



FEATURES:

- Ultra-wide Input range up to 160VDC
- Efficiency up to 93%
- Input under voltage lockout
- Continued short circuit protection
- Input / Output Isolation up to 3000VDC
- Operating Temperature: -40°C to +100°C
- OVP, OCP, OTP
- On-Off, Trim and Output Sense controls

Models
Single output



Model	Input Voltage (V)	Max Input Current FL NL (mA)	Output Voltage (V)	Output Current max (A)	Isolation (VDC)	Max Capacitive Load (uF)	Efficiency (%)
AM75QB-4805SH22-NZ	18-75	1756 80	5	15	2250	6000	91
AM75QB-4812SH22-NZ	18-75	1756 80	12	6.25	2250	2000	92
AM75QB-4815SH22-NZ	18-75	1756 80	15	5	2250	2000	93
AM75QB-4824SH22-NZ	18-75	1756 80	24	3.13	2250	1000	92
AM75QB-4848SH22-NZ	18-75	1756 80	48	1.56	2250	470	92
AM75QB-11005S-NZ	66-160	793 15	5	15	3000	7500	87
AM75QB-11012S-NZ	66-160	783 15	12	6.25	3000	6000	88
AM75QB-11024S-NZ	66-160	766 15	24	3.125	3000	3000	90

Add suffix “-K” for optional heat sink

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.

* The models AM75QB-11005S-NZ and AM75QB-11012S-NZ will be discontinued (EOL) by December 30, 2020; for new designs, please refer to AM75QB-11005SA30JZ.

** All the models with nominal input 110Vdc are not recommended for new designs; For new design, please refer to AM75BQ-JZ series.

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	48V Vin	18-75		VDC
	110V Vin	66-160		
Filter	π(Pi) Network			
Startup time		25		ms
Absolute Maximum Rating	48V Vin		-0.7 - 90	VDC
	110V Vin		-0.7 - 180	
Peak Input Voltage time			1	s
On/Off control	ON – open or 3.5-12VDC; OFF – short to -Vin or 0-1.2VDC, Idle current 2-10mA			
Under voltage lockout	48V Vin	16.6		VDC
	110V Vin	58		
Input reflected current	48V Vin	30		mA
	110V Vin	50		

Isolation Specifications

Parameters	Conditions	Rated	Maximum	Units
Tested I/O voltage	48V models, 60 sec, 5mA	2250		VDC
	110V models, 60 sec, 1mA	3000		
Tested Input / Case voltage	48V models, 60 sec, 5mA	1500		VDC
	110V models, 60 sec, 1mA	1500		
Tested Output / Case voltage	48V models, 60 sec, 5mA	1500		VDC
	10V models, 60 sec, 1mA	500		
Resistance	At I/O Isolation 500VDC	>100		MOhm
		>1000		
Capacitance	I/O 100KHz/0.1V	2200		pF

Output Specifications

Parameters	Conditions		Typical	Maximum	Units	
Voltage accuracy	48V models		±1	±3	%	
	110V models		±2	±3		
Line voltage regulation	Vin LL to HL	48V models		±0.5	% of Vin	
		110V models		±0.3		
Load voltage regulation	10 – 100% load	48V models		±0.75	%	
		110V models		±0.5		
Temperature coefficient				±0.03	%/°C	
Ripple & Noise	20MHz Bandwidth	48V Model	12V/15V Vout	100	200	mV p-p
			Others	150	250	
		110V models		100	300	
Voltage adjustment range				-5 to 10	%	
Output voltage Sense compensation*				5	%	
Over voltage protection	48V models			110 - 160	% of Vout	
	110V models			110 - 140		
Over current protection	48V models		110	190	% of Iout	
	110V models		130	180		
Short Circuit protection	Continuous					
Short circuit restart	Auto-recovery					
Thermal shutdown	Base plate temperature	48V models			105	°C
		110V models			115	
Transient recovery time	25% load step change	48V models		200	500	µs
		110V models		300	500	
Transient recovery deviation	25% load step change	48V Vin, 5VDC Vout		±3	±7.5	%
		Others		±3	±5	

*NOTE: If Output Sense is not used, short +Vout with +Sense and -Vout with -Sense.

Keep the connection track between +Vout with +Sense and -Vout with -Sense as short as possible for stable performance.

General Specifications

Parameters	Conditions		Minimum	Maximum	Units	
Switching frequency	100% load	48V models	250		KHz	
		110V models	220			
Base plate temperature	See derating curves	48V models	-40 to +85		°C	
		110V models	-40 to +100			
Storage temperature	-55 to +125				°C	
Maximum case temperature					105	°C
Thermal resistance	Without heatsink – Natural convection		10.7		°C/W	
	Without heatsink – 200LFM convection		6			
	Without heatsink – 400LFM convection		5			
	Without heatsink – 1000LFM convection		4			
	With heatsink – Natural convection		5.1			
	With heatsink – 200LFM convection		2.8			
	With heatsink – 400LFM convection		2.2			
	With heatsink – 1000LFM convection		1.8			
Cooling	Natural convection or forced air					
Humidity	Non-condensing		5	95	% RH	
Case material	48V models		Aluminum alloy case (UL94-V0)			
	110V models		Black heat resistant plastic case (UL94-V0)			
Weight	48V models	Without heatsink	83		g	
		With heatsink	114			
	110V models	Without heatsink	46			
		With heatsink	76			
Dimensions (L x W x H)	48V models	Without heatsink	2.43 x 1.65 x 0.50 inches	61.8 x 40.2 x 12.7 mm		
		With heatsink	2.43 x 1.65 x 1.09 inches	61.8 x 40.2 x 27.7 mm		
	110V models	Without heatsink	2.39 x 1.54 x 0.50 inches	60.8 x 39.2 x 12.7 mm		
		With heatsink	2.44 x 1.54 x 1.21 inches	62.0 x 39.2 x 30.8 mm		
MTBF	>500,000 hours (MIL-HDBK -217F, Ground Benign, t=+25°C)					
Maximum soldering temperature	1.5mm from case for 10 sec			300	°C	

Environment Approval

Parameters	Conditions
Cooling	EN60068-2-1, 110V models only
Dry heat	EN60068-2-2, 110V models only
Damp heat	EN60068-2-30, 110V models only
Shock and Vibrations	IEC/EN61373 on both 48V and 110V models

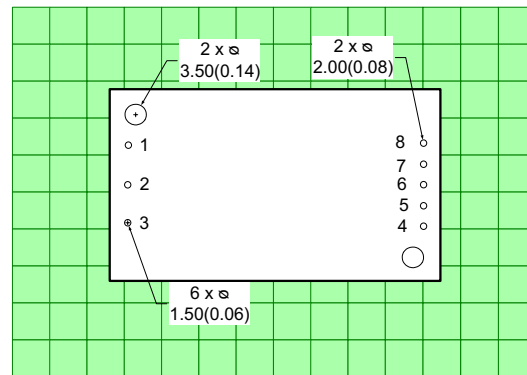
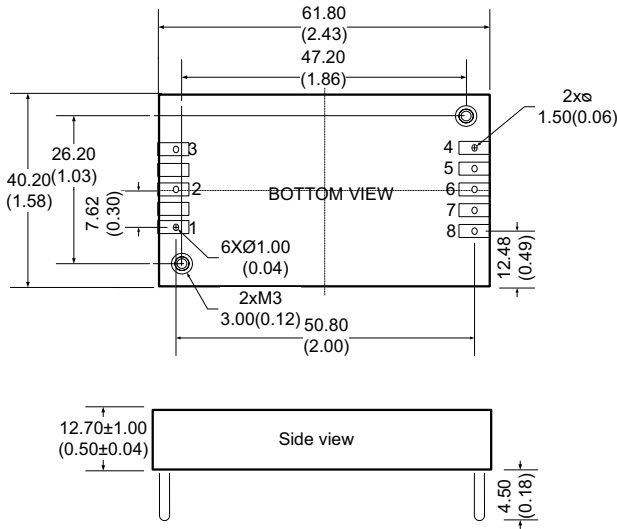
Safety Specifications

Parameters			
Standards	CISPR32/EN 55032, Class B, with external filter		
	IEC 61000-4-2	48V	Meet EN50121-3-2, Contact ± 6 KV, Air ± 8 KV, Criteria B
		110V	Contact ± 6 KV, Air ± 8 KV, Criteria B
	IEC 61000-4-3	48V	Meet EN50121-3-2, 10V/m, Criteria A
		110V	10V/m, Criteria A
	IEC 61000-4-4	48V	Meet EN50121-3-2, ± 2 KV with external filter, Criteria B
		110V	For 110V models, ± 2 KV with external filter, Criteria B
	EN50121-3-2	48V	differential mode ± 1 KV, 1.2/50us, source impedance 42Ω with external filter, Criteria B
	IEC 61000-4-5	110V	Meet EN50155, L-L ± 2 KV, L-G ± 4 KV with external filter, Criteria B
	IEC 61000-4-6	48V	Meet EN50121-3-2, 10Vrms, Criteria A
110V		10Vrms, Criteria A	
EN50155	110V	100%0%, 10ms, with external filter, Criteria B	

Pin Out Specifications

Pin	Single
1	+Vin
2	On/Off Control
3	-Vin
4	-Vout
5	-Sense
6	Trim
7	+Sense
8	+Vout

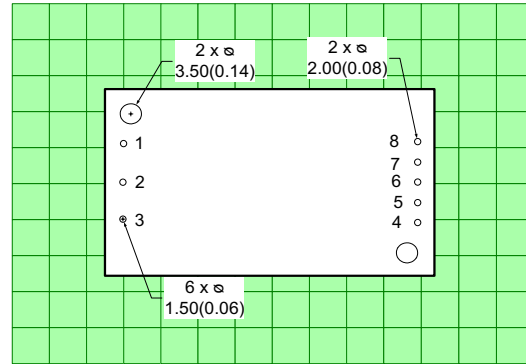
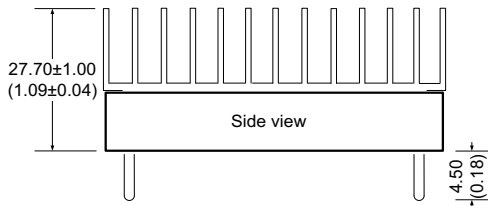
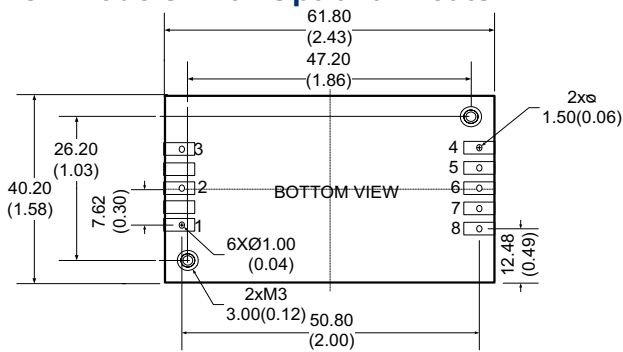
48V Model Dimensions



DIV: 2.54 x 2.54

Dimensions: mm (inch)
 Case Tolerance: ± 0.50 (0.02)
 Pin Tolerance: ± 1.50 (0.06)
 Pin diameter Tolerance: ± 0.10 (0.004)
 Pin 1, 2, 3, 5, 6 & 7 diameter: 1.00 (0.04)
 Pin 4 & 8 diameter: 1.50 (0.06)
 Mounting hole screw torque: max 0.4 N m

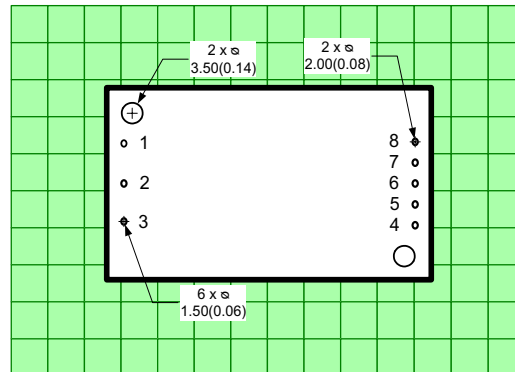
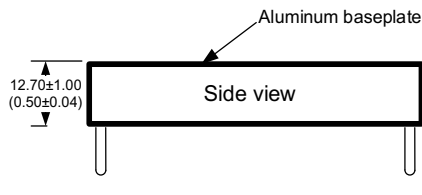
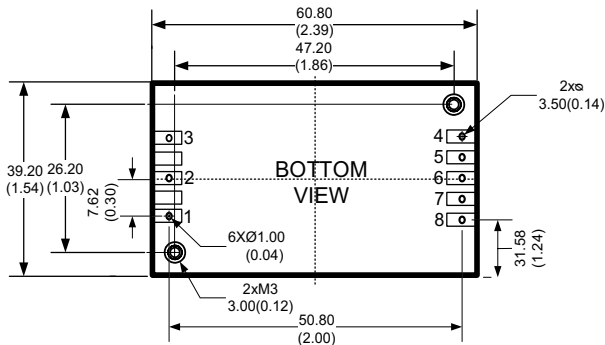
48V Models With Optional Heatsink



DIV: 2.54 x 2.54

Dimensions: mm (inch)
Case Tolerance: ±0.50 (0.02)
Pin Tolerance: ± 1.50 (0.06)
Pin diameter Tolerance: ±0.10 (0.004)
Pin 1, 2, 3, 5, 6 & 7 diameter: 1.00 (0.04)
Pin 4 & 8 diameter: 1.50 (0.06)
Mounting hole screw torque: max 0.4 N m

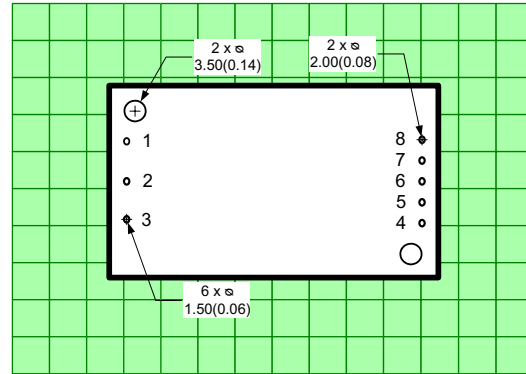
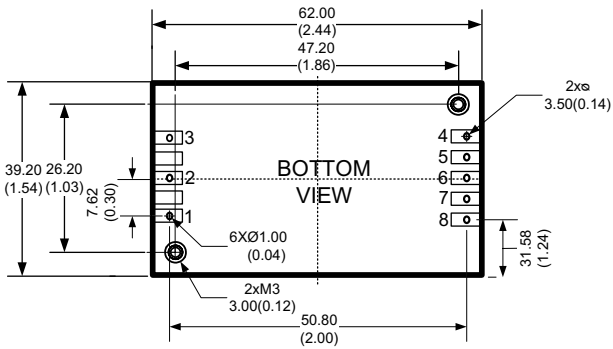
110V Model Dimensions



DIV: 2.54 x 2.54

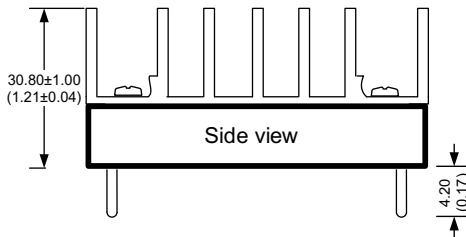
Dimensions: mm (inch)
Case Tolerance: ±0.50 (0.02)
Pin Tolerance: ± 1.50 (0.06)
Pin diameter Tolerance: ±0.10 (0.004)
Pin 1, 2, 3, 5, 6 & 7 diameter: 1.00 (0.04)
Pin 4 & 8 diameter: 1.50 (0.06)
Mounting hole screw torque: max 0.4 N m

110V Models With optional heatsink



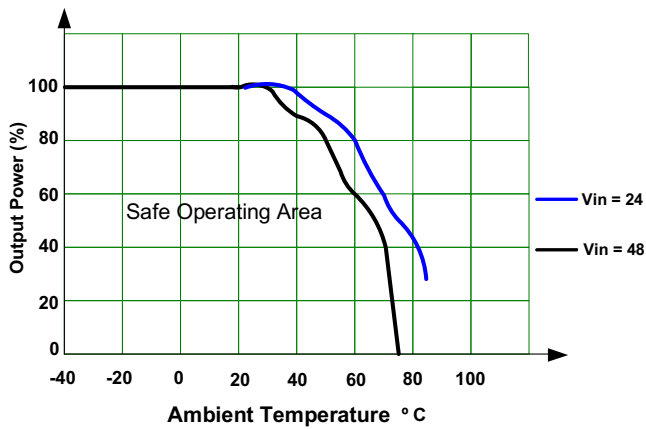
DIV: 2.54 x 2.54

Dimensions: mm (inch)
Case Tolerance: ± 0.50 (0.02)
Pin Tolerance: ± 1.50 (0.06)
Pin diameter Tolerance: ± 0.10 (0.004)
Pin 1, 2, 3, 5, 6 & 7 diameter: 1.00 (0.04)
Pin 4 & 8 diameter: 1.50 (0.06)
Mounting hole screw torque: max 0.4 N m

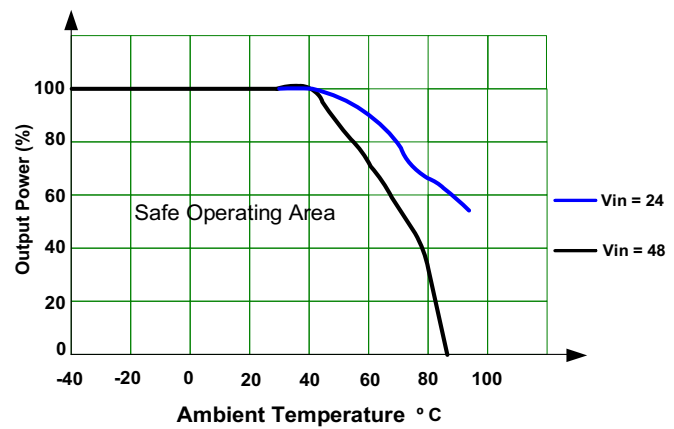


Derating

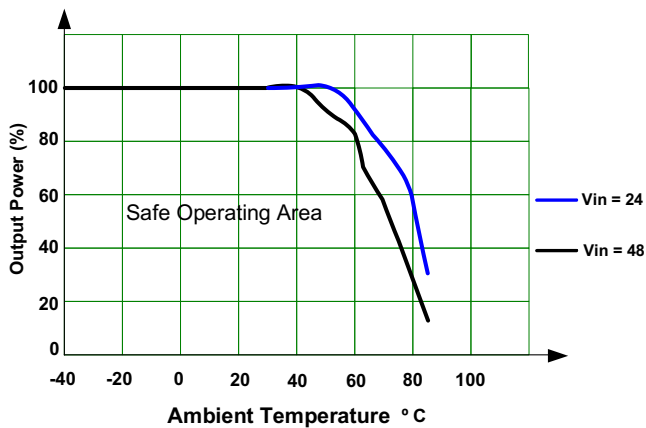
AM75QB-4805S-NZ Without heatsink



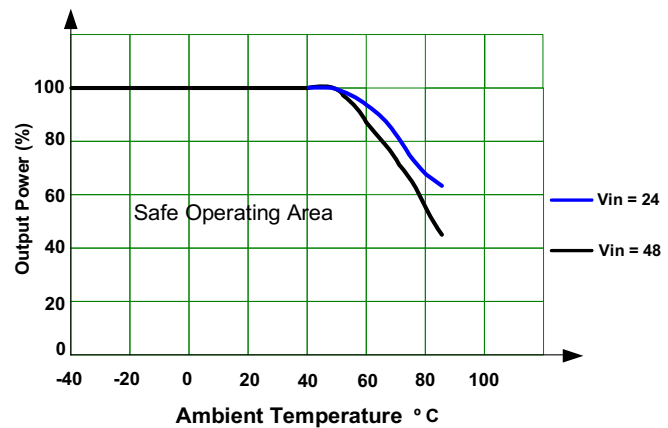
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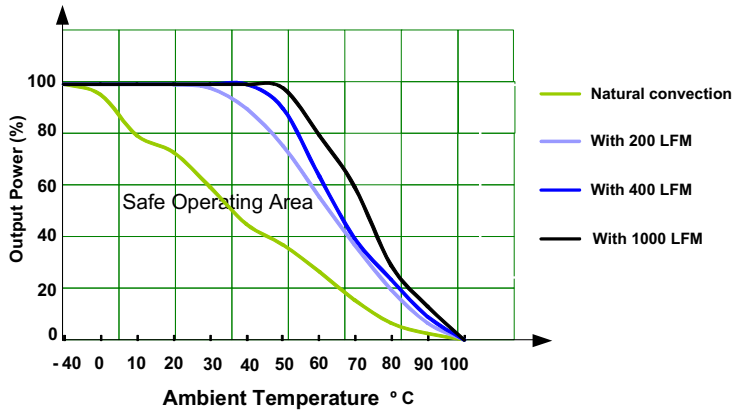
AM75QB-4812/15/24/48S-NZ Without heatsink



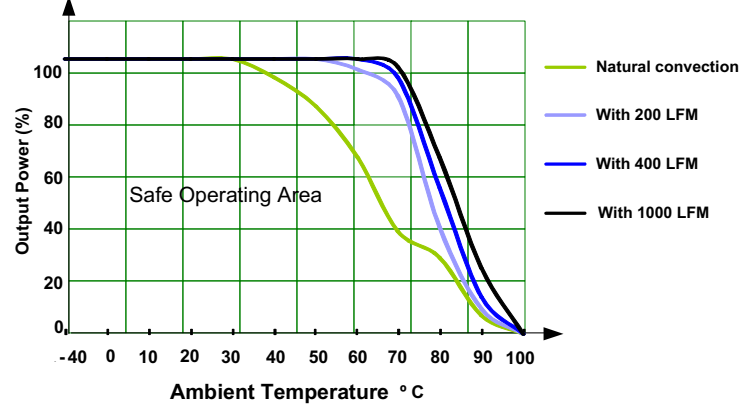
AM75QB-4812/15/24/48S-NZ With heatsink



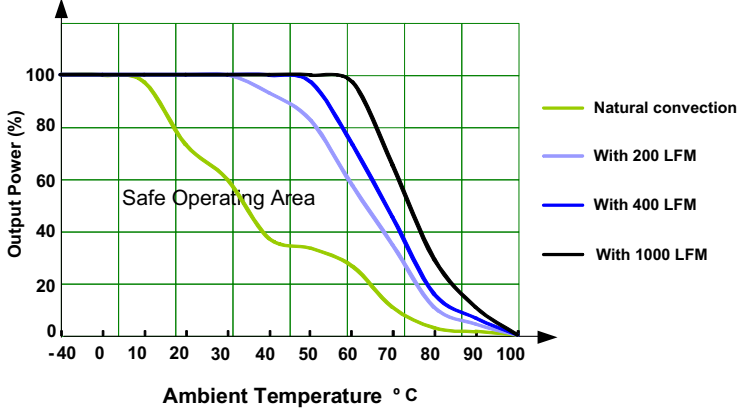
AM75QB-11005S-NZ Without heatsink



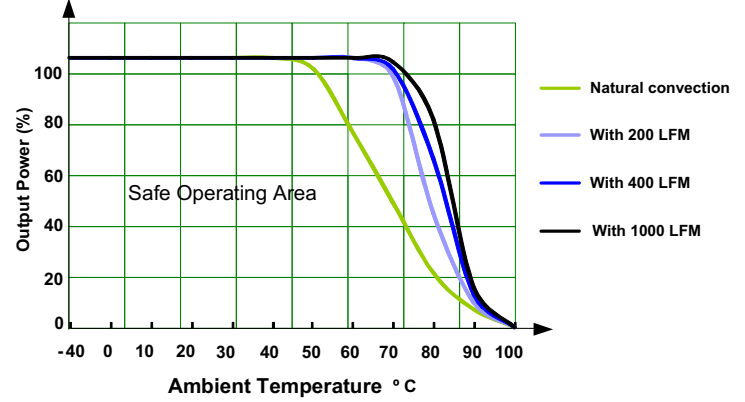
AM75QB-11005S-NZ With heatsink



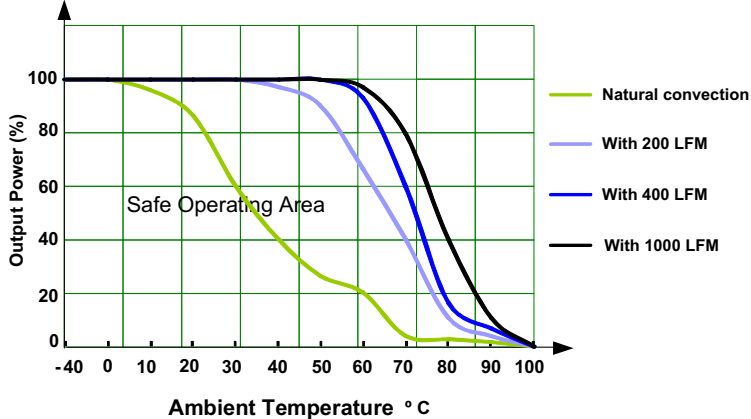
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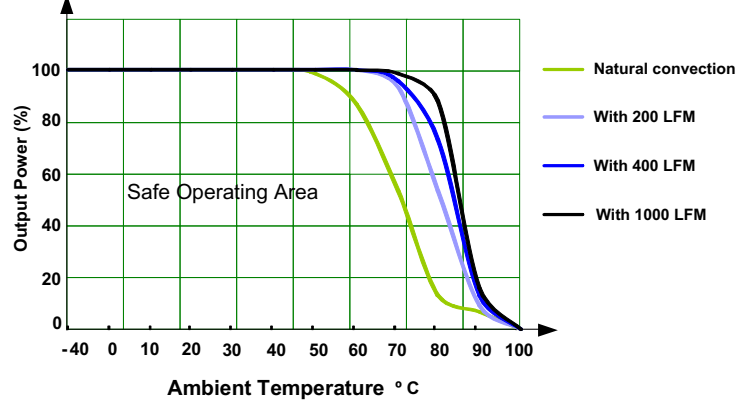
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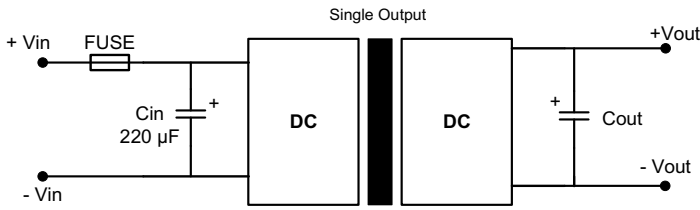
AM75QB-11024S-NZ Without heatsink



AM75QB-11024S-NZ With heatsink

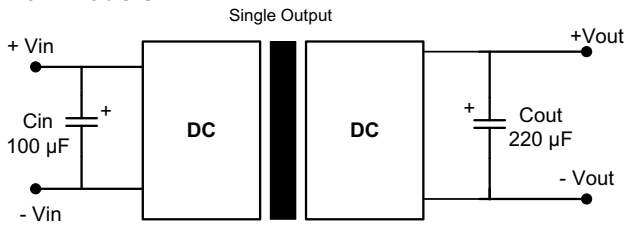


Typical application circuit
48V models

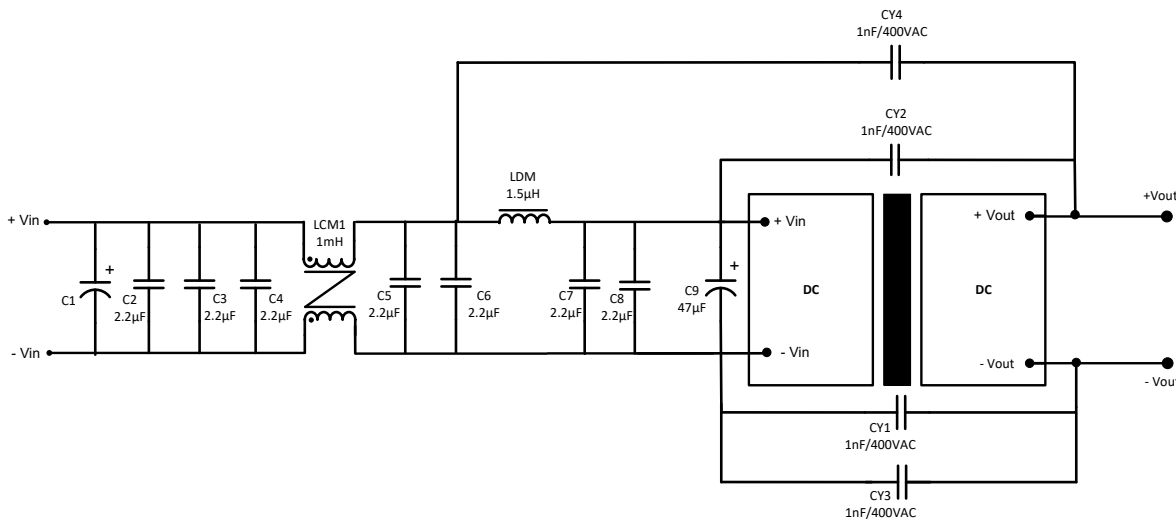


Output	5V	12V/15V	24V	48V
Cout	470 µF	220 µF	100 µF	100 µF

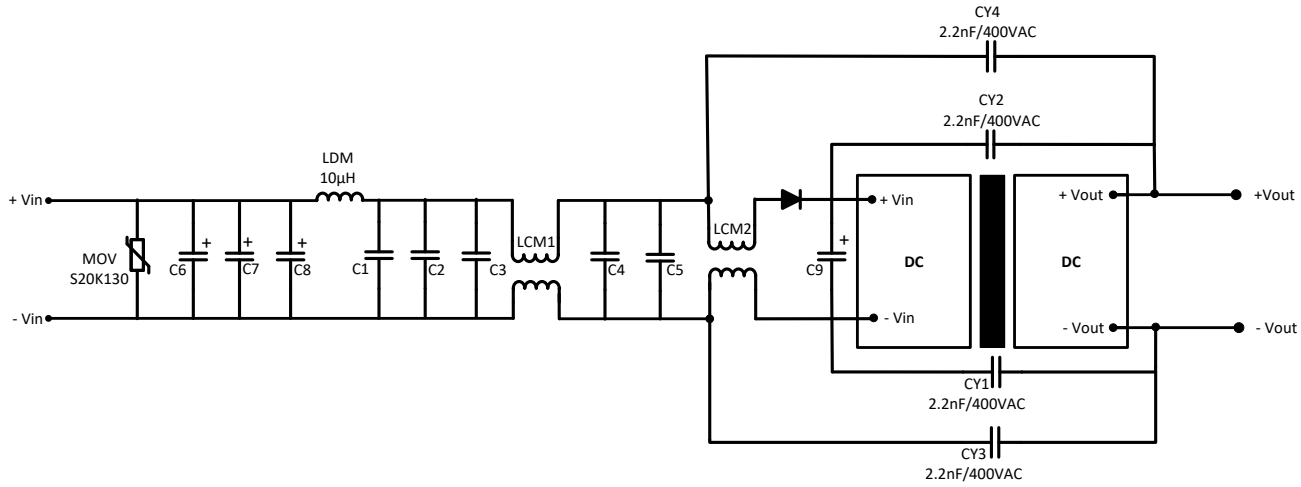
110V Models



Recommended External EMC filter
48V models



110V Models



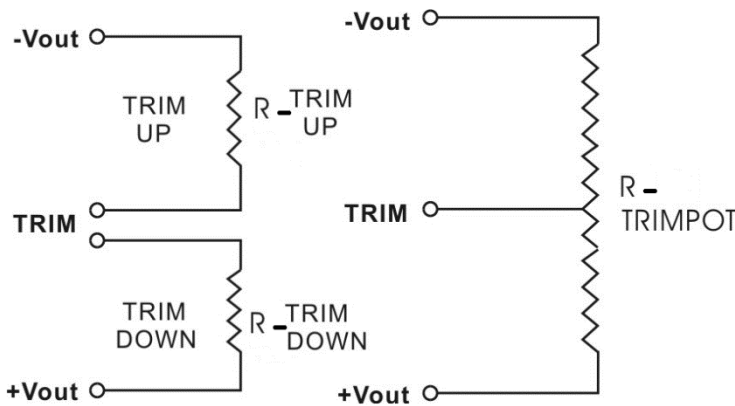
C1, C2, C3, C4 & C5	C6, C7, C8 & C9 (EC type)	LCM1	LCM2	D1
2.2 µF / 250V	100 µF / 400V	2200 µH *2	4700 µH *2	SF306

Trimming

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

Fixed Resistor

Variable Potentiometer



Leave open if not used.

AM75QB-xxx05S-NZ
xxx can be 48 or 110

Trim down %	1	2	3	4	5					
Vout (VDC)	4.95	4.9	4.85	4.8	4.75					
Rt down (KΩ)	54.906	33.833	22.748	15.91	11.272					
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)	-679.667	178.344	72.562	42.868	28.884	20.75	15.43	11.68	8.893	6.742

AM75QB-xxx12S-NZ

xxx can be 48 or 110

Trim down %	1	2	3	4	5					
Vout (VDC)	11.88	11.76	11.64	11.52	11.4					
Rt down (K Ω)	496.092	301.452	212.527	161.585	128.573					
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 (K Ω)	706.435	158.92	83.879	54.075	38.077	28.095	21.274	16.317	12.552	9.595

AM75QB-xxx15S-NZ

xxx can be 48

Trim down %	1	2	3	4	5					
Vout (VDC)	14.85	14.7	14.55	14.4	14.25					
Rt down (K Ω)	643.028	403.954	290.279	223.84	180.26					
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 (K Ω)	1276.5	188.456	95.426	60.777	42.679	31.559	24.034	18.602	14.498	11.287

AM75QB-xxx24S-NZ

xxx can be 48 or 110

Trim down %	1	2	3	4	5					
Vout (VDC)	23.76	23.52	23.28	23.04	22.8					
Rt down (K Ω)	1289.521	792.049	564.771	434.571	350.197					
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 (K Ω)	795.55	176.609	91.778	58.086	40.001	28.717	21.006	15.402	11.146	7.803

AM75QB-4848S-NZ

Trim down %	1	2	3	4	5					
Vout (VDC)	47.52	47.04	46.56	46.08	45.6					
Rt down (K Ω)	4953.999	2443.889	1606.786	1188.160	936.961					
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	48.48	48.96	49.44	49.92	50.4	50.88	51.36	51.84	52.32	52.8
Rt up (K Ω)	261.328	123.114	77.065	54.045	40.234	31.027	24.451	19.519	15.684	12.615

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