Series AM6T-NZ

6 Watt | DC-DC Converter

FEATURES:

- Wide 2:1 input range
- Over Voltage Protection
- High efficiency up to 87%
- Low Ripple and Noise
- Operating temperature -40ºC to + 85ºC
- Input / Output isolation 1500 VDC
- Continuous short circuit protection

Models
Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max(mA)	Isolation (VDC)	Efficiency (%)
AM6T-0505S-NZ	4.5-9	5	1200	1500	78
AM6T-0512S-NZ	4.5-9	12	500	1500	84
AM6T-0515S-NZ	4.5-9	15	400	1500	84
AM6T-0524S-NZ	4.5-9	24	250	1500	84
AM6T-1203S-NZ	9-18	3.3	1500	1500	75
AM6T-1205S-NZ	9-18	5	1200	1500	80
AM6T-1212S-NZ	9-18	12	500	1500	84
AM6T-1215S-NZ	9-18	15	400	1500	85
AM6T-1224S-NZ	9-18	24	250	1500	85
AM6T-2403S-NZ	18-36	3.3	1500	1500	78
AM6T-2405S-NZ	18-36	5	1200	1500	82
AM6T-2412S-NZ	18-36	12	500	1500	85
AM6T-2415S-NZ	18-36	15	400	1500	86
AM6T-2424S-NZ	18-36	24	250	1500	86
AM6T-4803S-NZ	36-75	3.3	1500	1500	79
AM6T-4805S-NZ	36-75	5	1200	1500	83
AM6T-4812S-NZ	36-75	12	500	1500	87
AM6T-4815S-NZ	36-75	15	400	1500	88
AM6T-4824S-NZ	36-75	24	250	1500	87

Models
Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Efficiency (%)
AM6T-0505D-NZ	4.5-9	±5	±600	1500	78
AM6T-0512D-NZ	4.5-9	±12	±250	1500	84
AM6T-0515D-NZ	4.5-9	±15	±200	1500	84
AM6T-0524D-NZ	4.5-9	±24	±125	1500	84
AM6T-1205D-NZ	9-18	±5	±600	1500	80
AM6T-1212D-NZ	9-18	±12	±250	1500	84
AM6T-1215D-NZ	9-18	±15	±200	1500	85
AM6T-1224D-NZ	9-18	±24	±125	1500	84
AM6T-2405D-NZ	18-36	±5	±600	1500	83
AM6T-2412D-NZ	18-36	±12	±250	1500	86
AM6T-2415D-NZ	18-36	±15	±200	1500	87
AM6T-2424D-NZ	18-36	±24	±125	1500	85
AM6T-4805D-NZ	36-75	±5	±600	1500	83
AM6T-4812D-NZ	36-75	±12	±250	1500	87
AM6T-4815D-NZ	36-75	±15	±200	1500	85
AM6T-4824D-NZ	36-75	±24	±125	1500	85

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
Absolute Max Input Voltage (1 Sec. Max.)	5 Vin 12 Vin 24 Vin 48 Vin		16 25 50 100	VDC
Voltage range	5 12 24 48	4.5-9 9-18 18-36 36-75		VDC
Filter	π (Pi) Network			
Reflected ripple current	5 Vin Others	50 20		mA

Isolation Specifications

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, 1mA	1500		VDC
Tested I/case, O/case voltage	60sec, 1mA	1500		VDC
Resistance	500 Vdc	> 1000		MOhm
Capacitance	100kV / 0.1V	1000		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	5 Vin Vo1, 5% to 100% Load 5 Vin Vo2, 5% to 100% Load Other models, 5% to 100% Load	±1 ±1 ±1	±2 ±3 ±3	%
Short Circuit protection	Continuous			
Short circuit restart	Auto-recovery			
Line voltage regulation	Vo1, Full Load, LL-HL Vo2, Full Load, LL-HL	±0.2 ±0.5	±0.5 ±1	%
Load voltage regulation	5 Vin Vo1, 5% to 100% Load 5 Vin Vo2, 5% to 100% Load Other models Vo1, 5% to 100% Load Other models Vo1, 5% to 100% Load	 ±0.5 ±0.5	±1 ±1.5 ±1 ±1.5	%
Cross Regulation (dual)	Vo1 50% load, Vo2 10-100% load		±5	%
Temperature coefficient		±0.03		%/°C
Transient Recovery Time	25% load step	300	500	µsec
Transient Response Deviation	3.3V, 5V, ±5Vout, 25% load step Others, 25% load step	±5 ±3	±8 ±5	%
Ripple& Noise	5% to 100% Load		100	mVp-p
Over Voltage Protection			110 to 160	%Vout
Over current protection		140	190	%Iout

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency*	100% load	300		KHz
Operating temperature	Derating above +71	-40 to +85		°C
Storage temperature		-55 to +125		°C
Max Case temperature			100	°C
Cooling	Free air convection			
Humidity			95	%
Case material		Black Anodized Aluminum		
Weight		12		g
Dimensions (L x W x H)		1.26 x 0.79 x 0.42inches (32.00 x 20.00 x 10.80mm)		
MTBF	>1 000 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)			

*Bellow 50% load the switching frequency decreases with the decrease of the load.

Environment Specifications

Test	Parameters	Conditions
Vibration	Test mode	10-150Hz
	Acceleration	5g, 30min, every axis tested

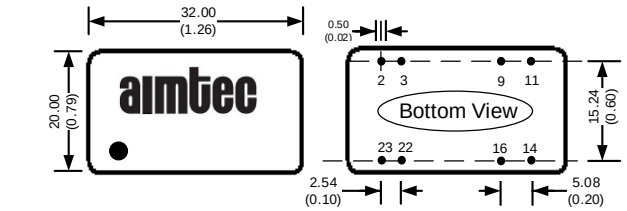
Safety Specifications

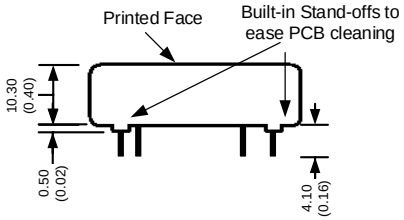
Parameters		
Standards	Designed to meet IEC/UL 60950-1	
	EMC - Radiated & Conducted emission	CISPR32 / EN55032, Class A (without external components)(Except 5Vin model), Class B (with recommended EMC circuit part B)(5Vin model with recommended circuit)
	Electrostatic Discharge Immunity	IEC61000-4-2, Contact ±4KV, Criteria B
	RF, Electromagnetic Field Immunity	IEC61000-4-3, 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC61000-4-4, ±2KV, Criteria B, (with recommended EMC circuit part A)
	Surge Immunity	IEC61000-4-5, L-L ±2KV, Criteria B, (with recommended EMC circuit part A)
	RF, Conducted Disturbance Immunity	IEC61000-4-6, 3Vrms, Criteria A

Pin Out Specifications

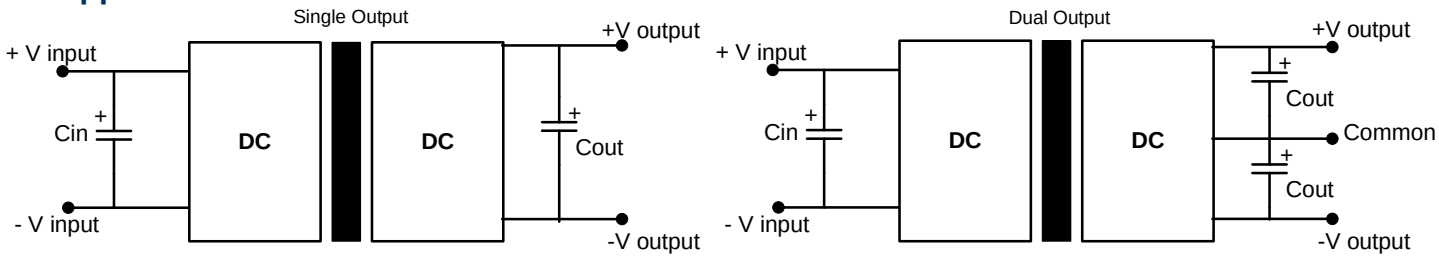
Pin	1500VDC	
	Single	Dual
2	-V Input	-V Input
3	-V Input	-V Input
9	No pin	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

Dimensions





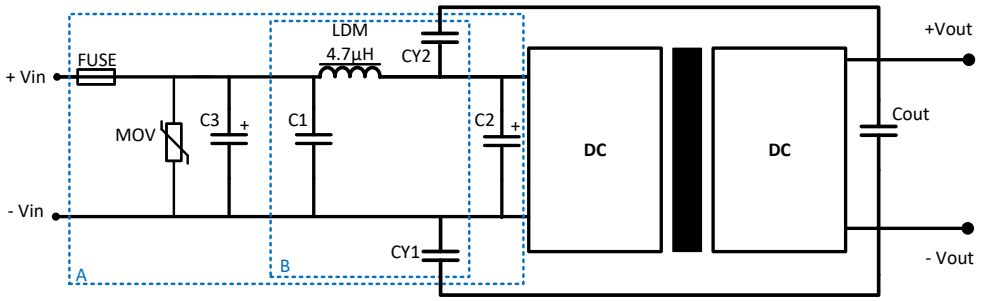
Recommended Circuit
For Ripple & Noise reduction



External Capacitor Tables

Vin (VDC)	Cin (uF)	Cout (uF)
5/12/24	100	10
48	10 ~ 47	10

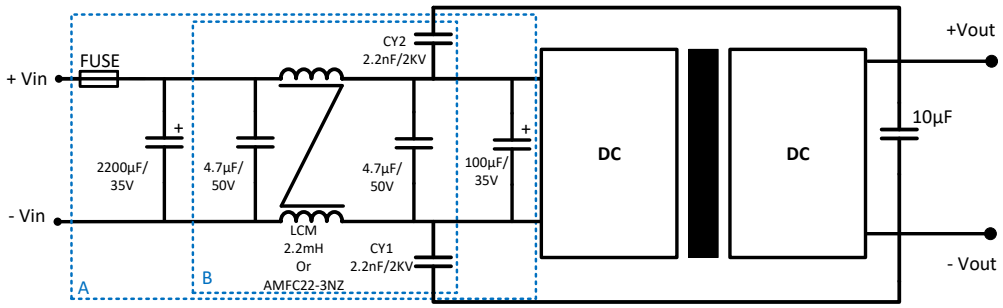
Recommended EMC Circuit



Model	MOV	C1	C2	C3	CY1/CY2
12 Vin	S14K20	1µF / 50V	100µF / 35V	1000µF / 35V	1nF/2KV
24 Vin	S20K30	1µF / 50V	100µF / 50V	1000µF / 50V	
48 Vin	S14K60	1µF / 100V	100µF / 100V	680µF / 100V	

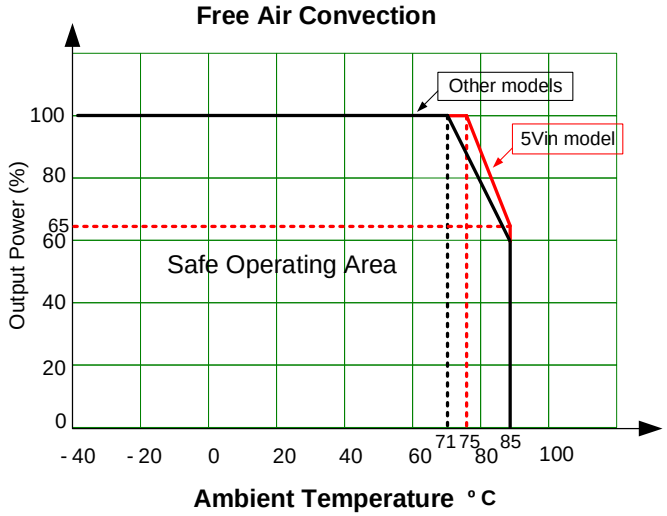
Note: Fuse is user selectable
Part A for EMS, part B for EMI.

Recommended EMC Circuit for 5V input model



Part A for EMS, part B for EMI.

Derating



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