



FEATURES:

- Wide Input Range up to 160V
- Low no-load Power
- Efficiency up to 93%
- Up to 3000VDC I/O Isolation
- Remote ON/OFF Control
- Meet Railway Standard: EN50155
- Industry Standard: 1/4 Brick
- Operating temperature -40°C to +100°C
- Over Current, Over Voltage, Over Temperature & Continuous Short Circuit Protection

Models Single output



Model	Input Voltage (VDC)	Input Current No load/Full load (mA)	Output Voltage (VDC)	Output Current max (A)	Max Capacitive load (µF)	Efficiency (%)
AM100QB-2405SH22-NZ	24 (9-36)	160/4789	5	20	6000	89
AM100QB-2412SH22-NZ	24 (9-36)	160/4789	12	8.3	2000	90
AM100QB-2415SH22-NZ	24 (9-36)	160/4789	15	6.7	2000	90
AM100QB-2424SH22-NZ	24 (9-36)	160/4789	24	4.2	1000	90
AM100QB-2428SH22-NZ	24 (9-36)	160/4789	28	3.6	1000	90
AM100QB-2448SH22-NZ	24 (9-36)	160/4789	48	2.1	470	90
AM100QB-4805SH22-NZ	48 (18-75)	80/2341	5	20	6000	91
AM100QB-4812SH22-NZ	48 (18-75)	80/2341	12	8.3	2000	92
AM100QB-4815SH22-NZ	48 (18-75)	80/2341	15	6.7	2000	93
AM100QB-4824SH22-NZ	48 (18-75)	80/2341	24	4.2	1000	92
AM100QB-4848SH22-NZ	48 (18-75)	80/2341	48	2.1	470	92
AM100QB-11012S-NZ	110 (66-160)	15/1044	12	8.333	6,000	89
AM100QB-11015S-NZ	110 (66-160)	15/1044	15	6.667	4,700	89
AM100QB-11024S-NZ	110 (66-160)	15/1010	24	4.167	3,000	92

*Add suffix "-K" on nominal input 24V and 110V models only for optional heatsink

**Add suffix "-M" on nominal input 24V and 48V models only for optional aluminum alloy bottom case

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	24V models	9-36	40	VDC
	48V models	18-75	80	
	110V models	66-160	170	
Filter	π(Pi) Network			
Startup time		25		ms
Absolute Maximum Rating	24V models		50	VDC
	48V models		90	
	110V models		180	
Peak Input Voltage time			1,000	ms
Input reflected ripple current	24V models	30		mA p-p
	48V models	30		
	110V models	50		
Under Voltage Lockout (On/Off)	24V models	7.5		VDC
	48V models, 5V/15V output	16.5		
	48V models, others	15.5		
	110V models	58		
Remote On / OFF Control	ON: 3.5 ~ 12Vdc or Open Circuit OFF: 0 ~ 1.2Vdc or Ctrl connected to -Vin Idle current: 2~65mA for 24V models, 2~10mA for 48V & 110V models			VDC

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	24V & 48V models, 60s		2250	VDC
	110V models, 60s		3000	
Input to Case	24V models, 60s		1600	VDC
	48V/110V models, 60s		1500	
Output to Case	24V/48V models, 60s		500	VDC
	110V models, 60s		1500	
Resistance		>1000		MOhm
Capacitance		2200		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units	
Voltage accuracy	24V & 48V models	±1	±3	%	
	110V models		±2		
Over voltage protection	Zener Diode Clamp				
Over load protection	24V models	110~150		% of Iout	
	48V models	110~190			
	110V models	110~180			
Short Circuit protection	Continuous, Auto-recovery				
Thermal shutdown	On Case	115		°C	
Line voltage regulation	24V & 48V models	±0.2	±0.5	% of Vin	
	110V models	±0.3			
Load voltage regulation	0% to 100% Full Load,	24V/48V	±0.5	±0.75	%
		110V		±0.5	
Temperature coefficient			±0.03	%/°C	
Ripple & Noise	20MHz Bandwidth, 24V/48V Vin, 12V/15V Vout	100	200	mV p-p	
	20MHz Bandwidth, 24V/48V Vin, others	130	250		
	20MHz Bandwidth, 110V Vin	100	300		
Transient Response Deviation	24V/48V models, 5V Vout	±3	±7.5	% of Max	
	Others	±3	±5		
Transient Recovery		300	500	µsec	
Voltage adjustment range	24V Vin, 5V/15V Vout models	-9/+10		%	
	24V others	±10			
	48V/110V models	-5/+10			

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	24V/48V models, 100% load	250		KHz
	110V models, 100% load	220		
Operating temperature	24V/48V models with derating	-40 to +85		°C
	110V models with derating	-40 to +100		
Storage temperature		-55 to +125		°C
Maximum case temperature			110	°C
Cooling	Free Air Convection or Forced Convection 200-1000 LFM airflow			
Humidity			95	% RH
Case material	Aluminum alloy or non-conductive Black Plastic (UL94V-0 rated)			
Weight	24V models	80		g
	48V models	70		
	110V models	46		
Weight with optional aluminum case	24V models	100		
	48V models	90		
Weight with Heatsink	24V models	116		
	110V models	76		
Dimensions (L x W x H)	24V/48V models	2.43 x 1.65 x 0.50 inches	61.8 x 40.2 x 12.7 mm	
	110V models	2.394 x 1.543 x 0.5 inches	60.8 x 39.2 x 12.7 mm	
Dimensions (L x W x H) with Aluminum case	24V & 48V models only	2.44 x 2.20 x 0.57 inches	62.0 x 56.0 x 14.6 mm	
Dimensions (L x W x H) with Heatsink	24V models only	2.43 x 1.65 x 1.09 inches	61.8 x 40.2 x 27.7 mm	
	110V models only	2.44 x 1.54 x 1.21 inches	62.0 x 39.2 x 30.8 mm	

General Specifications (Continued)

Parameters	Conditions	Typical	Maximum	Units
MTBF		>500,000 hrs (MIL-HDBK-217 F at +25 °C)		
Maximum soldering temperature	1.5mm from case for 10 sec	260		°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 all models

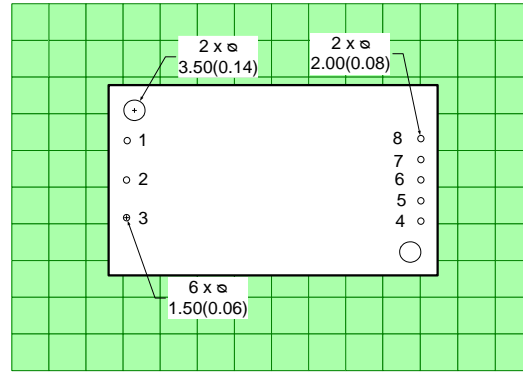
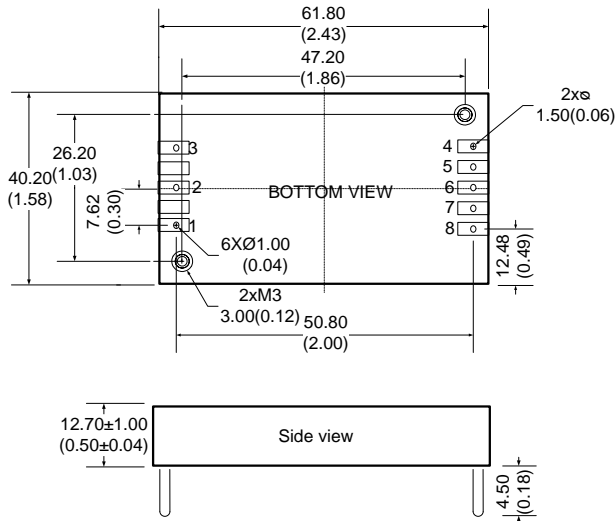
Safety Specifications

Parameters				
Standards	EMI - Conducted and radiated emission	24V	CISPR32/EN55032, class A and class B with the recommended EMC circuit Meet EN50121-3-2, CE&RE with the recommended EMC circuit Meet EN55016-2-1	
		48V	CISPR32/EN55032, class A and class B with the recommended EMC circuit Meet EN50121-3-2, CE & RE with the recommended EMC circuit	
		110V	CISPR32/EN55032, Class A, Class B with the recommended EMC circuit	
	Electrostatic Discharge Immunity	24V/48V	IEC 61000-4-2, Contact ±6KV Air ±8KV, Criteria B Meet EN50121-3-2, Contact ±6KV Air ±8KV	
		110V	IEC 61000-4-2, Contact ±6KV Air ±8KV, Criteria B	
	RF, Electromagnetic Field Immunity	24V/48V	IEC 61000-4-3, 20V/m, Criteria A Meet EN50121-3-2, 20V/m	
		110V	IEC 61000-4-3, 10V/m, Criteria A	
	Electrical Fast Transient/Burst Immunity	24V/48V	IEC 61000-4-4, ±2kV with the recommended EMC circuit, Criteria B Meet EN50121-3-2, ±2kV	
		110V	IEC 61000-4-4, ±2kV with the recommended EMC circuit, Criteria B	
	Surge Immunity	24V	Meet EN50121-3-2, L to L ±1KV (42Ω 0.5uF) with the recommended EMC circuit	
		48V	Meet EN50121-3-2, L to L ±1KV (42Ω 1.2/50us_ with the recommended EMC circuit	
		110V	IEC 61000-4-5, L to L ±2KV with the recommended EMC circuit, Criteria B Meet EN50155, +/-1.8kV (5/50us) with the recommended EMC circuit Criteria B	
	RF, Conducted Disturbance Immunity	24V/48V	IEC 61000-4-6, 10Vrms, Criteria A Meet EN50121-3-2, 10Vrms	
		110V	IEC 61000-4-6, 10Vrms, Criteria A	
	Immunity of Short interruption	110V	Meet EN50155, 100%-0%, 10ms, Criteria B	

Pin Out Specifications

Pin	Single
1	+V Input
2	On/Off Control
3	-V Input
4	Vo -
5	Sense -
6	Trim
7	Sense +
8	Vo +

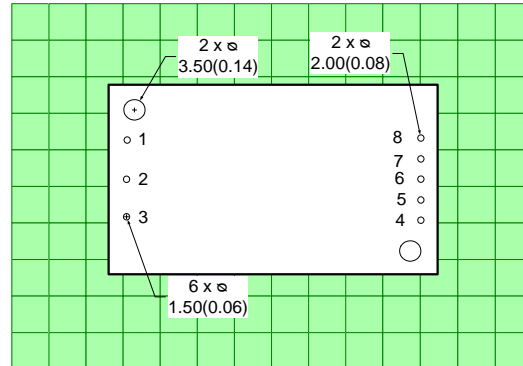
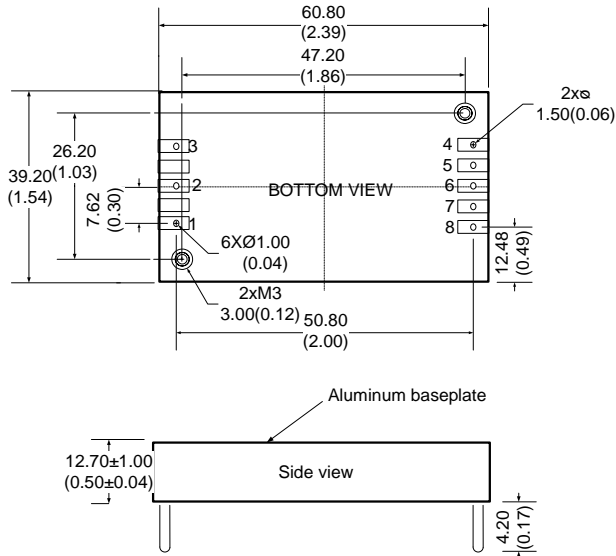
24V & 48V Models Dimensions



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

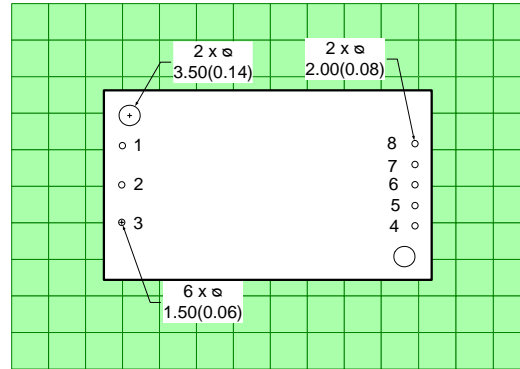
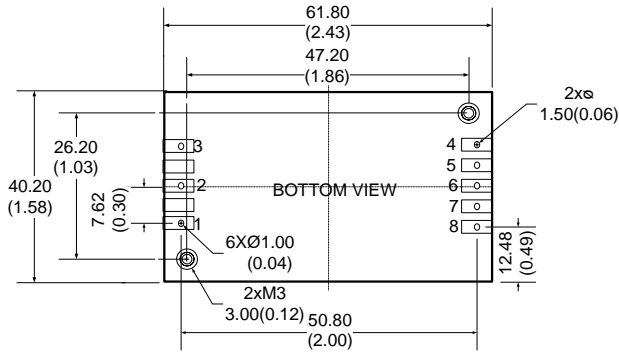
110V Models Dimensions



DIV: 2.54 x 2.54

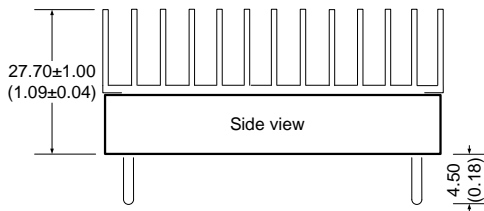
Dimensions: mm (inch)
 Case Tolerance: ±0.50 (0.02)
 Pin Tolerance: ± 1.50 (0.06)
 Pin diameter Tolerance: ±0.10 (0.004)
 Pin 1, 2, 3, 5, 6 & 7 diameter: 1.00 (0.04)
 Pin 4 & 8 diameter: 1.50 (0.06)
 Mounting hole screw torque: max 0.4 N m

24V Models Dimensions with Optional Heatsink (-K option)

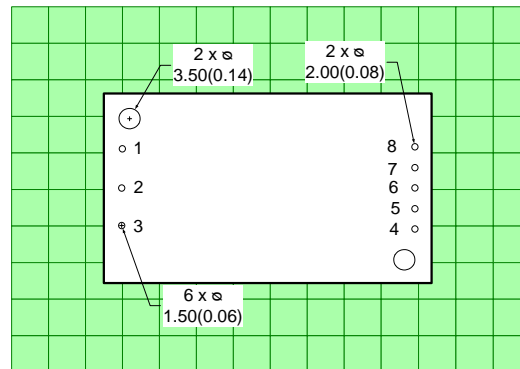
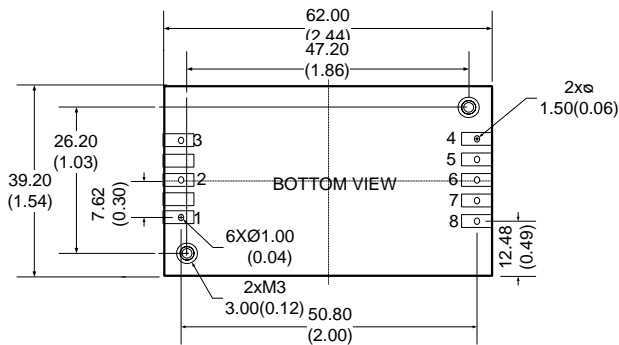


DIV: 2.54 x 2.54

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

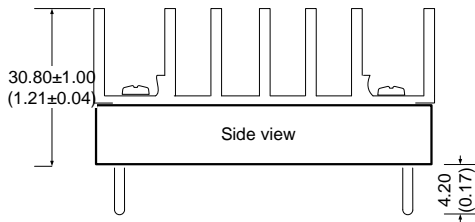


110V Models Dimensions with Optional Heatsink (-K option)

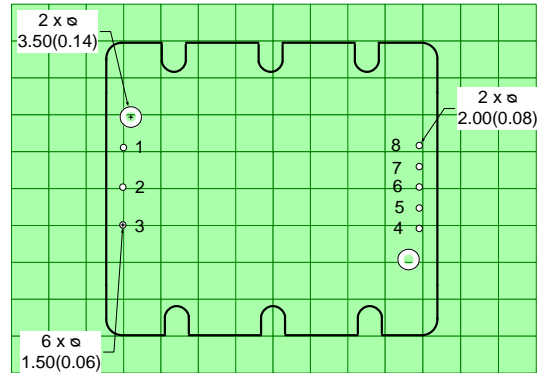
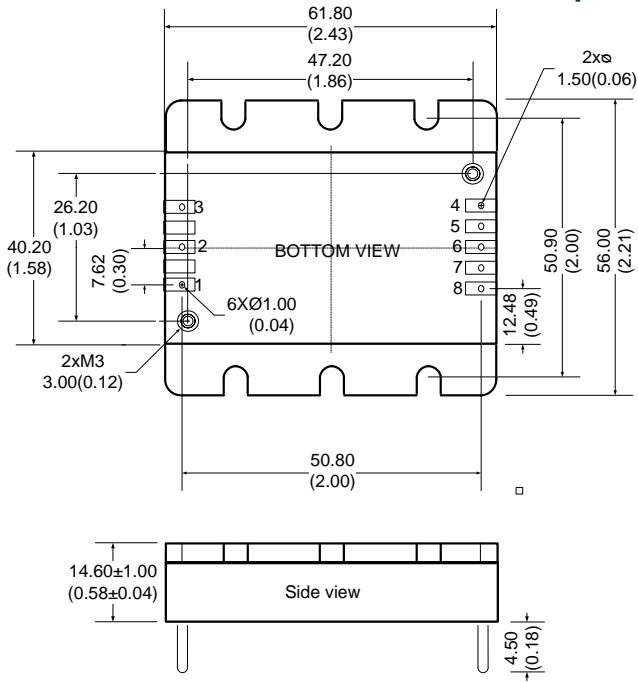


DIV: 2.54 x 2.54

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



24V & 48V Models Dimensions with Optional Aluminum Alloy Case (-M option)

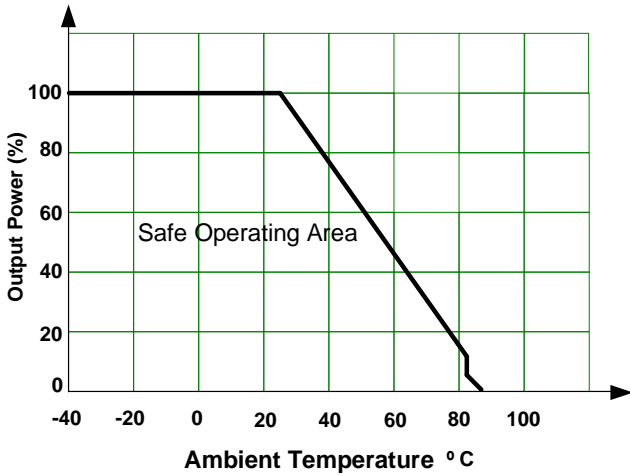


DIV: 2.54 x 2.54

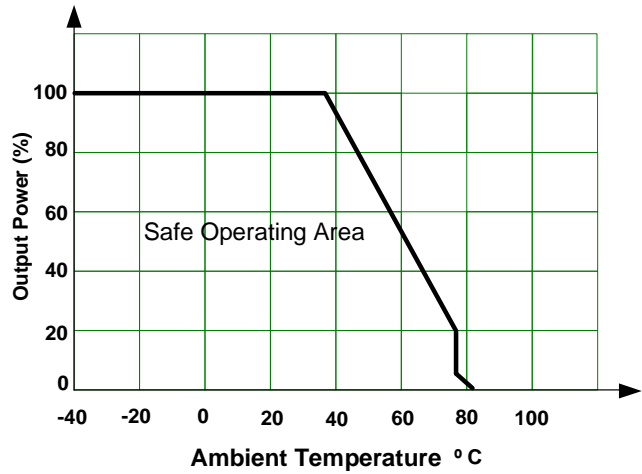
Dimensions: mm (inch)
Case Tolerance: ± 0.50 (0.02)
Pin Tolerance: ± 1.50 (0.06)
Pin diameter Tolerance: ± 0.10 (0.004)
Pin 1, 2, 3, 5, 6 & 7 diameter: 1.00 (0.04)
Pin 4 & 8 diameter: 1.50 (0.06)
Mounting hole screw torque: max 0.4 N m

Derating

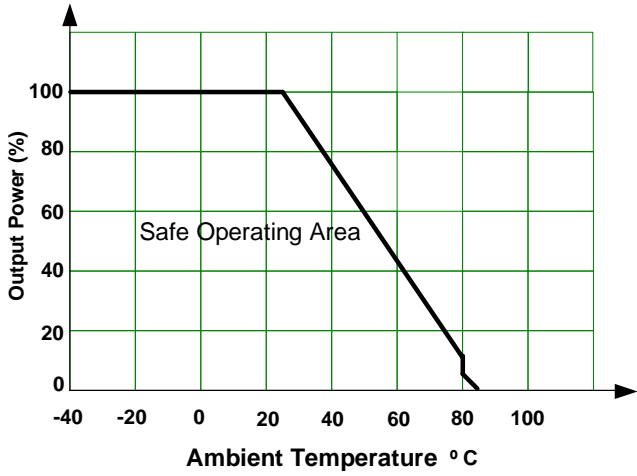
AM100QB-2405SH22-NZ-K(with Heatsink)
Vin=24V



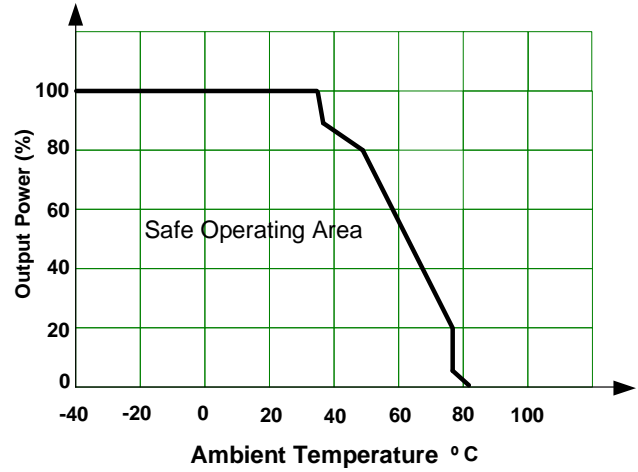
AM100QB-2412SH22-NZ-K(with Heatsink)
Vin=24V



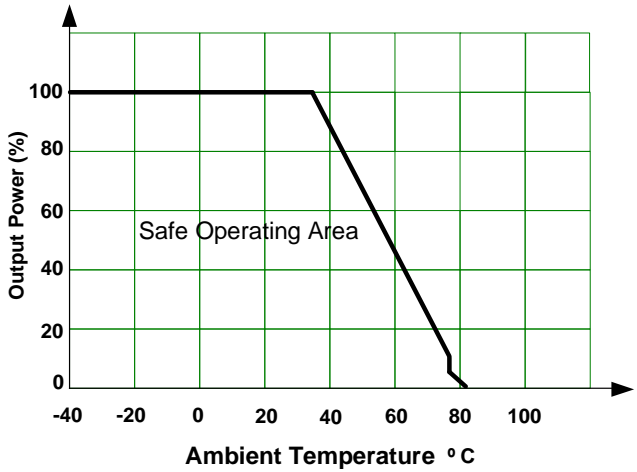
AM100QB-2415SH22-NZ-K(with Heatsink)
Vin=24V



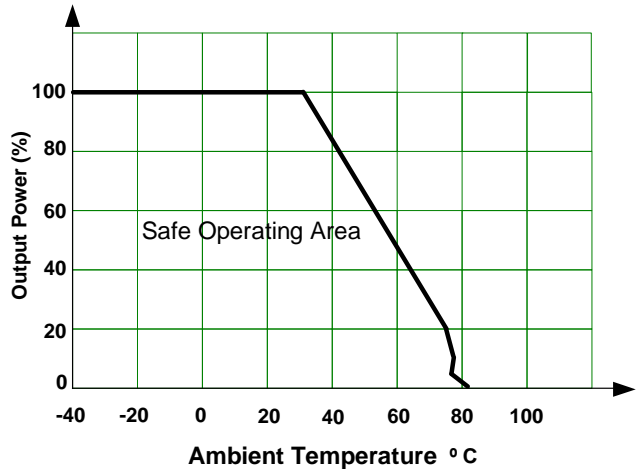
AM100QB-2424SH22-NZ-K(with Heatsink)
Vin=24V



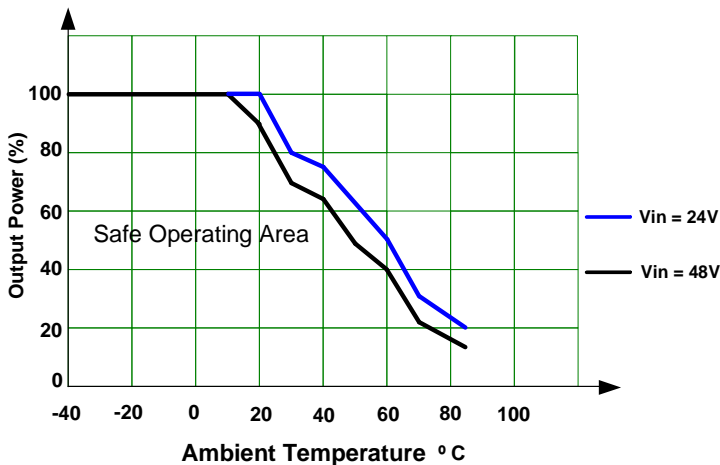
AM100QB-2428SH22-NZ-K(with Heatsink)
Vin=24V



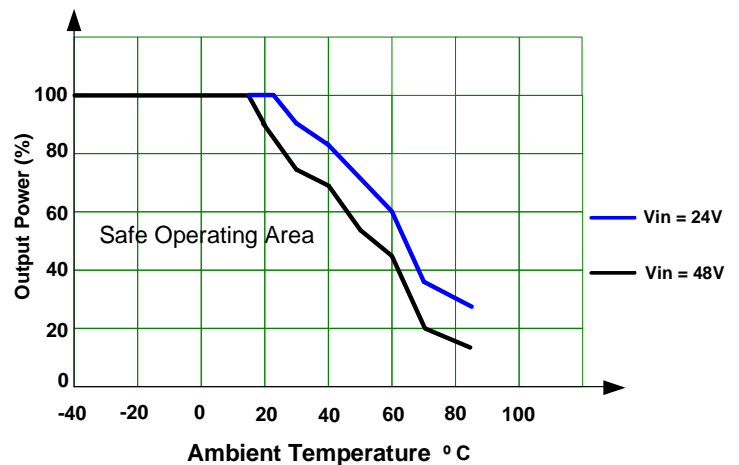
AM100QB-2448SH22-NZ-K(with Heatsink)
Vin=24V



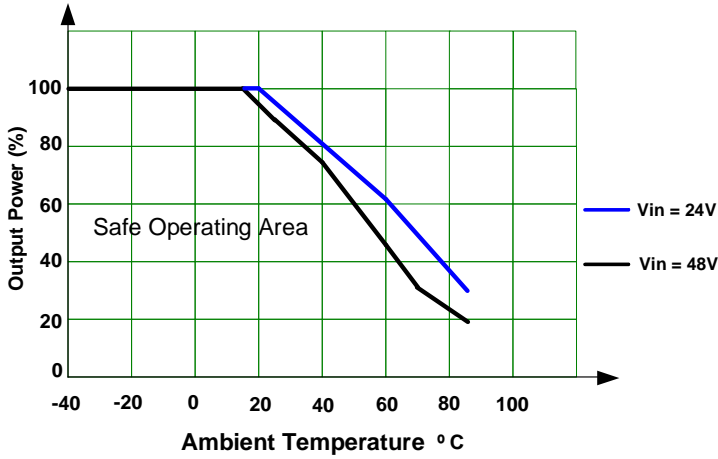
AM100QB-4805S-NZ



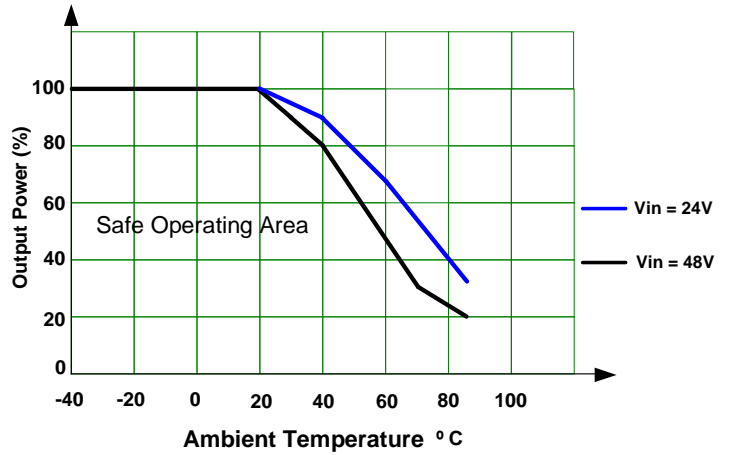
AM100QB-4805S-NZ With Optional Aluminum case



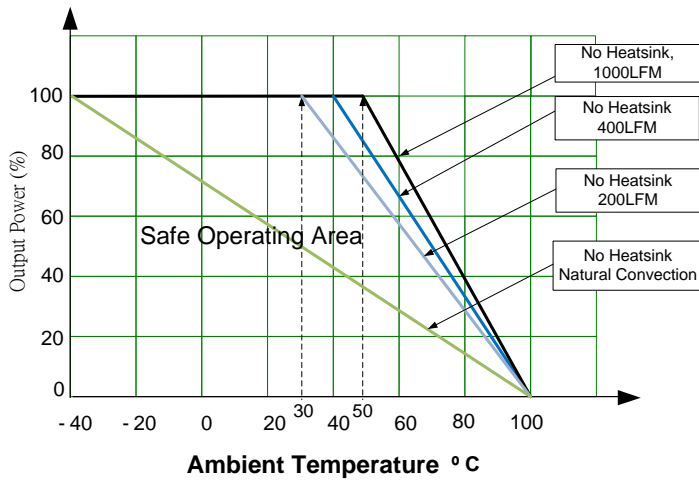
AM100QB-4812/15/24/48S-NZ



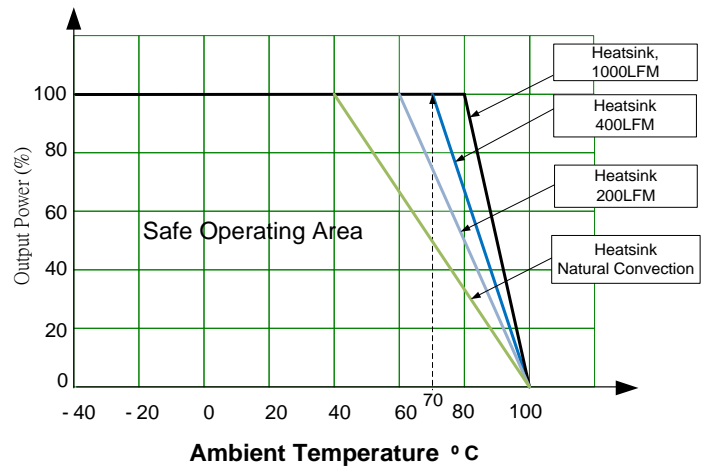
AM100QB-4812/15/24/48S-NZ With Optional Aluminum Case



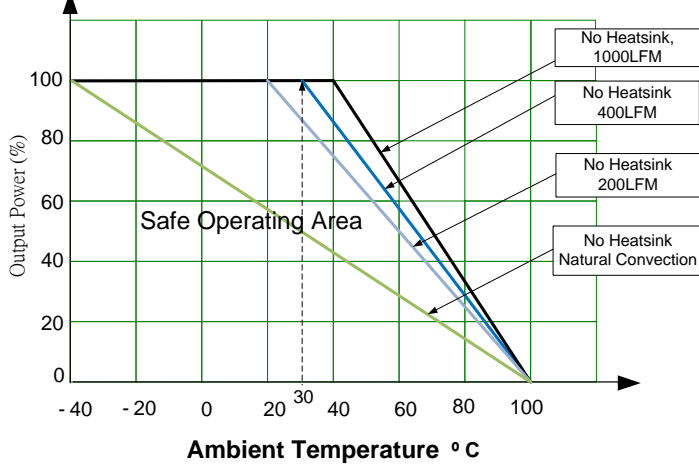
AM100QB-11012S-NZ



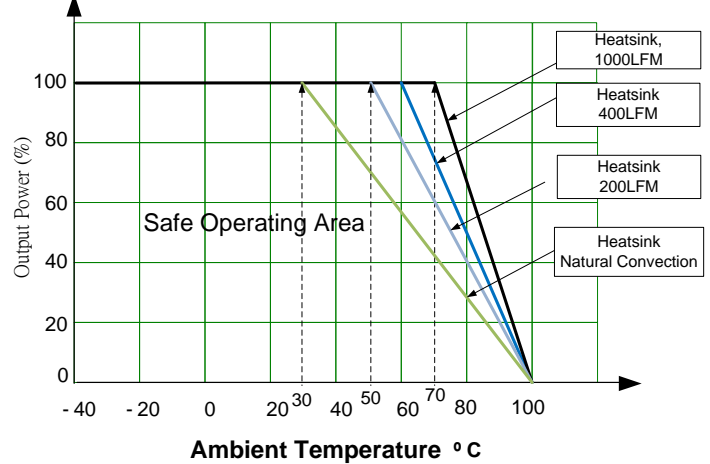
AM100QB-11012S-NZ-K

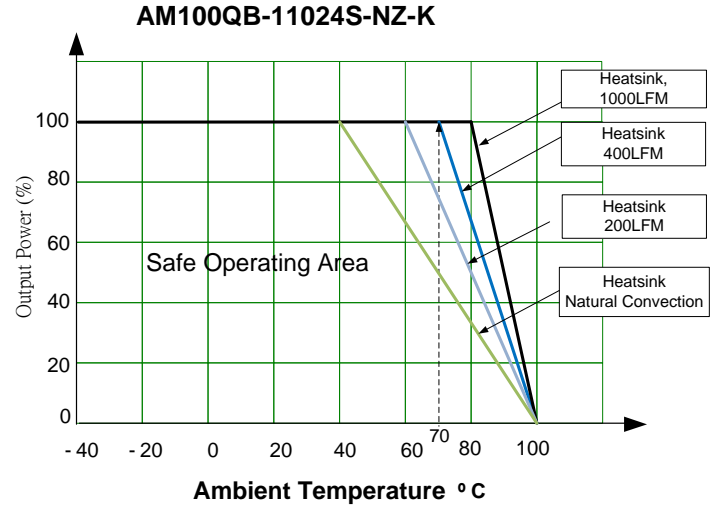
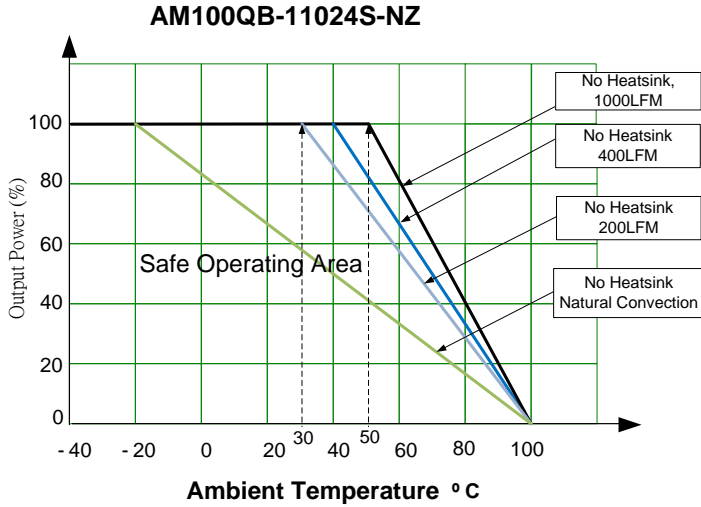


AM100QB-11015S-NZ



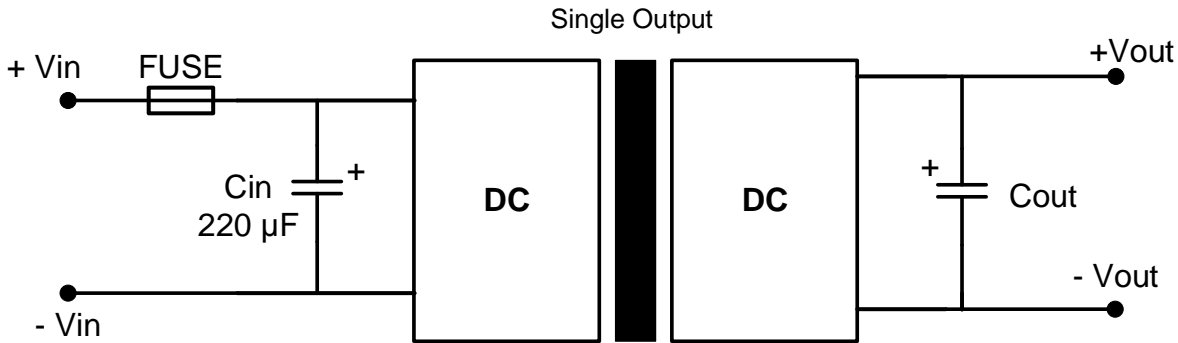
AM100QB-11015S-NZ-K





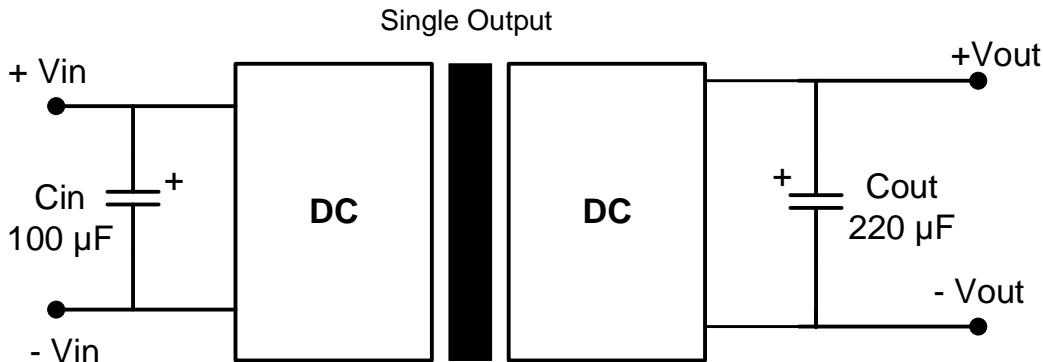
Typical Application Circuits

24V & 48V Models

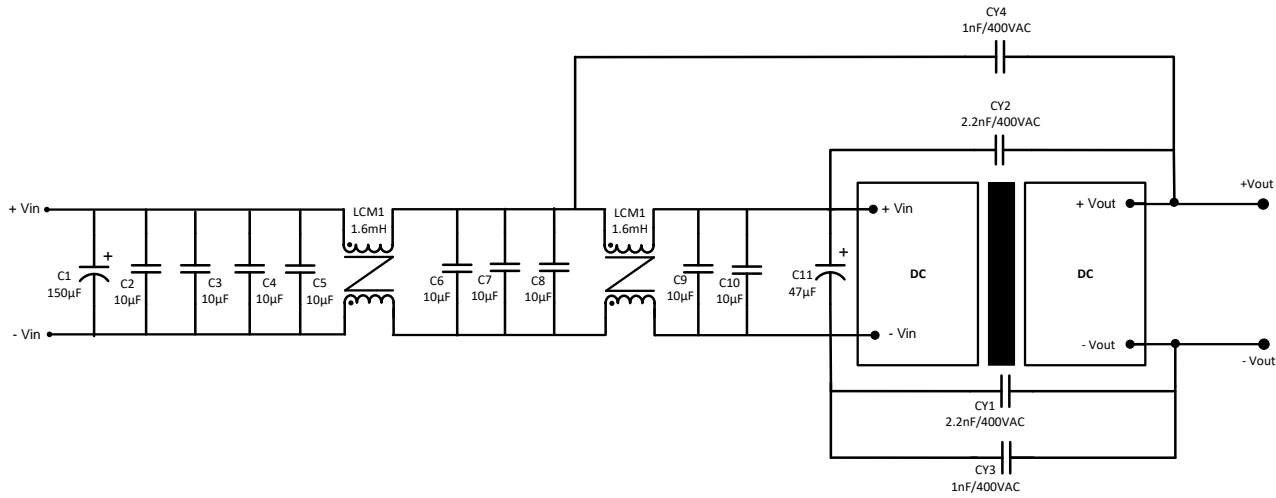


Output	5V	12V/15V	24V	48V
Cout	470 µF	220 µF	100 µF	100 µF
FUSE	20A for 24V models, 10A for 48V models			

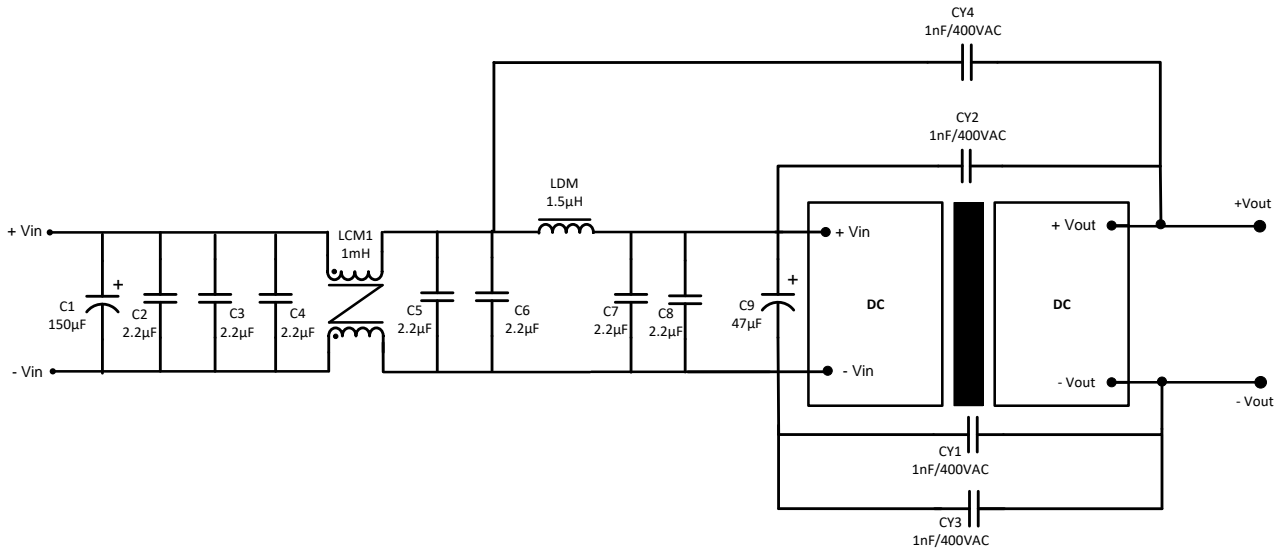
110V Models



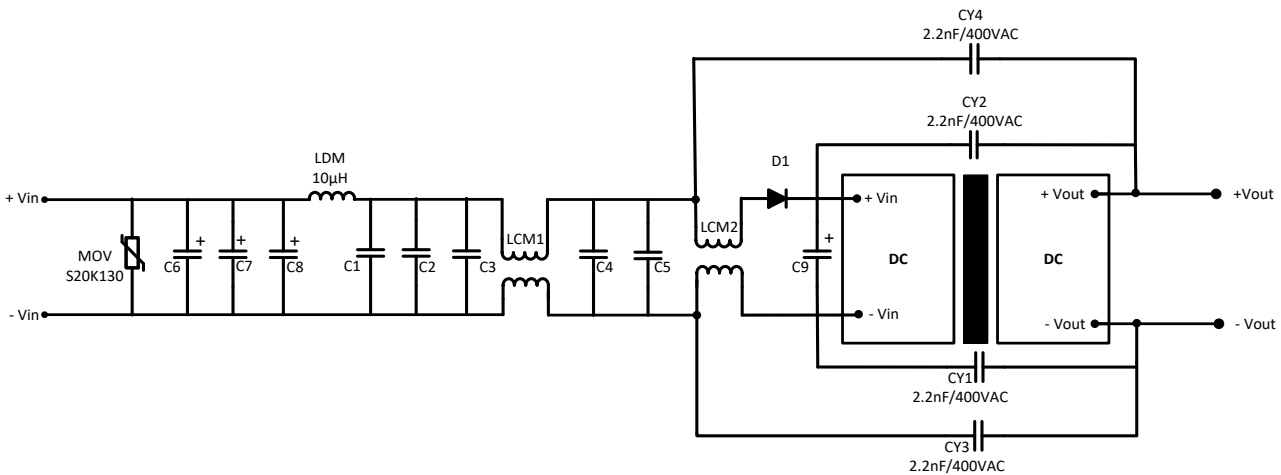
Recommended EMC Circuits
24V Models



48V Models



110V Models

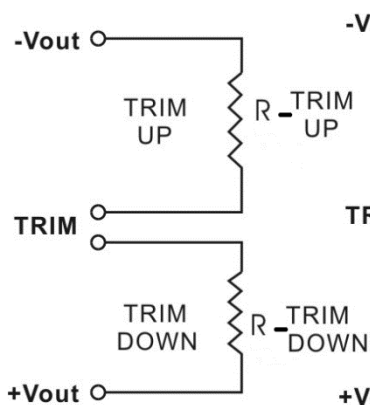


MOV	S20K130 (Varistor)
C6, C7, C8, C9	100uF/400V (Electrolytic Capacitor)
C1, C2, C3, C4, C5	2.2uF/250V
LDM	10uH (Shielded Inductor)
LCM1	2200uH, 3.0A min.
LCM2	4400uH, 3.0A min.
D1	SF306
CY1, CY2, CY3, CY4	2.2nF / 400Vac (Y2 Safety Capacitor)

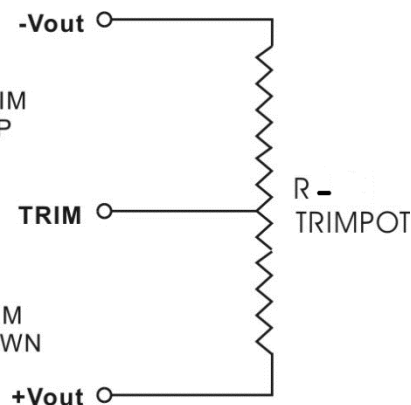
Trimming

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

Fixed Resistor



Variable Potentiometer



Leave open if not used.

AM100QB-xx05SH22-NZ, xx can be 24 or 48, 24V model can only be trimmed down to 9%, 48V model can only be trimmed down to 5%

Trim down %	1	2	3	4	5	6	7	8	9	
Vout (VDC)	4.95	4.9	4.85	4.8	4.75	4.7	4.65	4.6	4.55	
Rt down (KΩ)	82.978	46.049	29.637	20.360	14.396	10.240	7.177	4.827	2.966	
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)	369.500	98.429	53.250	34.647	24.500	18.111	13.719	10.514	8.071	6.149

AM100QB-xx12SH22-NZ, xx can be 24 or 48, 48V model can only be trimmed down to 5%

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)	496.092	301.452	212.527	161.585	128.573	105.442	88.332	75.164	64.716	56.223
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)	706.435	158.920	83.879	54.075	38.077	28.095	21.274	16.317	12.552	9.595

AM100QB-xx15SH22-NZ, xx can be 24 or 48, 24V model can only be trimmed down to 9%, 48V model can only be trimmed down to 5%

Trim down %	1	2	3	4	5	6	7	8	9	
Vout (VDC)	14.85	14.7	14.55	14.4	14.25	14.1	13.95	13.8	13.65	
Rt down (KΩ)	965.116	508.787	339.586	251.370	197.224	160.605	134.188	114.231	98.623	
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)	269.667	113.379	67.878	46.190	33.499	25.168	19.279	14.896	11.507	8.808

AM100QB-xx24SH22-NZ, xx can be 24 or 48, 48V model can only be trimmed down to 5%

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)	1289.000	794.923	568.667	438.904	354.754	295.763	252.115	218.514	191.847	170.170
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)	819.689	182.714	97.138	63.264	45.107	33.788	26.057	20.440	16.176	12.827

AM100QB-2428SH22-NZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	27.72	27.44	27.16	26.88	26.6	26.32	26.04	25.76	25.48	25.2
Rt down (KΩ)	1893.257	1078.622	746.260	565.720	452.316	374.471	317.728	274.529	240.544	213.107
Trim up %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	28.28	28.56	28.84	29.12	29.4	29.68	29.96	30.24	30.52	30.8
Rt up (KΩ)	404.380	145.773	84.449	56.989	41.413	31.378	24.374	19.208	15.240	12.097

AM100QB-2448SH22-NZ

Trim down %	1	2	3	4	5	6	7	8	9	10
Vout (VDC)	47.52	47.04	46.56	46.08	45.6	45.12	44.64	44.16	43.68	43.2
Rt down (KΩ)	3048.697	1860.498	1328.208	1026.195	831.601	695.770	595.575	518.620	457.658	408.174
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 (KΩ)	717.550	185.538	101.170	66.769	48.087	36.354	28.301	22.432	17.963	14.448

AM100QB-4848SH22-NZ, can only be trimmed down to 5%

Trim down %	1	2	3	4	5					
Vout (VDC)	47.52	47.04	46.56	46.08	45.6					
Rt down (KΩ)	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 (KΩ)	261.328	123.114	77.065	54.045	40.234	31.027	24.451	19.519	15.684	12.615

AM100QB-11012S-NZ

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)	496.091	301.451	212.527	161.585	128.573	105.441	88.332	75.163	64.715	56.223
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)	706.435	158.920	83.878	54.074	38.076	28.095	21.274	16.316	12.551	9.594

AM100QB-11015S-NZ

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)	643.028	403.954	290.279	223.84	180.26	149.474	126.568	108.86	94.761	83.271
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)	1276.5	188.455	95.426	60.777	42.679	31.559	24.034	18.602	14.498	11.287

AM100QB-11024S-NZ

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)	1289.521	792.049	564.771	434.571	350.197	291.076	247.346	213.69	186.986	165.281
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)	795.55	176.609	91.778	58.086	40.001	28.717	21.006	15.402	11.146	7.803

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 by Aimtec; refer to www.aimtec.com for the most current product specifications. **2.** Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. **3.** Mechanical drawings and specifications are for reference only. **4.** All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. **5.** Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. **6.** This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. **7.** Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.