

**FEATURES:**

- Efficiency up to 87%
- Ultra-Wide 4:1 input range
- Continuous Short Circuit Protection
- Operating temperature -40°C to + 85°C
- On/Off remote control
- Input Under-voltage Protection
- Over Voltage, Over Current Protection
- I/O Isolation 1500, 2250 & 3000VDC
- No-load power consumption $\leq 0.12W$

Models

Single output



Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	I/O Isolation (VDC)	Capacitive load max (μF)	Efficiency (%)
AM10EW-2403SH30-NZ	9-36	3.3	2400	3000	5400	79
AM10EW-2405SH30-NZ	9-36	5	2000	3000	5400	82
AM10EW-2409SH30-NZ	9-36	9	1111	3000	680	85
AM10EW-2412SH30-NZ	9-36	12	833	3000	470	86
AM10EW-2415SH30-NZ	9-36	15	667	3000	330	87
AM10EW-2424SH30-NZ	9-36	24	416	3000	100	87
AM10EW-4803SH30-NZ	18-75	3.3	2400	3000	5400	79
AM10EW-4805SH30-NZ	18-75	5	2000	3000	5400	82
AM10EW-4812SH30-NZ	18-75	12	833	3000	470	86
AM10EW-4815SH30-NZ	18-75	15	667	3000	330	87
AM10EW-4824SH30-NZ	18-75	24	416	3000	100	87
AM10EW-11005S-NZ	40~160	5	2000	1500	2200	81
AM10EW-11012S-NZ	40~160	12	833	1500	220	85
AM10EW-11015S-NZ	40~160	15	667	1500	100	85
AM10EW-11024S-NZ	40~160	24	416	1500	47	86
AM10EW-11003SH22-NZ	40~160	3.3	2400	2250	5400	76
AM10EW-11005SH22-NZ	40~160	5	2000	2250	5400	80
AM10EW-11012SH22-NZ	40~160	12	833	2250	470	84
AM10EW-11015SH22-NZ	40~160	15	667	2250	330	84
AM10EW-11024SH22-NZ	40~160	24	417	2250	100	85

Add suffix “-K” for optional heat sink

*Add suffix “-ST” for optional screw terminal bottom plate or “-STD” for optional DIN Rail screw terminal bottom plate.

**Add suffix “-K” for optional heatsink, “-K-ST” for optional heatsink and screw terminal bottom plate or “-K-STD” for optional heatsink and DIN Rail screw terminal bottom plate.

Models

Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	I/O Isolation (VDC)	Capacitive load max (μF)	Efficiency (%)
AM10EW-2405DH30-NZ	9-36	± 5	± 1000	3000	± 1000	82
AM10EW-2412DH30-NZ	9-36	± 12	± 416	3000	± 330	86
AM10EW-2415DH30-NZ	9-36	± 15	± 333	3000	± 220	87
AM10EW-4805DH30-NZ	18-75	± 5	± 1000	3000	± 1000	82
AM10EW-4812DH30-NZ	18-75	± 12	± 416	3000	± 330	86
AM10EW-4815DH30-NZ	18-75	± 15	± 333	3000	± 220	87

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	9-36		VDC
	48	18-75		
	110	40~160		

Input Current (full load)	24 48 110		521 261 117	mA
Filter	π (Pi) Network			
Input Surge Voltage (1sec max.)	24 48 110		50 100 180	VDC
Start-up time	Nominal Input, resistive load	10		ms
Reflected Input Ripple Current	24 48 110	40 30 30		mA
Under-voltage lockout	24 48 110 (2250 Isolated models)	6.5 15.5 33		V
Remote On/Off Control (24 & 48Vin)	On Off	3.5-12VDC or leave open 0-1.2VDC or connect to GND, idle current 5-6mA		

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	1 min, <1mA		1500, 2250 & 3000	VDC
Tested I/FG & O/FG	1 min, <1Ma, 2250VDC I/O isolated models		1600	VDC
Resistance	At 500VDC Isolation	> 1000		MOhm
Capacitance	24 & 48 Vin, I/O, 100KHz/0.1V	500		pF
	110 Vin (1500VDC isolation), I/O, 100KHz/0.1V	1000		
	110 Vin (2250VDC isolation), I/O, 100KHz/0.1V	2200		

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	110 Vin (2250VDC isolation), 0-100% load Others, 5-100% load	± 1	± 3	%
Voltage balance (Dual Output Models)	Balanced Load	± 1	± 2	%
Line voltage regulation	110 Vin (2250VDC isolation), Full Load (HL-LL) Others, Full Load (HL-LL)	± 0.2 ± 0.5	± 0.5 ± 1	%
Load voltage regulation	110 Vin (2250VDC isolation), 0-100% load Others, 5-100% load	± 0.5 ± 0.5	± 1 ± 1.5	%
Cross Regulation	50% load on one output & 10-100% load on second load		± 5	%
Short Circuit protection		Continuous		
Short Circuit restart	Auto Recovery			
Over Voltage Protection		120	160	% of Vo
Over Current Protection	24 & 48 Vin models	140	190	% of Io
	110 Vin (2250VDC isolation)	120	210	
Transient Recovery Time	110 Vin (2250VDC isolation), 25% Load Step Change	300	500	μ s
	Others, 25% Load Step Change	500	1000	
Transient Response Deviation	25% Load Step Change	± 3	± 8	%
Temperature coefficient		± 0.03		%/°C
Ripple & Noise	20Mhz bandwidth	60	120	mV p-p

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	110 Vin (2250VDC isolation), 100% load Others, 100% load	300 350		KHz
Operating temperature	Derating above 71°C	-40 to +85		°C
Storage temperature		-55 to +125		°C
Max case temperature			105	°C
Cooling	Free air convection			
Humidity	Non-condensing		95	%
Solder Temp Leads	1.5 mm from case 10 sec.		300	°C
Case material	Plastic (3000VDC Isolated models) Aluminum Alloy (Others)			

Weight	Pin mountable without heatsink	24 (3000VDC Isolated models) 22 (1500VDC Isolated models) 26 (2250VDC Isolated models)	g
	Pin mountable with heatsink	30 (1500VDC Isolated models) 34 (2250VDC Isolated models)	
	-ST option without heatsink	46 (3000VDC Isolated models) 44 (1500VDC Isolated models) 48 (2250VDC Isolated models)	
	-ST option with heatsink	52 (1500VDC Isolated models) 56 (2250VDC Isolated models)	
	-STD option without heatsink	66 (3000VDC Isolated models) 64 (1500VDC Isolated models) 68 (2250VDC Isolated models)	
	-STD option with heatsink	72 (1500VDC Isolated models) 76 (2250VDC Isolated models)	
	Dimensions (L x W x H)	3000VDC Isolated models	
Others		2.00 x 1.00 x 0.46 inches; 50.80 x 25.40 x 11.80mm	
Optional packages		See dimensions drawing	
MTBF	>1 000 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)		

Environmental Specifications

Parameters

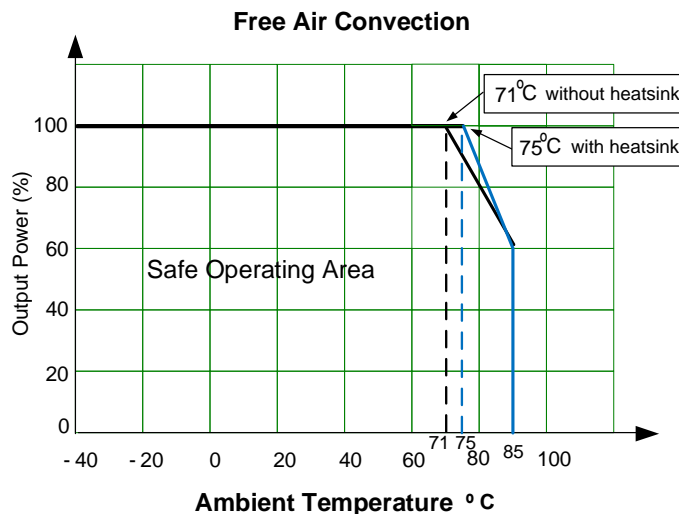
Vibration (24 & 48 Vin)	Test mode	10-55Hz
	Acceleration	10G, 30min one cycle, every axis tested
Vibration (110 Vin/1500VDC isolation)	Test mode	5-150Hz
	Acceleration	2G, 30min one cycle, every axis tested
	Displacement	7.5mm
Vibration (110 Vin/2250VDC isolation)	IEC61373 car body 1 B mold	

Safety Specifications

Parameters

Approvals	CE, UL (3000VDC Isolated models – dual and 24V input single output models) EN/IEC/UL60950-1
Standards	EN 55022, class A (all models) and EMI EN50121-3-2 class A (2250 VDC Isolated models) IEC61000-4-2, Contact ±6KV (110Vin), Contact ±4KV (24 & 48 Vin), Criteria B IEC61000-4-3, 10V/m, Criteria A IEC61000-4-4, ±4KV (110Vin), ±2KV (24 & 48 Vin with the recommended EMC circuit), Criteria B IEC61000-4-5, ±2KV, Criteria B, (with the recommended EMC circuit) IEC61000-4-6, 3 Vrms, 10 Vrms (2250 VDC Isolated models) Criteria A IEC61000-4-29, 0-70%, Criteria B IEC/EN/UL 60950-1 Meets EN50155 (2250 VDC Isolated models)

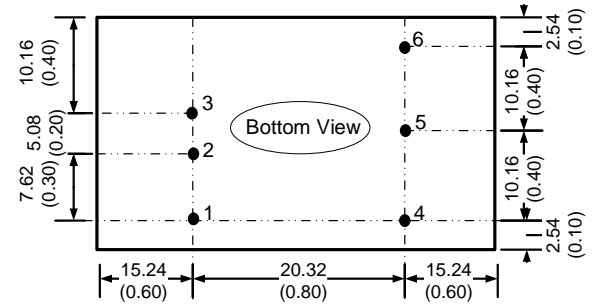
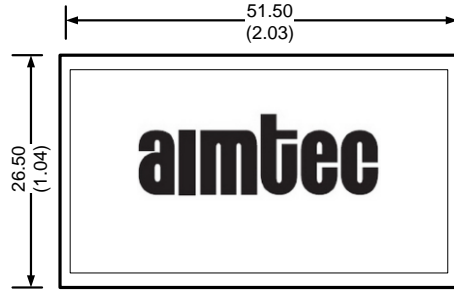
Derating



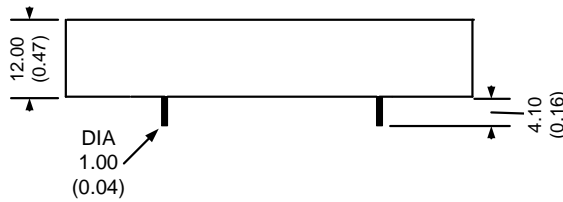
Pin Out Specifications
3000VDC Isolated models

Dimensions 3000VDC Isolated models

Pin	Single
1	On/Off Control
2	-Vin
3	+Vin
4	- Vout
5	No pin
6	+ Vout



Pin	Dual
1	On/Off Control
2	-Vin
3	+Vin
4	- Vout
5	Common
6	+ Vout

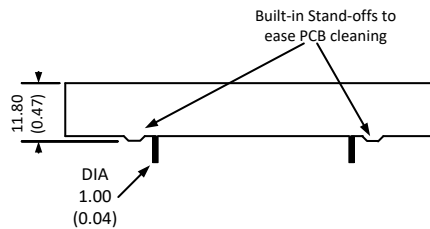
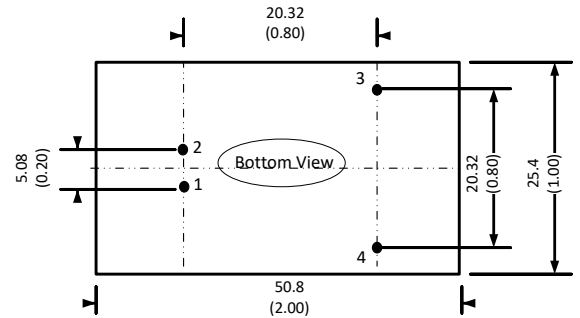
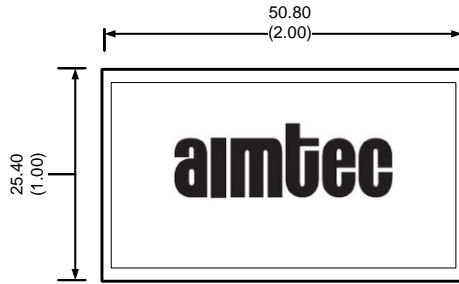


Notes:
All dimensions are typical in millimeters (inches).
Pin diameter Tolerance ± 0.10 (± 0.004)
Case Tolerance ± 0.50 (± 0.02)

Pin Out Specifications
Other models

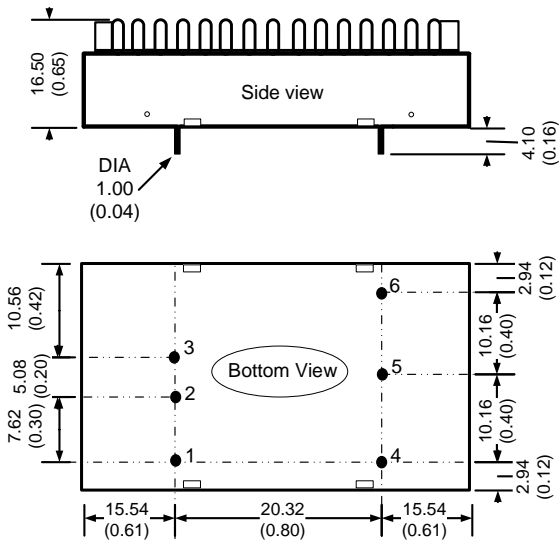
Dimensions of Other models

Pin	Single
1	Vin -
2	Vin +
3	+Vout
4	-Vout



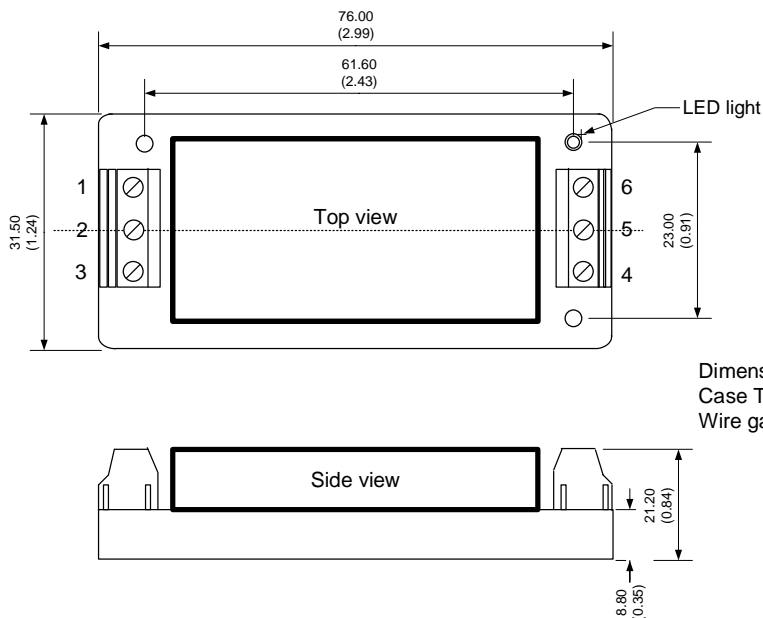
Notes:
All dimensions are typical in millimeters (inches).
Tolerance ± 0.25 (± 0.01)

Dimensions of the preinstalled heatsink option



Notes:
All dimensions are typical in millimeters (inches).
Pin diameter Tolerance: ± 0.10 (± 0.004)
Case Tolerance: ± 0.50 (± 0.02)

Dimensions with -ST options



Dimensions: mm (inch)
Case Tolerance: ± 0.50 (0.02)
Wire gauge: 24-12AWG

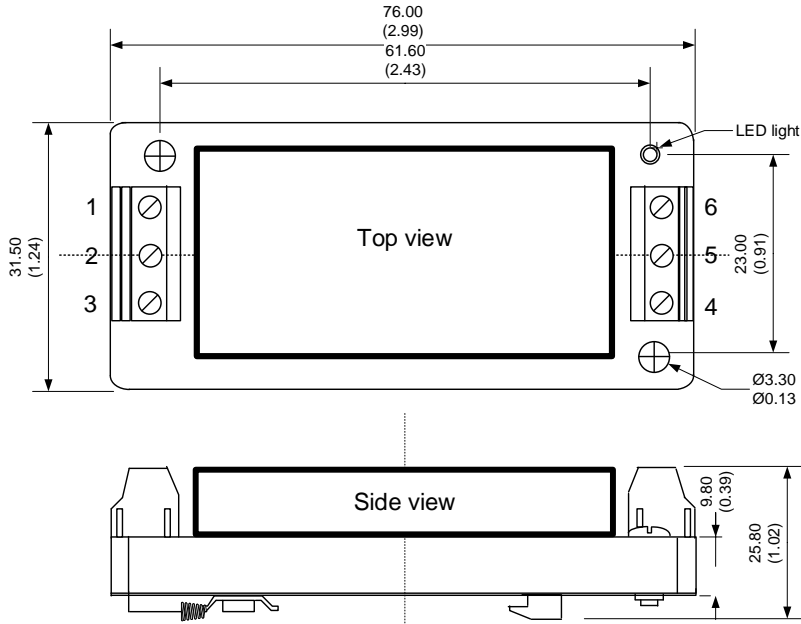
Pin Out Specifications

Pin	Single
1	N.C.
2	-Vin
3	+Vin
4	+ Vout
5	N.C.
6	- Vout

3000VDC Isolated models

Pin	Single
1	On/Off Control
2	-Vin
3	+Vin
4	- Vout
5	No pin
6	+ Vout

Dimensions with -STD options



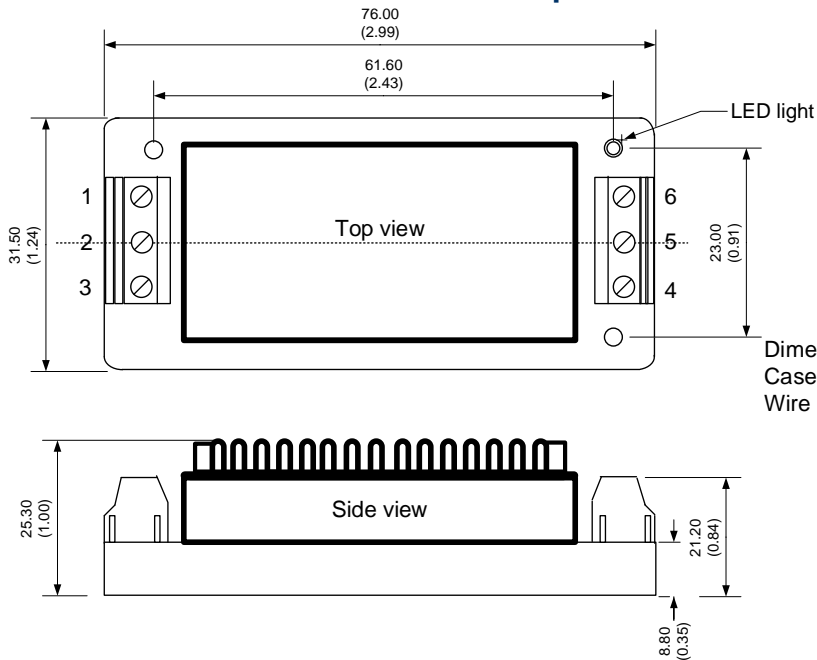
Dimensions: mm (inch)
Case Tolerance: ± 1.00 (0.04)
Wire gauge: 24-12AWG

Pin	Single
1	N.C.
2	-Vin
3	+Vin
4	+ Vout
5	N.C.
6	- Vout

3000VDC Isolated models

Pin	Single
1	On/Off Control
2	-Vin
3	+Vin
4	- Vout
5	No pin
6	+ Vout

Dimensions with heatsink and -ST options



Dimensions: mm (inch)
Case Tolerance: ± 0.50 (0.02)
Wire gauge: 24-12AWG

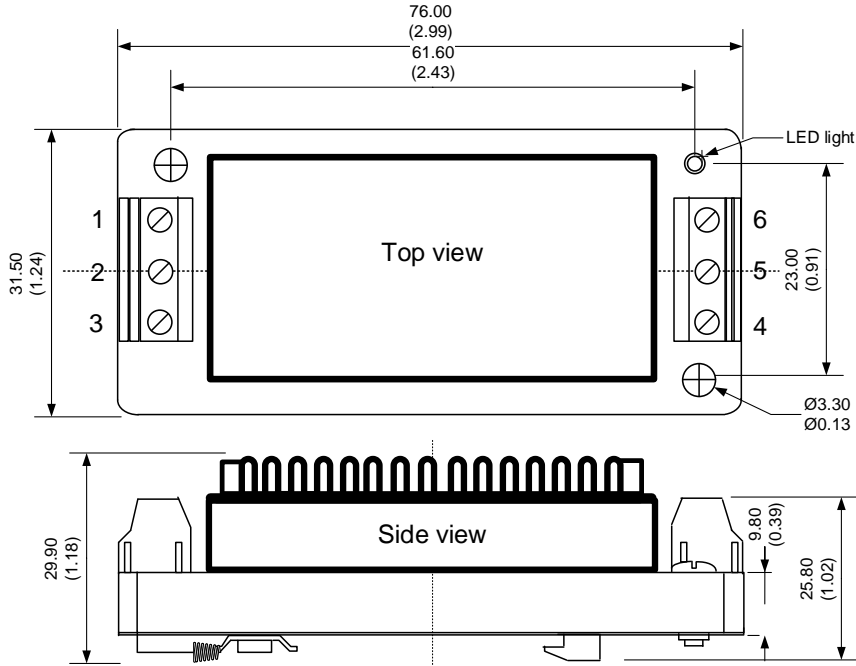
Pin Out Specifications

Pin	Single
1	N.C.
2	-Vin
3	+Vin
4	+ Vout
5	N.C.
6	- Vout

3000VDC Isolated models

Pin	Single
1	On/Off Control
2	-Vin
3	+Vin
4	- Vout
5	No pin
6	+ Vout

Dimensions with heatsink and -STD options



Dimensions: mm (inch)
 Case Tolerance: ± 0.50 (0.02)
 Wire gauge: 24-12AWG

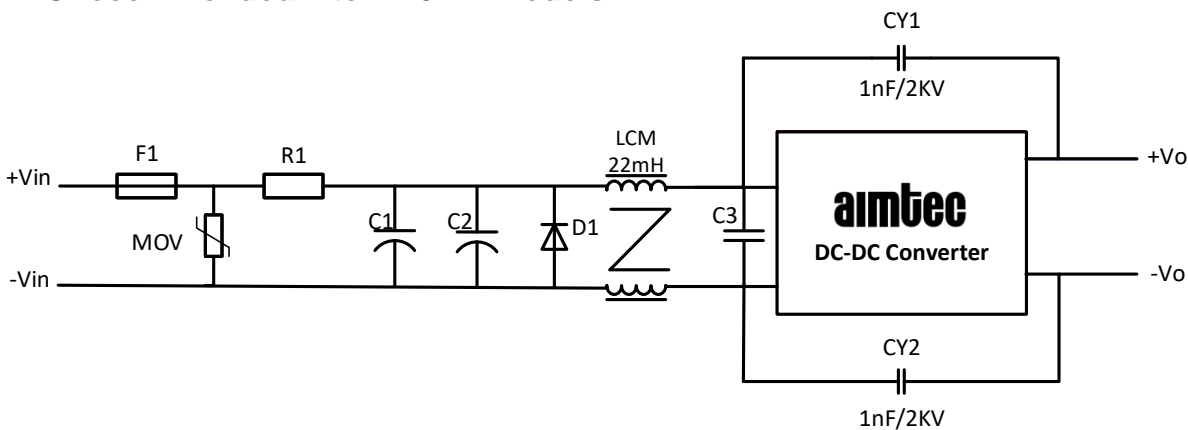
Pin Out Specifications

Pin	Single
1	N.C.
2	-Vin
3	+Vin
4	+ Vout
5	N.C.
6	- Vout

3000VDC Isolated models

Pin	Single
1	On/Off Control
2	-Vin
3	+Vin
4	- Vout
5	No pin
6	+ Vout

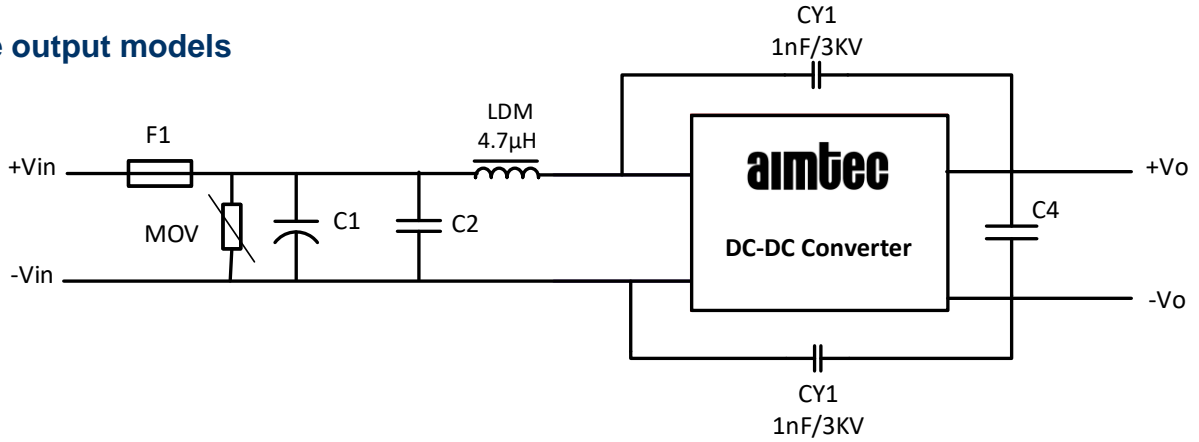
EMC recommended filter 110Vin models



MOV	C1 & C2	R1	C3	D1
S20K130	1 μ F / 200V	1 Ω	100 μ F / 200V	ER304

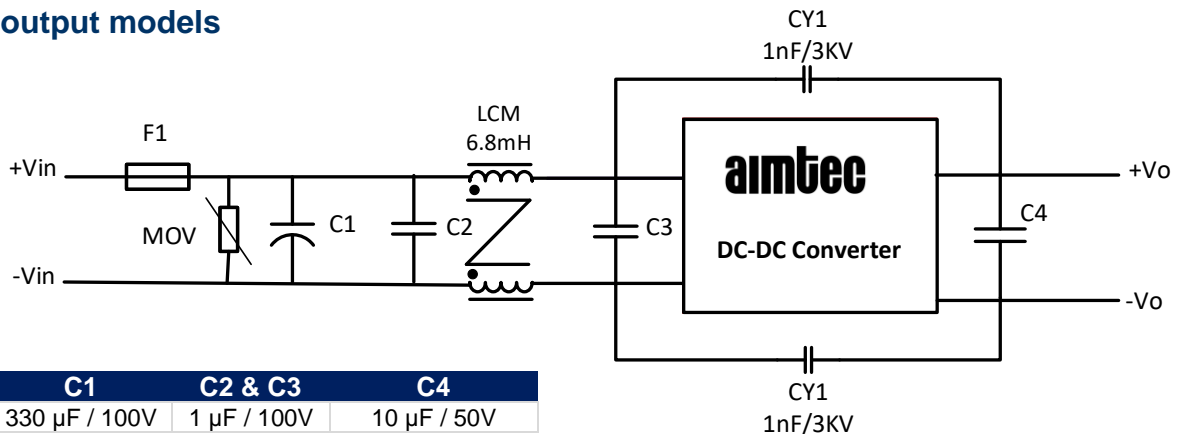
EMC recommended filter 3000VDC Isolated models

24Vin single output models



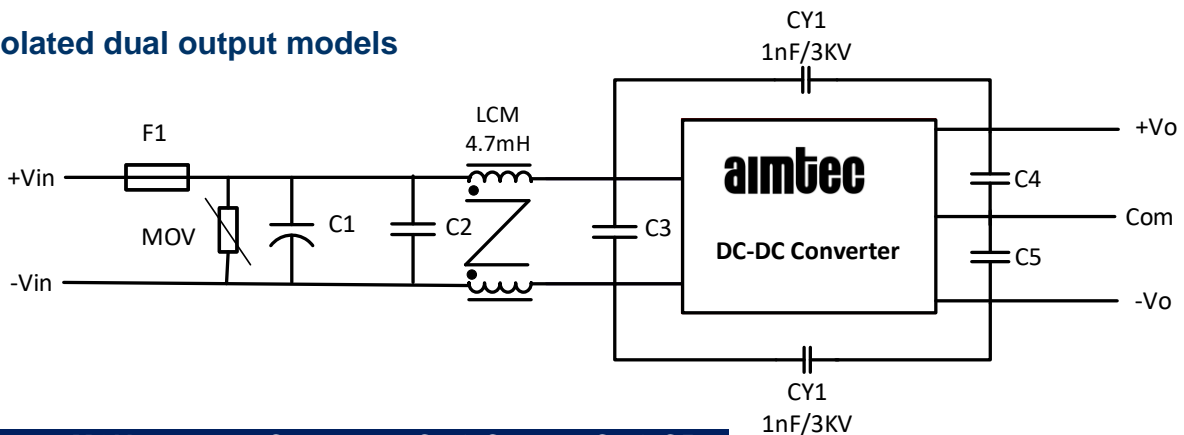
MOV	C1	C2	C4	CY1 & CY2	LDM
S20K30	330 µF / 50V	1 µF / 50V	10 µF / 50V	1 nF / 3KV	4.7 µH

48Vin single output models



MOV	C1	C2 & C3	C4
S20K60	330 µF / 100V	1 µF / 100V	10 µF / 50V

3000VDC Isolated dual output models



Vin	MOV	C1	C2 & C3	C4 & C5
24V	S20K30	330 µF / 50V	1 µF / 50V	10 µF / 50V
28V	S20K60	330 µF / 100V	1 µF / 100V	

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

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