aimtec
Your Power Partner

Series AM1G-Z
1 Watt | DC-DC Converter

FEATURES:

- RoHS compliant
- High efficiency up to 76%
- Remote On/Off Control
- 8 pin SIP package
- Operating temperature -40°C to + 85°C
- Continuous Short Circuit Protection
- Wide 2:1 input range
- Input / Output Isolation 1000 & 3000VDC

RoHS CE

Models
Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current Max (mA)	Isolation (VDC)	Capacitor Load (µF)	Input Current Full Load | No Load (mA)		Efficiency (%)
AM1G-0503SZ	4.5-9	3.3	303	1000	3300	303	76	65
AM1G-0505SZ	4.5-9	5	200	1000	3300	200	50	65
AM1G-0507SZ	4.5-9	7.2	139	1000	470	180	43	65
AM1G-0509SZ	4.5-9	9	111	1000	470	111	28	66
AM1G-0512SZ	4.5-9	12	83	1000	470	83	21	66
AM1G-0515SZ	4.5-9	15	67	1000	470	67	17	66
AM1G-0518SZ	4.5-9	18	56	1000	220	52	15	66
AM1G-0524SZ	4.5-9	24	41	1000	220	42	10	66
AM1G-1203SZ	9-18	3.3	303	1000	3300	303	76	66
AM1G-1205SZ	9-18	5	200	1000	3300	200	50	68
AM1G-1207SZ	9-18	7.2	139	1000	470	180	43	68
AM1G-1209SZ	9-18	9	111	1000	470	111	28	72
AM1G-1212SZ	9-18	12	83	1000	470	83	21	72
AM1G-1215SZ	9-18	15	67	1000	470	67	17	72
AM1G-1218SZ	9-18	18	56	1000	220	52	15	70
AM1G-1224SZ	9-18	24	41	1000	220	42	10	70
AM1G-2403SZ	18-36	3.3	303	1000	3300	303	76	65
AM1G-2405SZ	18-36	5	200	1000	3300	200	50	68
AM1G-2407SZ	18-36	7.2	139	1000	470	180	43	68
AM1G-2409SZ	18-36	9	111	1000	470	111	28	70
AM1G-2412SZ	18-36	12	83	1000	470	83	21	72
AM1G-2415SZ	18-36	15	67	1000	470	67	17	72
AM1G-2418SZ	18-36	18	56	1000	220	52	15	70
AM1G-2424SZ	18-36	24	41	1000	220	42	10	70
AM1G-4803SZ	36-72	3.3	303	1000	3300	303	76	64
AM1G-4805SZ	36-72	5	200	1000	3300	200	50	65
AM1G-4807SZ	36-72	7.2	139	1000	470	180	43	65
AM1G-4809SZ	36-72	9	111	1000	470	111	28	67
AM1G-4812SZ	36-72	12	83	1000	470	83	21	70
AM1G-4815SZ	36-72	15	67	1000	470	67	17	70
AM1G-4818SZ	36-72	18	56	1000	220	52	15	68
AM1G-4824SZ	36-72	24	41	1000	220	42	10	68
AM1G-0503SH30Z	4.5-9	3.3	303	3000	3300	303	76	65
AM1G-0505SH30Z	4.5-9	5	200	3000	3300	200	50	65
AM1G-0507SH30Z	4.5-9	7.2	139	3000	470	180	43	65
AM1G-0509SH30Z	4.5-9	9	111	3000	470	111	28	66
AM1G-0512SH30Z	4.5-9	12	83	3000	470	83	21	66
AM1G-0515SH30Z	4.5-9	15	67	3000	470	67	17	66
AM1G-0518SH30Z	4.5-9	18	56	3000	220	52	15	66
AM1G-0524SH30Z	4.5-9	24	41	3000	220	42	10	66
AM1G-1203SH30Z	9-18	3.3	303	3000	3300	303	76	66
AM1G-1205SH30Z	9-18	5	200	3000	3300	200	50	68
AM1G-1207SH30Z	9-18	7.2	139	3000	470	180	43	68
AM1G-1209SH30Z	9-18	9	111	3000	470	111	28	72
AM1G-1212SH30Z	9-18	12	83	3000	470	83	21	72

Models
Single output (continued)

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Capacitor Load (µF)	Input Current Full Load | No Load (mA)		Efficiency (%)
AM1G-1215SH30Z	9-18	15	67	3000	470	67	17	72
AM1G-1218SH30Z	9-18	18	56	3000	220	52	15	70
AM1G-1224SH30Z	9-18	24	41	3000	220	42	10	70
AM1G-2403SH30Z	18-36	3.3	303	3000	3300	303	76	65
AM1G-2405SH30Z	18-36	5	200	3000	3300	200	50	68
AM1G-2407SH30Z	18-36	7.2	139	3000	470	180	43	68
AM1G-2409SH30Z	18-36	9	111	3000	470	111	28	70
AM1G-2412SH30Z	18-36	12	83	3000	470	83	21	72
AM1G-2415SH30Z	18-36	15	67	3000	470	67	17	72
AM1G-2418SH30Z	18-36	18	56	3000	220	52	15	70
AM1G-2424SH30Z	18-36	24	41	3000	220	42	10	70
AM1G-4803SH30Z	36-72	3.3	303	3000	3300	303	76	64
AM1G-4805SH30Z	36-72	5	200	3000	3300	200	50	65
AM1G-4807SH30Z	36-72	7.2	139	3000	470	180	43	65
AM1G-4809SH30Z	36-72	9	111	3000	470	111	28	67
AM1G-4812SH30Z	36-72	12	83	3000	470	83	21	70
AM1G-4815SH30Z	36-72	15	67	3000	470	67	17	70
AM1G-4818SH30Z	36-72	18	56	3000	220	52	15	68
AM1G-4824SH30Z	36-72	24	41	3000	220	42	10	68

Models
Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Capacitor Load (µF)	Input Current Full Load | No Load (mA)		Efficiency (%)
AM1G-0503DZ	4.5-9	±3.3	±151	1000	±1000	±152	±38	68
AM1G-0505DZ	4.5-9	±5	±100	1000	±1000	±100	±25	70
AM1G-0507DZ	4.5-9	±7.2	±69	1000	±470	±68	±20	70
AM1G-0509DZ	4.5-9	±9	±55	1000	±470	±56	±14	71
AM1G-0512DZ	4.5-9	±12	±42	1000	±470	±42	±10	72
AM1G-0515DZ	4.5-9	±15	±35	1000	±470	±33	±8	72
AM1G-0518DZ	4.5-9	±18	±28	1000	±220	±28	±7	72
AM1G-0524DZ	4.5-9	±24	±20	1000	±220	±21	±5	72
AM1G-1203DZ	9-18	±3.3	±151	1000	±1000	±152	±38	70
AM1G-1205DZ	9-18	±5	±100	1000	±1000	±100	±25	73
AM1G-1207DZ	9-18	±7.2	±69	1000	±470	±68	±20	74
AM1G-1209DZ	9-18	±9	±55	1000	±470	±56	±14	74
AM1G-1212DZ	9-18	±12	±42	1000	±470	±42	±10	75
AM1G-1215DZ	9-18	±15	±35	1000	±470	±33	±8	76
AM1G-1218DZ	9-18	±18	±28	1000	±220	±28	±7	75
AM1G-1224DZ	9-18	±24	±20	1000	±220	±21	±5	75
AM1G-2403DZ	18-36	±3.3	±151	1000	±1000	±152	±38	71
AM1G-2405DZ	18-36	±5	±100	1000	±1000	±100	±25	72
AM1G-2407DZ	18-36	±7.2	±69	1000	±470	±68	±20	73
AM1G-2409DZ	18-36	±9	±55	1000	±470	±56	±14	74
AM1G-2412DZ	18-36	±12	±42	1000	±470	±42	±10	75
AM1G-2415DZ	18-36	±15	±35	1000	±470	±33	±8	75
AM1G-2418DZ	18-36	±18	±28	1000	±220	±28	±7	74
AM1G-2424DZ	18-36	±24	±20	1000	±220	±21	±5	73
AM1G-4803DZ	36-72	±3.3	±151	1000	±1000	±152	±38	68
AM1G-4805DZ	36-72	±5	±100	1000	±1000	±100	±25	70

Models

Dual output (continued)

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Capacitor Load (µF)	Input Current Full Load | No Load (mA)		Efficiency (%)
AM1G-4807DZ	36-72	±7.2	±69	1000	±470	±68	±20	70
AM1G-4809DZ	36-72	±9	±55	1000	±470	±56	±14	71
AM1G-4812DZ	36-72	±12	±42	1000	±470	±42	±10	72
AM1G-4815DZ	36-72	±15	±35	1000	±470	±33	±8	72
AM1G-4818DZ	36-72	±18	±28	1000	±220	±28	±7	72
AM1G-4824DZ	36-72	±24	±20	1000	±220	±21	±5	72
AM1G-0503DH30Z	4.5-9	±3.3	±151	3000	±1000	±152	±38	66
AM1G-0505DH30Z	4.5-9	±5	±100	3000	±1000	±100	±25	70
AM1G-0507DH30Z	4.5-9	±7.2	±69	3000	±470	±68	±20	70
AM1G-0509DH30Z	4.5-9	±9	±55	3000	±470	±56	±14	71
AM1G-0512DH30Z	4.5-9	±12	±42	3000	±470	±42	±10	72
AM1G-0515DH30Z	4.5-9	±15	±35	3000	±470	±33	±8	72
AM1G-0518DH30Z	4.5-9	±18	±28	3000	±220	±28	±7	72
AM1G-0524DH30Z	4.5-9	±24	±20	3000	±220	±21	±5	72
AM1G-1203DH30Z	9-18	±3.3	±151	3000	±1000	±152	±38	66
AM1G-1205DH30Z	9-18	±5	±100	3000	±1000	±100	±25	73
AM1G-1207DH30Z	9-18	±7.2	±69	3000	±470	±68	±20	74
AM1G-1209DH30Z	9-18	±9	±55	3000	±470	±56	±14	74
AM1G-1212DH30Z	9-18	±12	±42	3000	±470	±42	±10	75
AM1G-1215DH30Z	9-18	±15	±35	3000	±470	±33	±8	76
AM1G-1218DH30Z	9-18	±18	±28	3000	±220	±28	±7	75
AM1G-1224DH30Z	9-18	±24	±20	3000	±220	±21	±5	75
AM1G-2403DH30Z	18-36	±3.3	±151	3000	±1000	±152	±38	65
AM1G-2405DH30Z	18-36	±5	±100	3000	±1000	±100	±25	72
AM1G-2407DH30Z	18-36	±7.2	±69	3000	±470	±68	±20	73
AM1G-2409DH30Z	18-36	±9	±55	3000	±470	±56	±14	74
AM1G-2412DH30Z	18-36	±12	±42	3000	±470	±42	±10	75
AM1G-2415DH30Z	18-36	±15	±35	3000	±470	±33	±8	75
AM1G-2418DH30Z	18-36	±18	±28	3000	±220	±28	±7	74
AM1G-2424DH30Z	18-36	±24	±20	3000	±220	±21	±5	73
AM1G-4803DH30Z	36-72	±3.3	±151	3000	±1000	±152	±38	64
AM1G-4805DH30Z	36-72	±5	±100	3000	±1000	±100	±25	70
AM1G-4807DH30Z	36-72	±7.2	±69	3000	±470	±68	±20	70
AM1G-4809DH30Z	36-72	±9	±55	3000	±470	±56	±14	71
AM1G-4812DH30Z	36-72	±12	±42	3000	±470	±42	±10	72
AM1G-4815DH30Z	36-72	±15	±35	3000	±470	±33	±8	72
AM1G-4818DH30Z	36-72	±18	±28	3000	±220	±28	±7	72
AM1G-4824DH30Z	36-72	±24	±20	3000	±220	±21	±5	72

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	5	4.5-9		VDC
	12	9-18		
	24	18-36		
	48	36-72		
Filter		Capacitor		
Turn on Transient process time			350	ms
Start up time		200		ms
Absolute Maximum Rating	5 Vin	-0.7-12		VDC
	12 Vin	-0.7-24		
	24 Vin	-0.7-40		
	48 Vin	-0.7-80		

Input Specifications (continued)

Parameters	Nominal	Typical	Maximum	Units
Peak Input Voltage time		100		ms
On/Off Control	ON – low or open (0Vdc to 0.8Vdc)			
	OFF – high (4.5Vdc to 15Vdc, OFF idle current:3.5mA to 15mA Max.)			

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		1000 & 3000	VDC
Resistance		> 1000		MOhm
Capacitance		60		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±2		%
Voltage balance	Dual Output	±1		%
Short Circuit protection	Continuous			
Short Circuit restart	Auto recovery			
Line voltage regulation	LL ~ HL	±0.5		%
Load voltage regulation	load 25~100%	±1		%
Temperature coefficient		±0.02		%/°C
Ripple & Noise*	At 20MHz Bandwidth	50		mV p-p
Rising time		80		ms

* The ripple and noise should be measured with connected 47µF capacitor and 0.1µF ceramic capacitor on the output of the converter.

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	>100	650	KHz
Operating temperature	Full Load without Derating	-40 to +85		°C
Storage temperature		-40 to +125		°C
Maximum Case temperature			+100	°C
Cooling	Free air convection			
Humidity			95	%
Case material	Non-conductive black plastic (UL94V-0 rated)			
Weight		4.5		g
Dimensions (L x W x H)	0.86 x 0.36 x 0.42 inch 21.85 x 9.20 x 10.60 mm			
MTBF	>2 732 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)			

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.

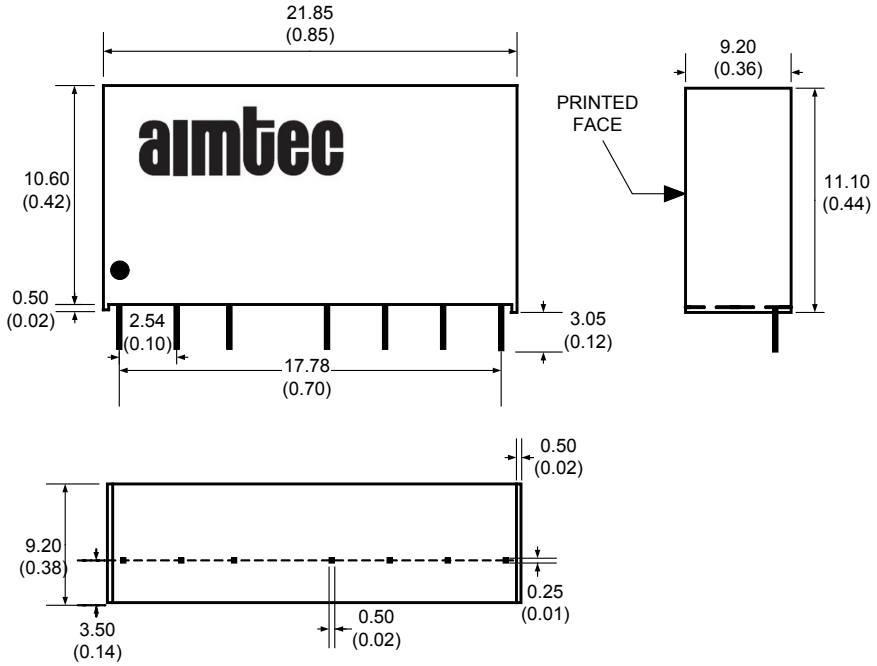
Safety Specifications

Parameters	
Agency Approval	CE
Standards	EN55022 Class A, EN55024
	IEC61000-4-2, Perf. Criteria B
	IEC61000-4-3, Perf. Criteria A
	IEC61000-4-4, Perf. Criteria B (external 220uF/100V cap required)
	IEC61000-4-5, Perf. Criteria B (external 220uF/100V cap required)
	IEC61000-4-6, Perf. Criteria A
	IEC61000-4-8, Perf. Criteria A

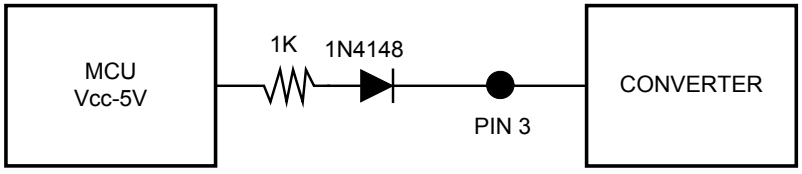
Pin Out Specifications

Pin	1000 & 3000VDC	
	Single	Dual
1	- V Input	- V Input
2	+ V Input	+ V Input
3	On/Off Control	On/Off Control
5	N.C.	N.C.
6	+ V Output	+ V Output
7	- V Output	Common
8	N.C.	- V Output

Dimensions

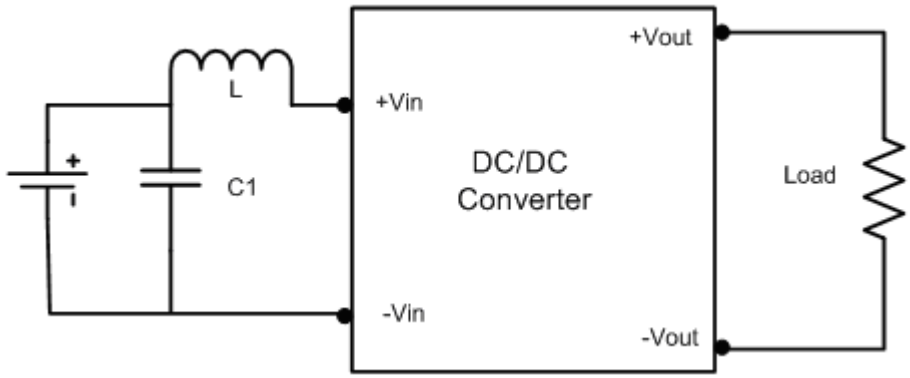


Control ON/OFF pin connection example:



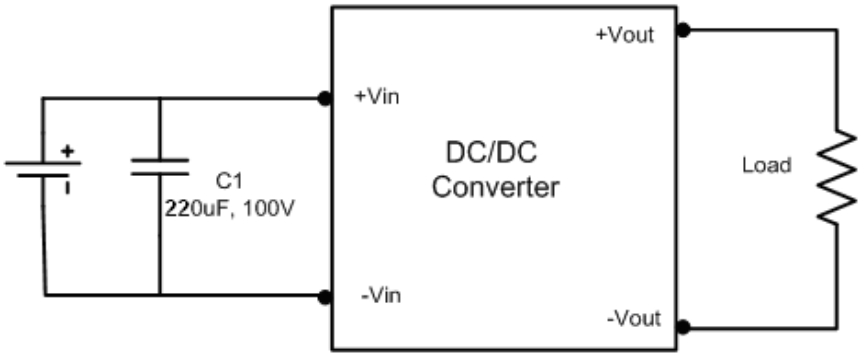
The voltage could be applied trough a limiting resistor and a switching diode. The converter is in a low power mode during high level phase.

Conducted Emissions:

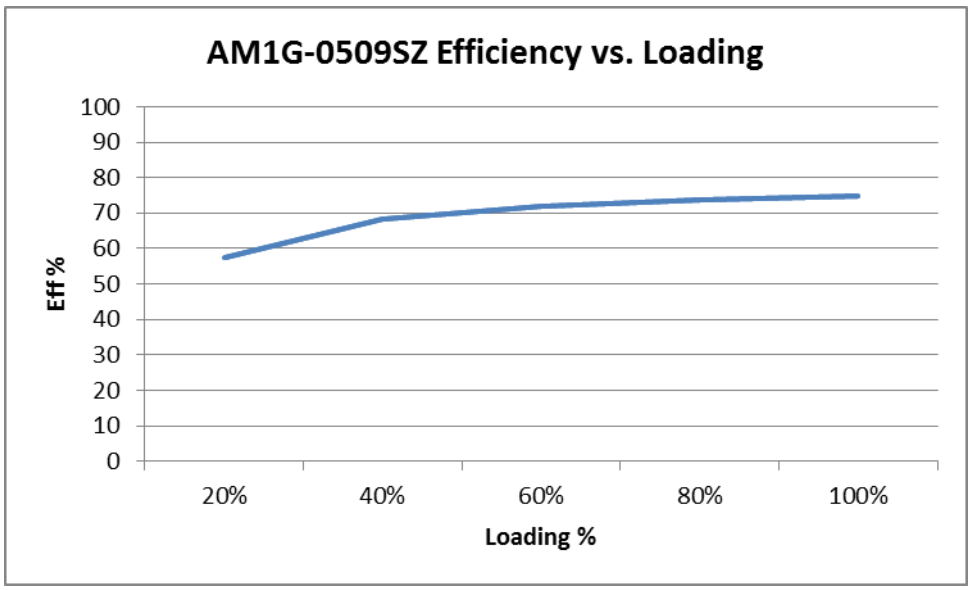


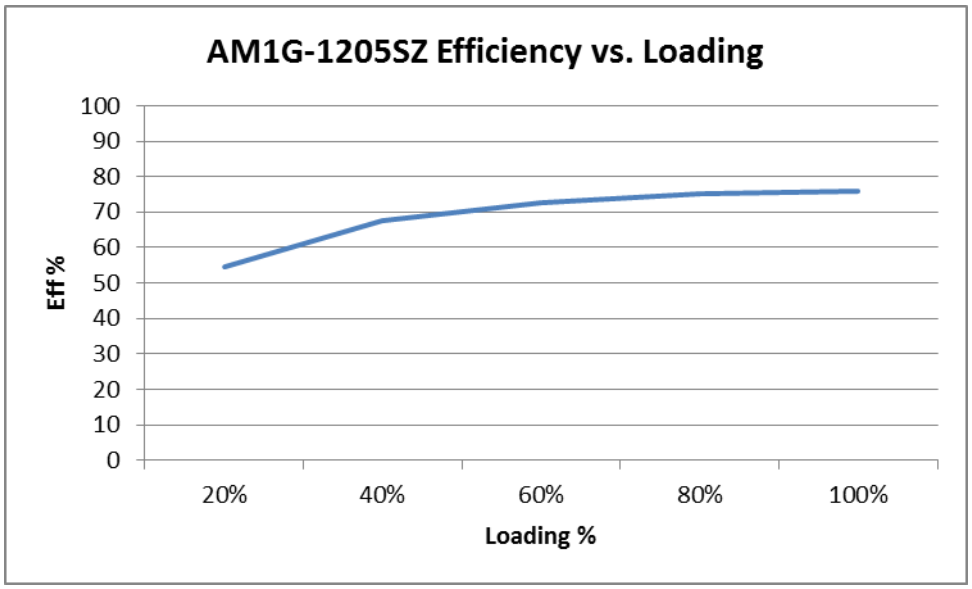
C1	L1
100µF/100V	12 µH

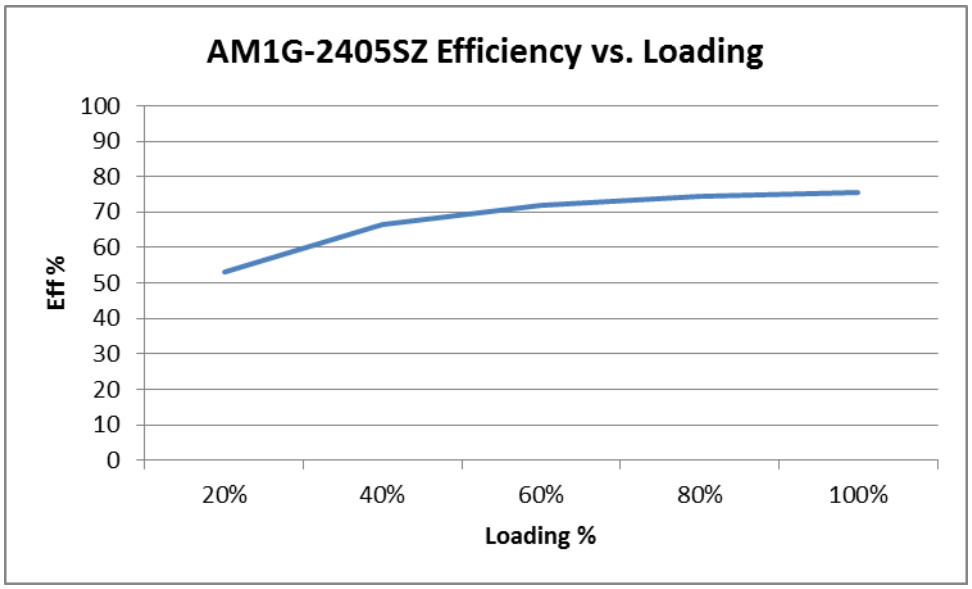
Surge:

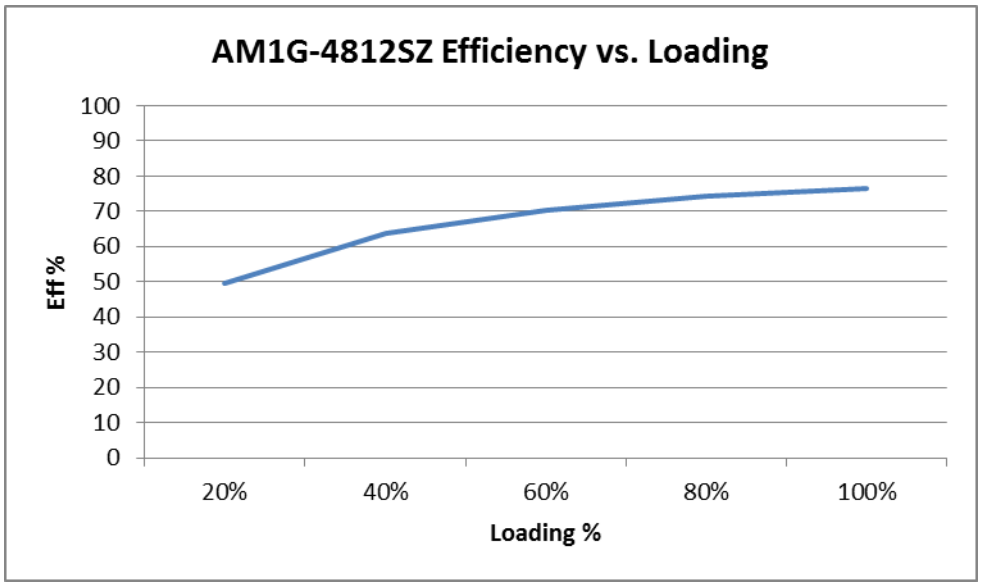


Typical Efficiency Example Charts




AM1G-1205SZ Efficiency vs. Loading
100
90
80
70
60
50
40
30
20
10
0
Eff %
20%
40%
60%
80%
100%
Loading %


AM1G-2405SZ Efficiency vs. Loading
100
90
80
70
60
50
40
30
20
10
0
Eff %
20%
40%
60%
80%
100%
Loading %



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