ	24 (9-36)	±9	±167	5	149.1	84	2200	3000
AM3TW-2412DH30EZ	24 (9-36)	±12	±125	5	148.8	84	1800	3000
AM3TW-2415DH30EZ	24 (9-36)	±15	±100	5	145.3	86	1000	3000
AM3TW-4805DH30EZ	48 (18-75)	±5	±300	5	76.2	82	2200	3000
AM3TW-4812DH30EZ	48 (18-75)	±12	±125	5	74.4	84	1800	3000
AM3TW-4815DH30EZ	48 (18-75)	±15	±100	5	73.5	85	1000	3000

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Filter	Pi filter			
Voltage Types			4:1	
Surge Voltage	1sec. max., 5Vin models		25	VDC
	1sec. max., 24Vin models		50	VDC
	1sec. max., 48Vin models		100	VDC
Start-up Voltage	5Vin models		4.5	VDC
	24Vin models		9	VDC
	48Vin models		18	VDC
Input Under-Voltage Protection	5Vin models	4		VDC
	24Vin models	7		VDC
	48Vin models	15		VDC

Isolation Specification

Parameters	Conditions	Minimum	Typical	Maximum	Units
Tested I/O voltage	60 sec, leakage ≤ 1mA		1500		VDC
	60 sec, leakage ≤ 1mA, H30 models		3000		VDC
Resistance	500VDC	1000			MΩ
Capacitance	Input / output, 100KHz / 0.1V		1000		pF

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage Tolerance		±1	±3	%
Line Regulation			±0.5	%
Load regulation	Single (F.L To 10% Load)		±0.8	%
	Dual (F.L To 10% Load)		±1.0	%
Ripple & Noise*			100	mV p-p

Temperature Coefficient	Full load		±0.03	%/°C
Transient response setting time	50% load step change	350		us
* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the application note for specific details.				

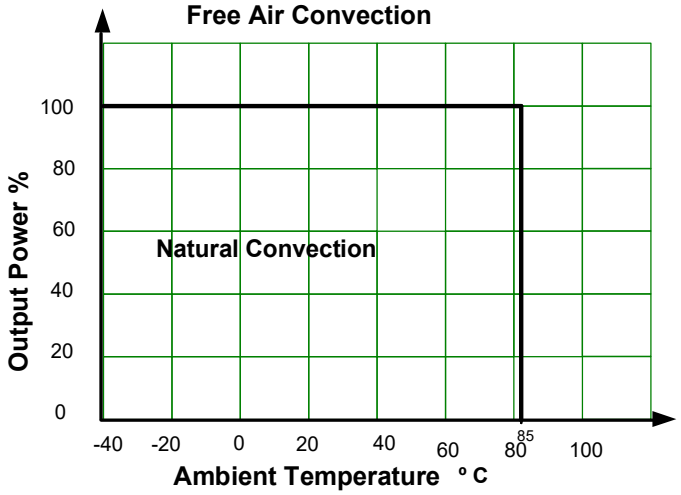
General Specifications

Parameters	Conditions	Minimum	Typical	Maximum	Units
Switching frequency			330		KHz
Short circuit protection	Continuous				
Operating temperature	Derating when operating temperature ≥85°C		-40 to +85		°C
Storage temperature			-55 to +125		°C
Cooling	Free air convection				
Humidity	Non-condensing			95	% RH
Case material	H30 models		Black plastic (flammability to UL 94V-0)		
	Others		Nickel coated with non-conductive base		
Weight	H30 models		12.8		g
	Others		16.8		g
Dimensions (L x W x H)	H30 models		1.25 x 0.80 x 0.40 inches (31.8 x 20.3 x 10.2 mm)		
	Others		1.24 x 0.79 x 0.43 inches (31.6 x 20.1 x 11.0 mm)		
MTBF	> 1 500 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load				
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.					

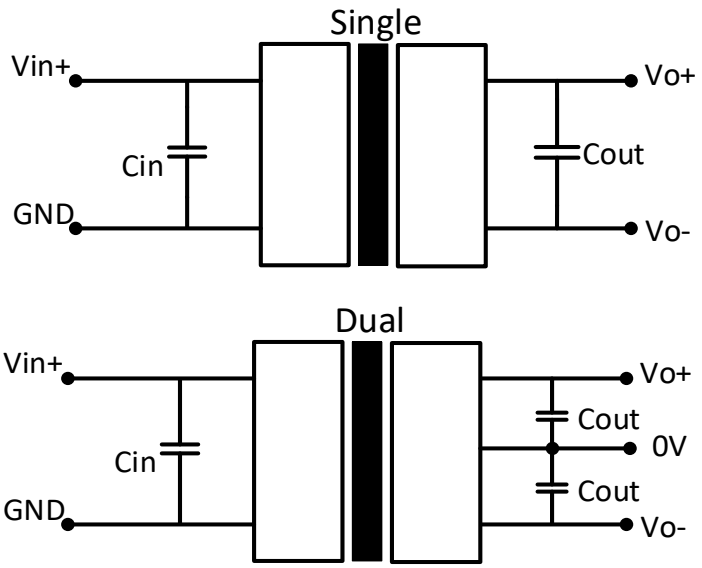
Safety Specifications

Standards	EMI - Conducted and radiated emission	CISPR32/EN55032 Class B with recommended EMC circuit
	Electrostatic Discharge Immunity	IEC/EN 61000-4-2, Contact ±4KV, Criteria B

Derating



Typical application circuit



Vin	Cin
5VDC	10μF/50V
24VDC	10μF/100V
48VDC	10μF/100V

Single Vout	Cout
3.3VDC	100μF/50V
5VDC	
9VDC	
12VDC	
15VDC	
24VDC	

Dual Vout	Cout
±5VDC	±100μF/50V
±9VDC	
±12VDC	
±15VDC	

EMC (CLASS B) Compliance Circuit

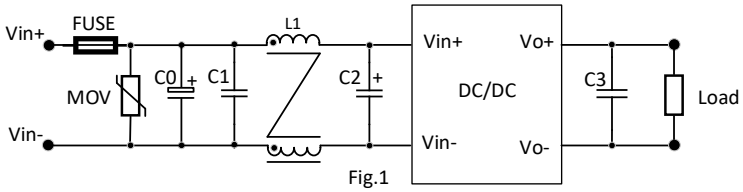


Fig.1

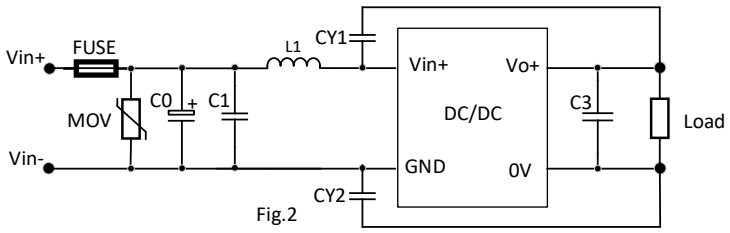


Fig.2

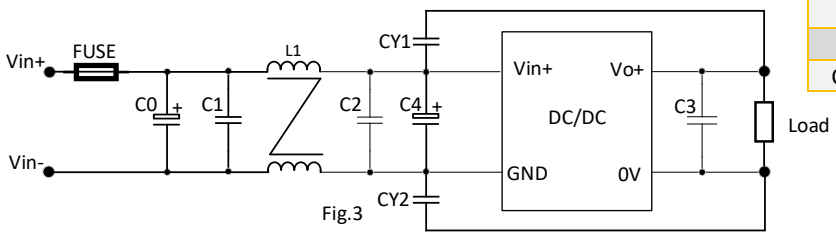


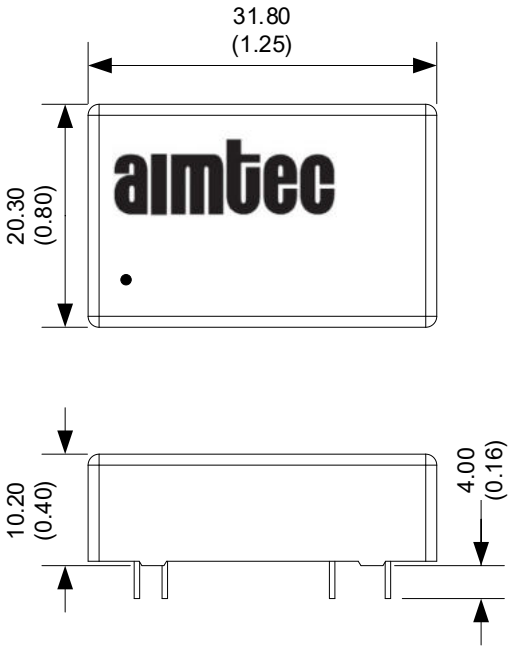
Fig.3

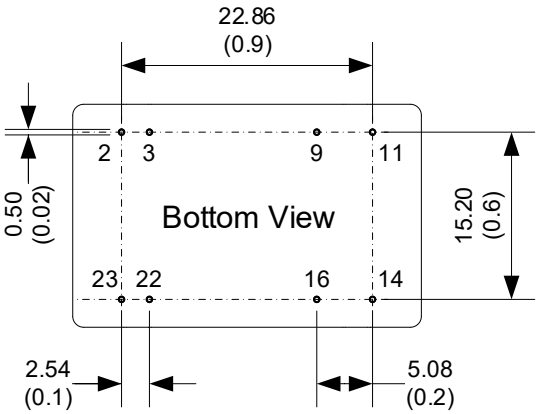
Single Output Models Parameter description:			Dual Output Models Parameter description:	
Fig.1 & Fig.2				
Model	**Vin: 24VDC**	**Vin: 48VDC**	**Vin: 24VDC**	**Vin: 48VDC**
MOV	S20K30	S14K60	S20K30	S14K60
C0	330μF/50V	100μF/100V	330μF/50V	330μF/100V
C1, C2	2.2μF/50V	2.2μF/100V	1μF/50V	1μF/100V
C3	Recommended Test Circuit			
L1	2.2mH		4.7μH	
CY1, CY2	--		1nF/3kV	
5Vin Models Parameter description:				
Fig.3				
C0	1000μF/35V			
C1, C2	4.7μF/50V			
C3	Recommended Test Circuit			
L1	2.2mH			
CY1, CY2	2.2nF/3kV			

FUSE：Choose according to actual input current

Dimensions

SH30 models:

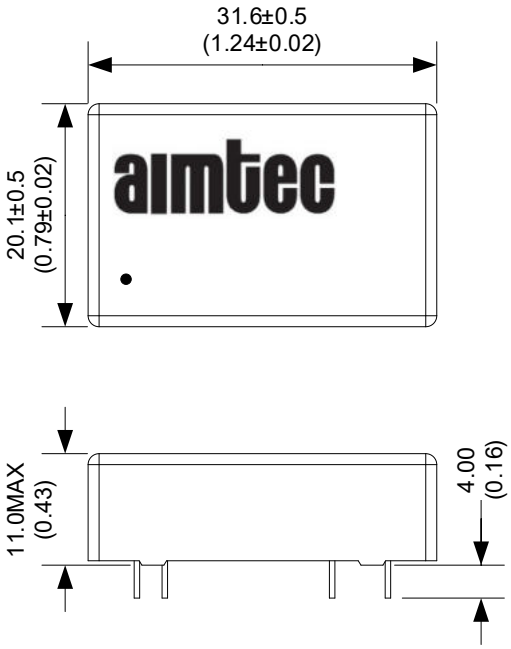


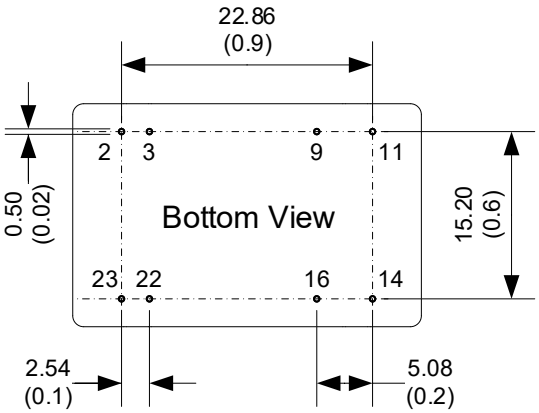


Pin Out Specifications		
Pin	Single output	Dual output
2	+V Input	+V Input
3	+V Input	+V Input
9	NP	COM
11	NC	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	-V Input	-V Input
23	-V Input	-V Input

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)
Unless otherwise specified, all tolerances are ±0.25

Others:





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)
Unless otherwise specified, all tolerances are ±0.25

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