



**FEATURES:**

- Wide 4:1 Input Voltage Range
- High efficiency up to 91%
- 1500 VDC Isolation
- Over Current Protection
- Remote On/Off control
- Operating Temperature -40°C to +105°C
- Output Over Voltage protection
- Continuous Short Circuit Protection
- Input Under Voltage Protection
- Bare Part Meet CISPR32/EN55032 Class A



**Models**  
**Single output**

Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current max Full/No Load (mA)	Output Current max (mA)	Isolation (VDC)	Max Capacitive Load (uF)	Efficiency Typ. (%)
AM15CW-2403S-NZ	9-36	3.3	640/50	4000	1500	4700	88
AM15CW-2405S-NZ	9-36	5	710/50	3000	1500	4700	90
AM15CW-2412S-NZ	9-36	12	710/15	1250	1500	1000	90
AM15CW-2415S-NZ	9-36	15	703/15	1000	1500	820	91
AM15CW-2424S-NZ	9-36	24	703/20	625	1500	270	91
AM15CW-4803S-NZ	18-75	3.3	320/30	4000	1500	4700	88
AM15CW-4805S-NZ	18-75	5	356/30	3000	1500	4700	90
AM15CW-4812S-NZ	18-75	12	352/11	1250	1500	1000	91
AM15CW-4815S-NZ	18-75	15	352/11	1000	1500	820	91
AM15CW-4824S-NZ	18-75	24	352/11	625	1500	270	91

\*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 (VDC)	Output Voltage (VDC)	Input Current max Full/No Load (mA)	Output Current max (mA)	Isolation (VDC)	Max Capacitive Load (uF)	Efficiency Typ. (%)
AM15CW-2405D-NZ✘	9-36	± 5	710/50	± 1500	1500	± 1500	87
AM15CW-2412D-NZ✘	9-36	± 12	710/15	± 625	1500	± 470	90
AM15CW-2415D-NZ✘	9-36	± 15	703/15	± 500	1500	± 330	90
AM15CW-2424D-NZ✘	9-36	± 24	703/20	± 312	1500	± 200	89
AM15CW-4805D-NZ✘	18-75	± 5	356/30	± 1500	1500	± 1500	86
AM15CW-4812D-NZ✘	18-75	± 12	352/11	± 625	1500	± 470	90
AM15CW-4815D-NZ✘	18-75	± 15	352/11	± 500	1500	± 330	90
AM15CW-4824D-NZ✘	18-75	± 24	352/11	± 312	1500	± 200	90

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

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 Vin	9-36		VDC
	48 Vin	18-75		
Filter		Pi		
Absolute Maximum Rating (1s)	24 Vin		-0.7 – 50	VDC
	48 Vin		-0.7 – 100	
Input reflected ripple current	Nominal input,	30		mA
Input Under voltage protection	24 Vin	6.5		VDC
	48 Vin	15.5		
Startup time	Nominal input, resistive load	10		ms
Remote On/Off Control	On Off	3.5-12VDC or leave open 0-1.2VDC or connect to GND, idle current 2-7mA		

### Isolation Specifications

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, <1mA	1500		VDC
Resistance	500VDC	>1000		MOhm
Capacitance	I/O, 100KHz/0.1V	2000		pF

### Output Specifications

Parameters	Conditions	Typical	Maximum	Units	
Voltage accuracy	0% to 100% load	±1	±3	%	
Over voltage protection		110-160		% of Vout	
Over current protection	Single output	110-190		% of Iout	
	Dual output	110-270			
Short Circuit protection	Continuous				
Short circuit restart	Auto-Recovery				
Line voltage regulation	Full load, LL to HL , Positive output	±0.2	±0.5	% of Vin	
	Full load, LL to HL , Negative output	±0.4	±1		
Load voltage regulation	5% to 100% load	±0.5	±1	%	
Cross Regulation	Dual output , main circuit with 50% load, auxiliary circuit with 10%-100% load		±5	%	
Temperature coefficient	100% load		±0.03	%/°C	
Ripple & Noise	20MHz Bandwidth, 5-100% load	Single output	50	100	mV p-p
		Dual output	100	200	
Transient recovery time	25% load step change	0.3	0.5	ms	
Transient recovery deviation	25% load step change	3.3/5V output	±3	±8	%
		Others	±3	±5	

### General Specifications

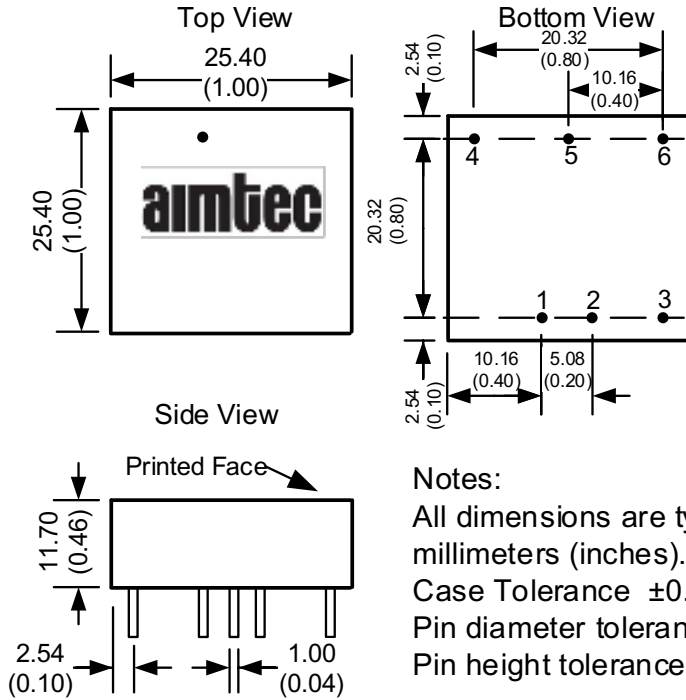
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	Single 3.3/5V output	300	KHz
		Others	270	
Operating temperature	See derating curve	Single 3.3/5V output	-40 to +95	
		Others	-40 to +105	
Storage temperature		-55 to +125		°C
Cooling	Free air convection			
Humidity			95	% RH
Case material	Aluminum Alloy			
Weight	Pin mountable	15		g
	With optional -ST mounting plate:	38		
	With optional -STD mounting plate:	58		
	With optional -K Pin mountable	20		
	With optional -ST-K mounting plate:	42		
	With optional -STD-K mounting plate:	62		
Dimensions (L x W x H)	Pin mountable	1 x 1 x 0.46 inches	25.40 x 25.40 x 11.70 mm	
	With optional -ST mounting plate:	2.99 x 1.24 x 0.84 inches	76.00 x 31.50 x 21.20 mm	
	With optional -STD mounting plate:	2.99 x 1.24 x 1.02 inches	76.00 x 31.50 x 25.80 mm	
	With optional -K Pin mountable	1 x 1 x 0.64 inches	25.40 x 25.40 x 16.20 mm	
	With optional -ST-K mounting plate:	2.99 x 1.24 x 0.99 inches	76.00 x 31.50 x 25.20 mm	
	With optional -STD-K mounting plate:	2.99 x 1.24 x 1.17 inches	76.00 x 31.50 x 29.80 mm	
MTBF	>1,000,000 hours (MIL-HDBK -217F, Ground Benign, t=+25°C)			
Maximum soldering temperature	1.5mm from case for 10 sec		300	°C

### Safety Specifications

Parameters	
Agency approvals	CE EN62368-1; cULus UL62368-1 (✘ with exception of dual output models)
	CISPR32 / EN 55032, Class A / Class B with the recommended EMC circuit
Information technology Equipment	Designed to meet IEC62368-1
Electrostatic Discharge Immunity	IEC 61000-4-2, Contact ±6KV, Air ±8KV, Criteria B
RF, Electromagnetic Field Immunity	IEC 61000-4-3, 10V/m, Criteria A
Electrical Fast Transient / Burst Immunity	IEC 61000-4-4, ±2KV with the recommended EMC circuit, Criteria A

Surge Immunity	IEC 61000-4-5, L-L $\pm 2$ KV with the recommended EMC circuit, Criteria B
RF, Conducted Disturbance Immunity	IEC 61000-4-6, 3 Vrms, Criteria A

### Dimensions



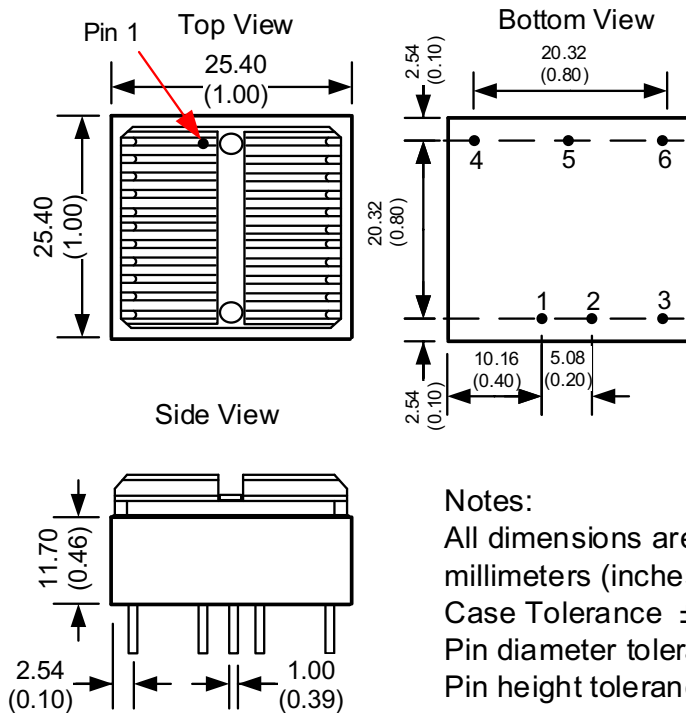
#### Notes:

- All dimensions are typical in millimeters (inches).
- Case Tolerance  $\pm 0.25$  ( $\pm 0.01$ )
- Pin diameter tolerance  $\pm 0.1$  ( $\pm 0.004$ )
- Pin height tolerance  $\pm 0.5$  ( $\pm 0.02$ )

### Pin Out Specifications

Pin	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	On/Off Control	On/Off Control
4	+V Output	+V Output
5	Trim	Common
6	-V Output	-V Output

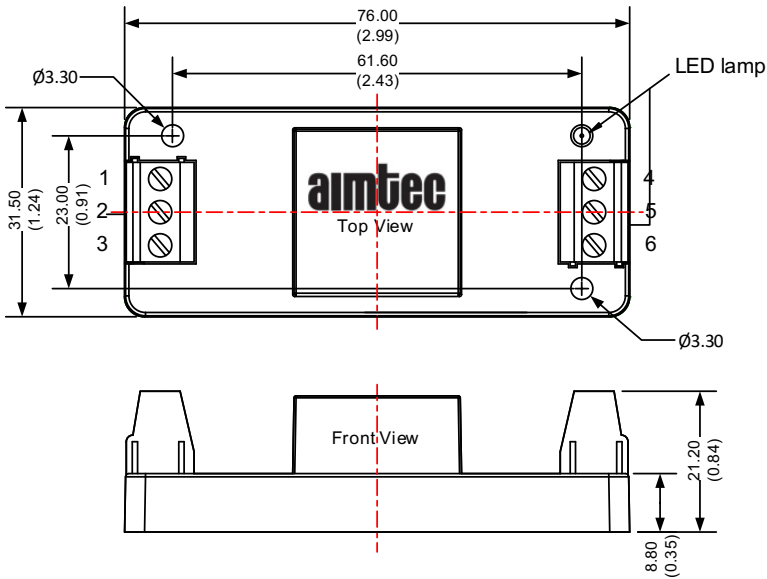
### Heatsink Option: AM15CW-NZ-K



#### Notes:

- All dimensions are typical in millimeters (inches).
- Case Tolerance  $\pm 0.25$  ( $\pm 0.01$ )
- Pin diameter tolerance  $\pm 0.1$  ( $\pm 0.004$ )
- Pin height tolerance  $\pm 0.5$  ( $\pm 0.02$ )

**Screw Terminal Option: AM15CW-NZ-ST**

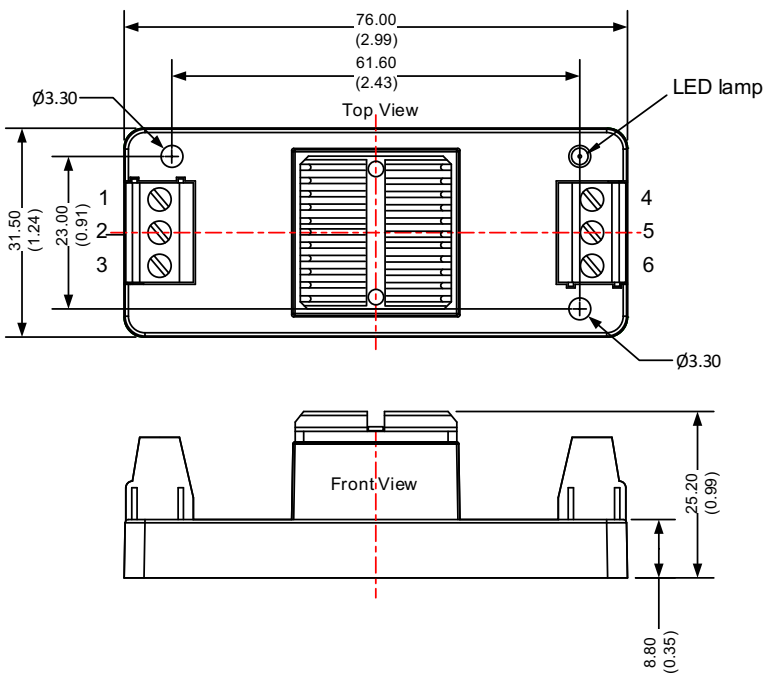


**Pin Out Specifications**

Pin	Single	Dual
1	On/off Ctrl	On/off Ctrl
2	-V Input	-V Input
3	+V Input	+V Input
4	-V Output	-V Output
5	Trim	Common
6	+V Output	+V Output

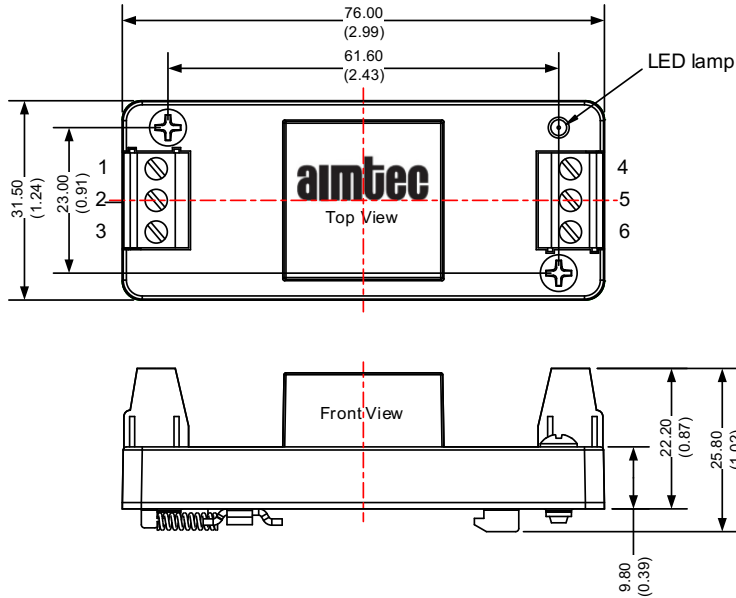
Note:  
Unit: mm (inch)  
Wire range: 24-12 AWG  
Tightening torque: Max 0.4 N\*m  
General tolerances:  $\pm 0.50$  ( $\pm 0.02$ )

**Screw Terminal with heatsink Option: AM15CW-NZ-K-ST**



Note:  
Unit: mm (inch)  
Wire range: 24-12 AWG  
Tightening torque: Max 0.4 N\*m  
General tolerances:  $\pm 0.50$  ( $\pm 0.02$ )

**DIN-RAIL Option: AM15CW-NZ-STD**

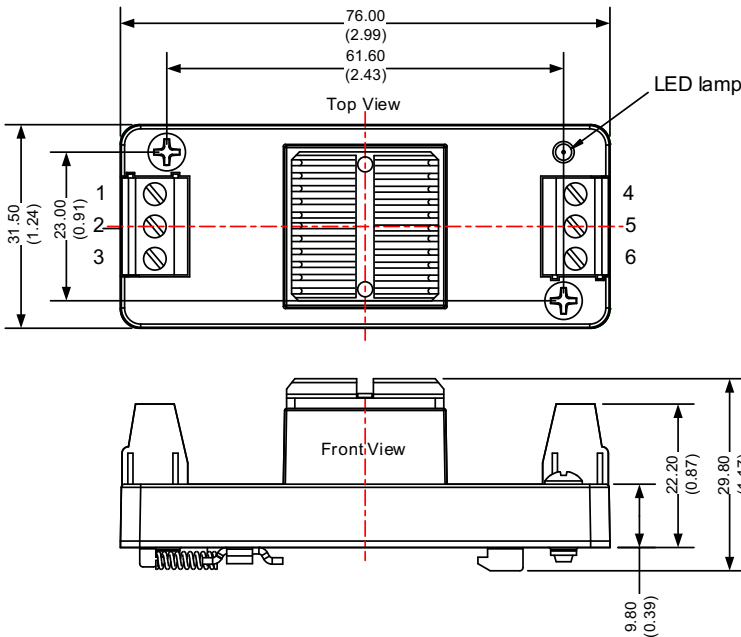


**Pin Out Specifications**

Pin	Single	Dual
1	On/off Ctrl	On/off Ctrl
2	-V Input	-V Input
3	+V Input	+V Input
4	-V Output	-V Output
5	Trim	Common
6	+V Output	+V Output

Note:  
Unit: mm (inch)  
Mounting rail: TS35  
Wire range: 24-12 AWG  
Tightening torque: Max 0.4 N\*m  
General tolerances:  $\pm 0.50$  ( $\pm 0.02$ )

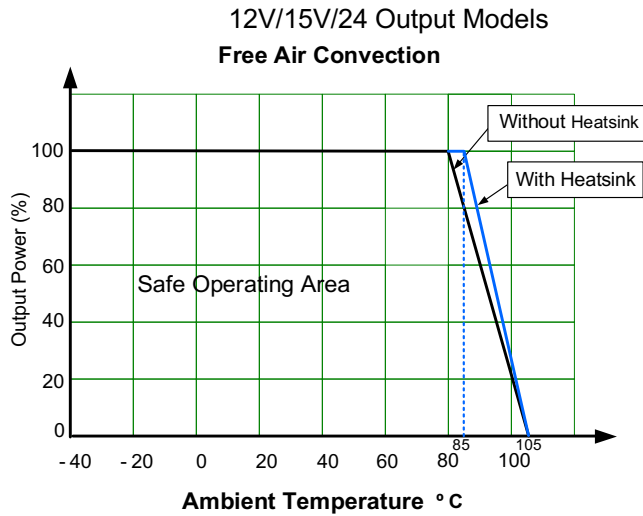
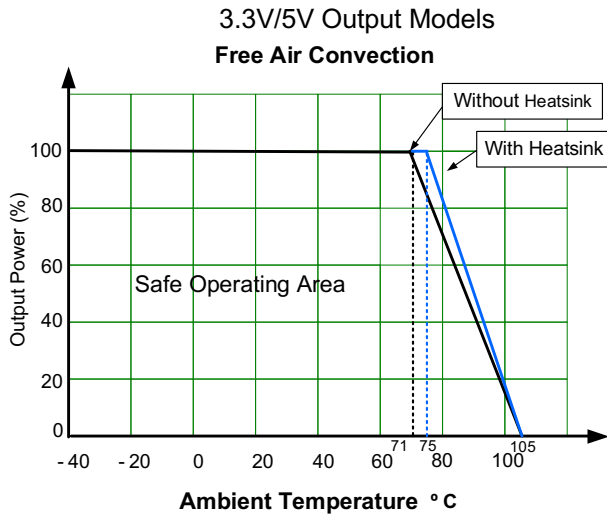
**DIN-RAIL with heatsink Option: AM15CW-NZ-K-STD**



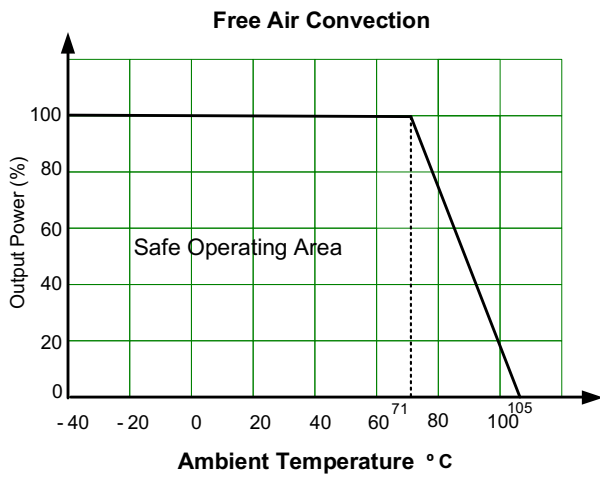
Note:  
Unit: mm (inch)  
Mounting rail: TS35  
Wire range: 24-12 AWG  
Tightening torque: Max 0.4 N\*m  
General tolerances:  $\pm 0.50$  ( $\pm 0.02$ )

## Derating

### Single output

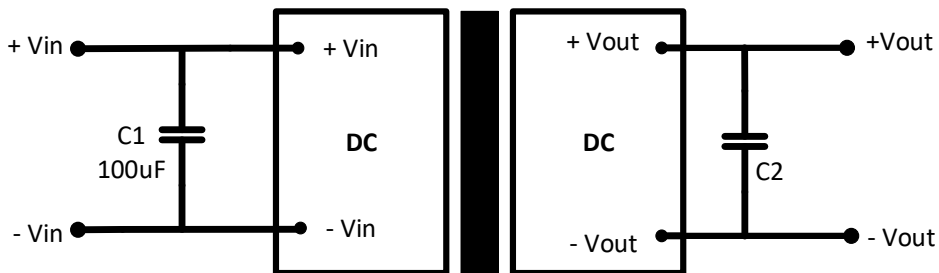


### Dual output



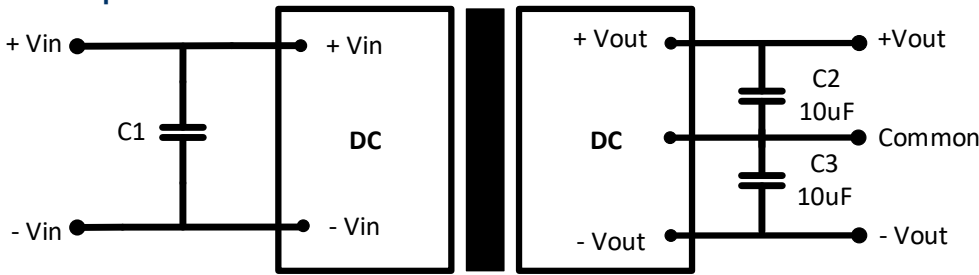
## Typical Application Circuits

### Single output



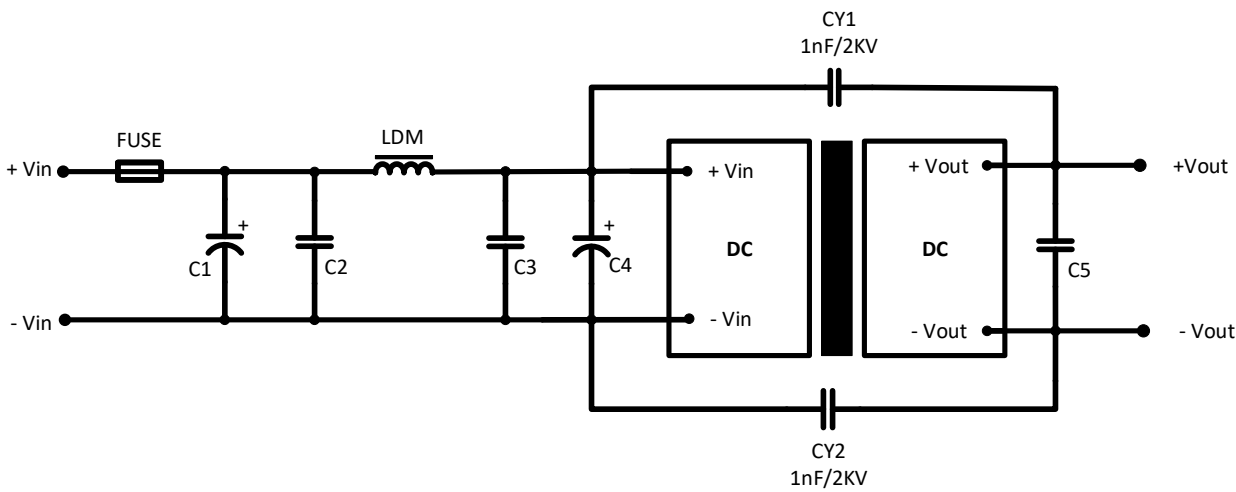
Model	3.3V/5V/12V/15V Vout	24V Vout
C2	100µF	47µF

**Dual output**



Model	12V/24V Vin	48V Vin
C1	100 $\mu$ F	10 $\mu$ F - 47 $\mu$ F

**Recommended EMC Circuits**



**Single output**

Model	12V/24V Vin	48V Vin
FUSE	Choose based on actual input current	
C1, C4	330 $\mu$ F/50V	330 $\mu$ F/100V
C2, C3	4.7 $\mu$ F/50V	4.7 $\mu$ F/100V
LDM	2.2 $\mu$ H/4A	2.2 $\mu$ H/2A
C5	Refer to the C2 in typical application circuit	

**Dual output**

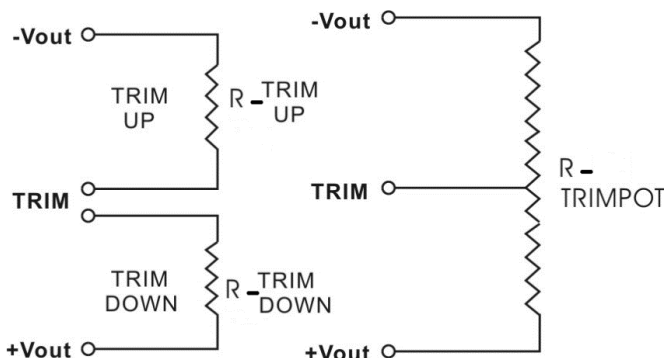
Model	12V/24V Vin	48V Vin
FUSE	Choose based on actual input current	
C1, C4	330 $\mu$ F/50V	330 $\mu$ F/100V
C2, C3	4.7 $\mu$ F/50V	4.7 $\mu$ F/100V
LDM	4.7 $\mu$ H	
C5	Refer to the C2/C3 in typical application circuit	

**Trimming (Single output)**

Output voltage can be externally trimmed by utilizing the methods as shown below

**Fixed Resistor**

**Variable Potentiometer**



Leave open if not used.

3.3V output models

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	3.267	3.234	3.201	3.168	3.135	3.102	3.069	3.036	3.003	2.97
Rt down (KΩ)	190.744	104.218	68.096	48.270	35.741	27.108	20.797	15.983	12.190	9.124
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	3.333	3.366	3.399	3.432	3.465	3.498	3.531	3.564	3.597	3.63
Rt up (KΩ)	303.349	100.149	55.286	35.580	24.504	17.407	12.472	8.842	6.058	3.857

5V output models

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	4.95	4.9	4.85	4.8	4.75	4.7	4.65	4.6	4.55	4.5
Rt down (KΩ)	89.996	47.446	29.793	20.131	14.036	9.840	6.775	4.439	2.598	1.111
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	5.05	5.1	5.15	5.2	5.25	5.3	5.35	5.4	5.45	5.5
Rt up (KΩ)	238.676	81.473	46.044	30.398	21.581	15.923	11.985	9.085	6.861	5.101

12V output models

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	11.88	11.76	11.64	11.52	11.4	11.28	11.16	11.04	10.92	10.8
Rt down (KΩ)	493.692	299.052	210.127	159.185	126.173	103.042	85.932	72.764	62.316	53.823
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	12.12	12.24	12.36	12.48	12.6	12.72	12.84	12.96	13.08	13.2
Rt up (KΩ)	704.035	156.520	81.479	51.675	35.677	25.695	18.874	13.917	10.152	7.195

15V output models

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	14.85	14.7	14.55	14.4	14.25	14.1	13.95	13.8	13.65	13.5
Rt down (KΩ)	632.483	398.237	286.114	220.359	177.137	146.560	123.787	106.169	92.132	80.687
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	15.15	15.3	15.45	15.6	15.75	15.9	16.05	16.2	16.35	16.5
Rt up (KΩ)	1457.699	190.174	94.242	58.954	40.616	29.381	21.791	16.321	12.190	8.961

24V output models

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	23.76	23.52	23.28	23.04	22.8	22.56	22.32	22.08	21.84	21.6
Rt down (KΩ)	1284.000	789.923	563.667	433.904	349.754	290.763	247.115	213.514	186.847	165.170
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	24.24	24.48	24.72	24.96	25.2	25.44	25.68	25.92	26.16	26.4
Rt up (KΩ)	814.689	177.714	92.138	58.264	40.107	28.788	21.057	15.440	11.176	7.827

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