aimtec
Your Power Partner

Series AM1DS-NZ

1 Watt | DC-DC Converter

FEATURES:

- RoHS compliant
- High efficiency up to 82%
- Low profile plastic package
- 7 pin SIP package
- Operating temperature -40°C to + 105°C
- Continuous short circuit protection ‡
- Pin compatible with multiple manufacturers
- Up to 3000VDC Isolation

Models
Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Input Current Full Load | No Load (mA)		Max. Capacitive Load (µF)	Efficiency (%)
AM1DS-0303S-NZ	3.0-3.6	3.3	303	1500	415	25	220	78
AM1DS-0305S-NZ	3.0-3.6	5	200	1500	388	25	220	79
AM1DS-0505S-NZ	4.5-5.5	5	200	1500	250	20	220	80
AM1DS-0509S-NZ	4.5-5.5	9	112	1500	250	20	220	80
AM1DS-0512S-NZ	4.5-5.5	12	83	1500	248	20	220	81
AM1DS-0515S-NZ	4.5-5.5	15	67	1500	248	20	220	81
AM1DS-0524S-NZ ‡	4.5-5.5	24	42	1500	248	20	220	81
AM1DS-1205S-NZ	10.8-13.2	5	200	1500	111	15	220	80
AM1DS-1209S-NZ	10.8-13.2	9	112	1500	92	15	220	80
AM1DS-1212S-NZ	10.8-13.2	12	83	1500	92	15	220	81
AM1DS-1215S-NZ	10.8-13.2	15	67	1500	90	15	220	81
AM1DS-1515S-NZ	13.5-16.5	15	67	1500	84	10	220	80
AM1DS-2403S-NZ	21.6-26.4	3.3	303	1500	56	7	220	79
AM1DS-2405S-NZ	21.6-26.4	5	200	1500	51	7	220	79
AM1DS-2412S-NZ	21.6-26.4	12	83	1500	52	7	220	81
AM1DS-2415S-NZ	21.6-26.4	15	67	1500	52	7	220	81
AM1DS-2424S-NZ‡	21.6-26.4	24	42	1500	52	7	220	82
AM1DS-0305SH30-NZ	3.0-3.6	5	200	3000	388	25	220	79
AM1DS-0505SH30-NZ	4.5-5.5	5	200	3000	250	20	220	80
AM1DS-0509SH30-NZ	4.5-5.5	9	112	3000	250	20	220	80
AM1DS-0512SH30-NZ	4.5-5.5	12	83	3000	248	20	220	80
AM1DS-0515SH30-NZ	4.5-5.5	15	67	3000	248	20	220	81
AM1DS-0524SH30-NZ ‡	4.5-5.5	24	42	3000	248	20	220	81
AM1DS-1205SH30-NZ	10.8-13.2	5	200	3000	111	15	220	80
AM1DS-1209SH30-NZ	10.8-13.2	9	112	3000	111	15	220	80
AM1DS-1212SH30-NZ	10.8-13.2	12	83	3000	92	15	220	81
AM1DS-1215SH30-NZ	10.8-13.2	15	67	3000	92	15	220	81
AM1DS-1224SH30-NZ‡	10.8-13.2	24	42	3000	92	15	220	80
AM1DS-2405SH30-NZ	21.6-26.4	5	200	3000	51	7	220	79
AM1DS-2409SH30-NZ	21.6-26.4	9	112	3000	51	7	200	80
AM1DS-2412SH30-NZ	21.6-26.4	12	83	3000	52	7	220	81
AM1DS-2415SH30-NZ	21.6-26.4	15	67	3000	52	7	220	81
AM1DS-2424SH30-NZ‡	21.6-26.4	24	42	3000	52	7	220	82

‡ - Please note Aimtec product change announcement located here www.aimtec.com/news for product specification changes effective February 7th 2015.

Models
Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (Ma)	Isolation (VDC)	Input Current Full Load | No Load (mA)		Max. Capacitive Load (µF)	Efficiency (%)
AM1DS-0505D-NZ	4.5-5.5	±5	±100	1500	274	20	100	80
AM1DS-0509D-NZ	4.5-5.5	±9	±56	1500	250	20	100	80
AM1DS-0512D-NZ	4.5-5.5	±12	±42	1500	248	20	100	80
AM1DS-0515D-NZ	4.5-5.5	±15	±34	1500	248	20	100	81
AM1DS-0524D-NZ ‡	4.5-5.5	±24	±21	1500	248	20	100	81
AM1DS-1205D-NZ	10.8-13.2	±5	±100	1500	92	15	100	80

Models
Dual output (continued)

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (Ma)	Isolation (VDC)	Input Current Full Load | No Load (mA)		Max. Capacitive Load (µF)	Efficiency (%)
AM1DS-1212D-NZ	10.8-13.2	±12	±42	1500	92	15	100	81
AM1DS-1215D-NZ	10.8-13.2	±15	±34	1500	90	15	100	81
AM1DS-1515D-NZ	13.5-16.5	±15	±34	1500	84	10	100	80
AM1DS-2405D-NZ	21.6-26.4	±5	±100	1500	53	7	100	79
AM1DS-2412D-NZ	21.6-26.4	±12	±42	1500	51	7	100	81
AM1DS-2415D-NZ	21.6-26.4	±15	±34	1500	51	7	100	82
AM1DS-2424D-NZ‡	21.6-26.4	±24	±21	1500	51	7	100	82
AM1DS-0505DH30-NZ	4.5-5.5	±5	±100	3000	274	20	100	80
AM1DS-0509DH30-NZ	4.5-5.5	±9	±56	3000	250	20	100	80
AM1DS-0512DH30-NZ	4.5-5.5	±12	±42	3000	248	20	100	80
AM1DS-0515DH30-NZ	4.5-5.5	±15	±34	3000	250	20	100	81
AM1DS-0524DH30-NZ ‡	4.5-5.5	±24	±21	3000	250	20	100	81
AM1DS-1205DH30-NZ	10.8-13.2	±5	±100	3000	248	20	100	81
AM1DS-1212DH30-NZ	10.8-13.2	±12	±42	3000	92	15	100	81
AM1DS-1215DH30-NZ	10.8-13.2	±15	±34	3000	90	15	100	79
AM1DS-1224DH30-NZ‡	10.8-13.2	±24	±21	3000	90	15	100	79
AM1DS-2405DH30-NZ	21.6-26.4	±5	±100	3000	53	7	100	81
AM1DS-2409DH30-NZ	21.6-26.4	±9	±56	3000	53	7	100	81
AM1DS-2412DH30-NZ	21.6-26.4	±12	±42	3000	51	7	100	81
AM1DS-2415DH30-NZ	21.6-26.4	±15	±34	3000	51	7	100	82
AM1DS-2424DH30-NZ‡	21.6-26.4	±24	±21	3000	51	7	100	82

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	3.3	3.0-3.6		VDC
	5	4.5-5.5		
	12	10.8-13.2		
	15	13.5-16.5		
	24	21.6-26.4		
Filter		Capacitor		
Absolute Maximum Rating	3.3		7	VDC
	5		9	
	12		18	
	15		21	
	24		30	
Peak Input Voltage time			1	s
No Load Input Current			50	mA

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		1500, 3000	VDC
Resistance		> 1000		MOhm
Capacitance		20		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±5		%
Short Circuit protection		Continuous ‡		
Short circuit restart		Auto recovery		
Line voltage regulation	For 1.0% change of Vin	±1.2		% of Vin
Load voltage regulation	load 10~100%	15%		%

Output Specifications (continued)

Parameters	Conditions	Typical	Maximum	Units
Temperature coefficient		±0.03		%/°C
Ripple & Noise	20MHz Bandwidth	(output 3.3/5/12) 30 (output 15/24) 60		mV p-p
Minimum Load Current		10		% of Max

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	100 - 300		KHz
Operating temperature	With derating above 85°C	-40 to +105		°C
Storage temperature	-55 to +125			°C
Maximum case temperature			100	°C
Derating	Not-Required			%/°C
Cooling	Free air convection			
Humidity			95	% RH
Case material	Non-conductive black plastic (UL94V-0 rated)			
Weight	2.3			g
Dimensions (L x W x H)	0.77 x 0.24 x 0.37inches 19.5 x 6.00 x 9.35mm			
MTBF	>3,500,000hrs (MIL-HDBK -217F, Ground Benign, t=+25ºC)			
Maximum soldering temperature	1.5 mm from case for 10sec		300	°C

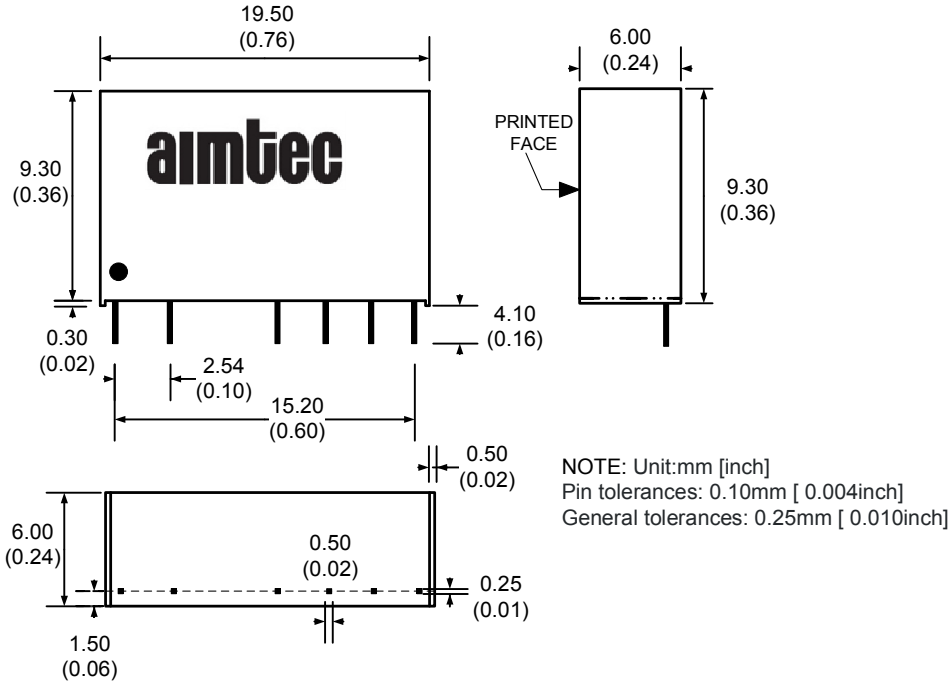
Safety Specifications

Parameters	
Agency approvals	cULus (without 3.3 & 15V input, without 3.3V output modelsand without AM1DS-1224SH30-NZ and AM1DS-1224DH30-NZ)
Standards	UL 60950-1

Pin Out Specifications

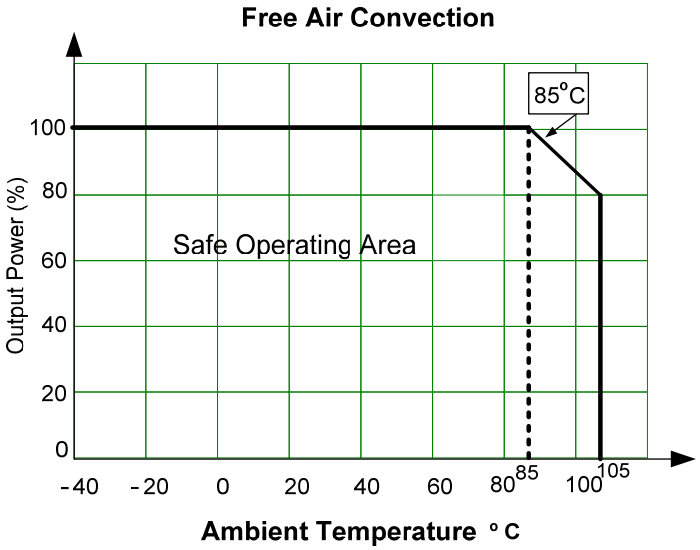
Pin	1500 VDC		3000VDC	
	Single	Dual	Single	Dual
1	+ V Input	+ V Input	+ V Input	+ V Input
2	- V Input	- V Input	- V Input	- V Input
4	- V Output	- V Output	No pin	No pin
5	No pin	Common	- V Output	- V Output
6	+ V Output	+ V Output	No pin	Common
7	No pin	No pin	+ V Output	+ V Output

Dimensions

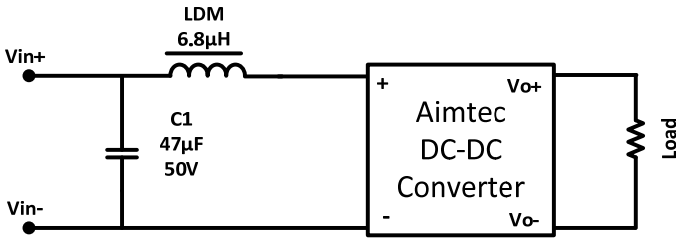


NOTE: Unit:mm [inch]
Pin tolerances: 0.10mm [0.004inch]
General tolerances: 0.25mm [0.010inch]

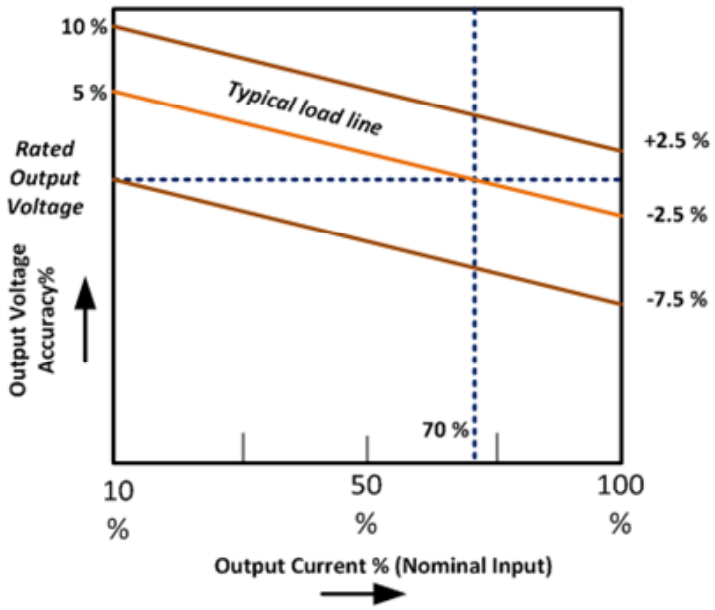
Derating



EMI Recommended Circuit (Class B)

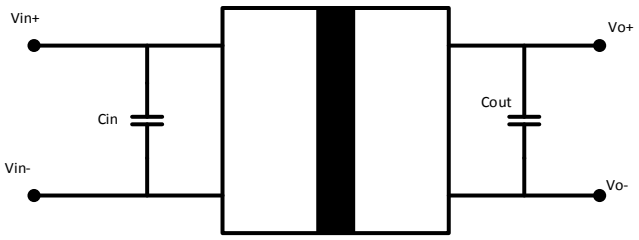


Load Accuracy Tolerance Graph

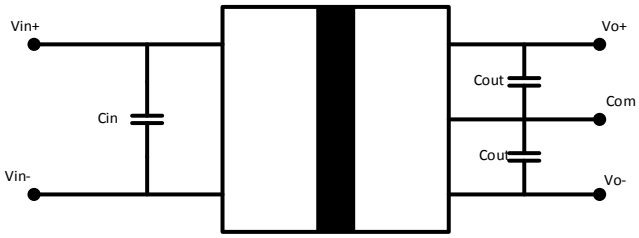


Typical Recommended Circuit

Single

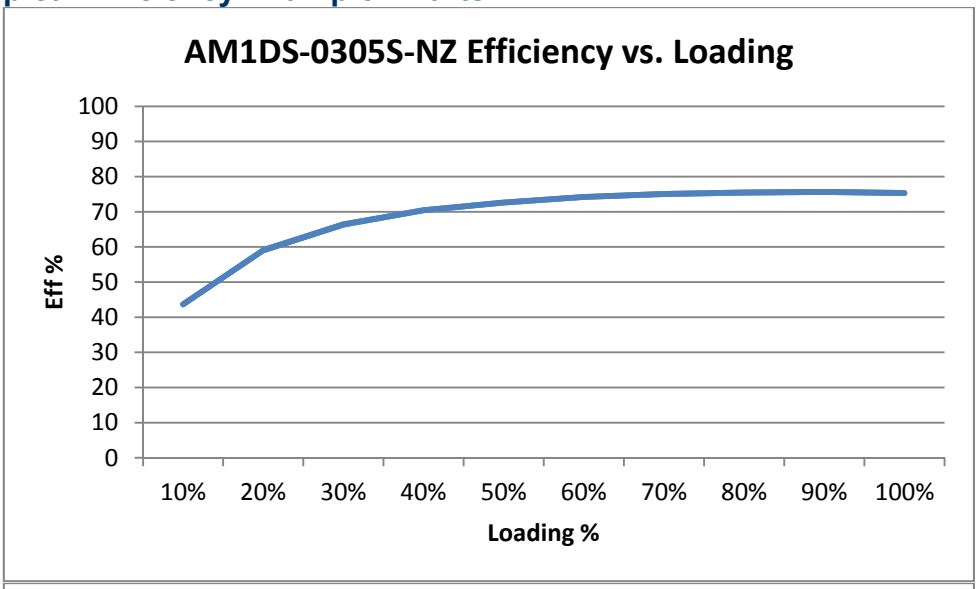


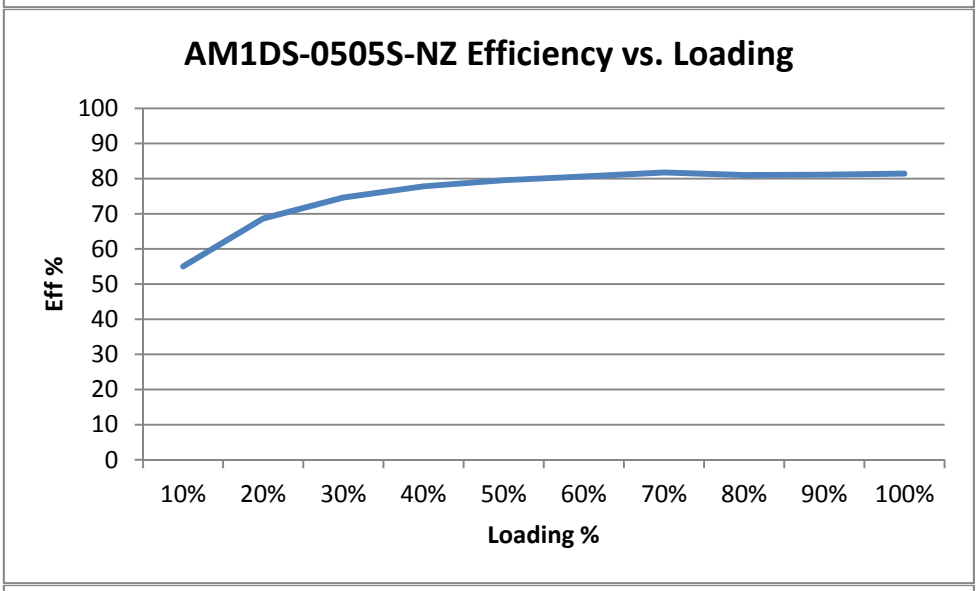
Dual

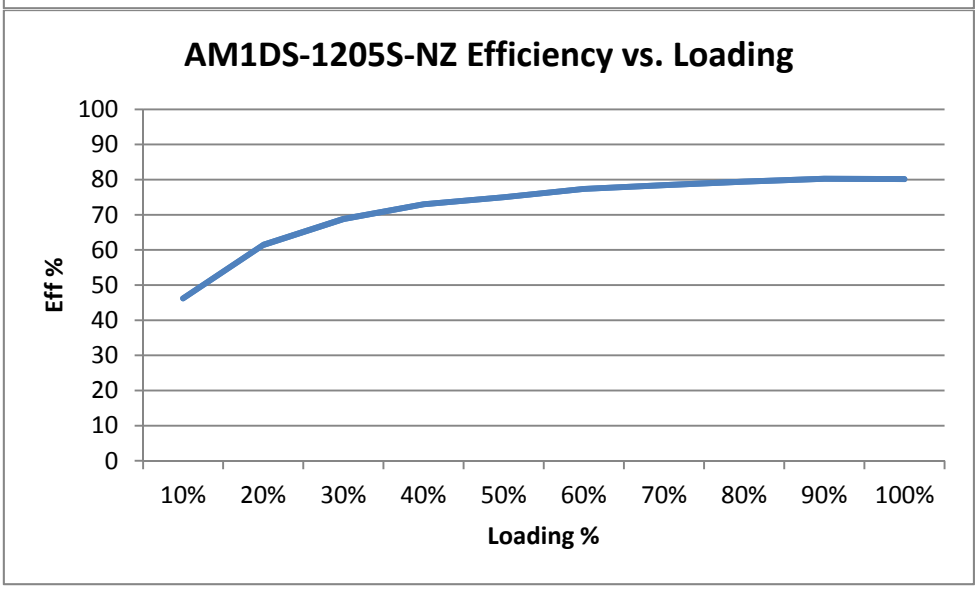


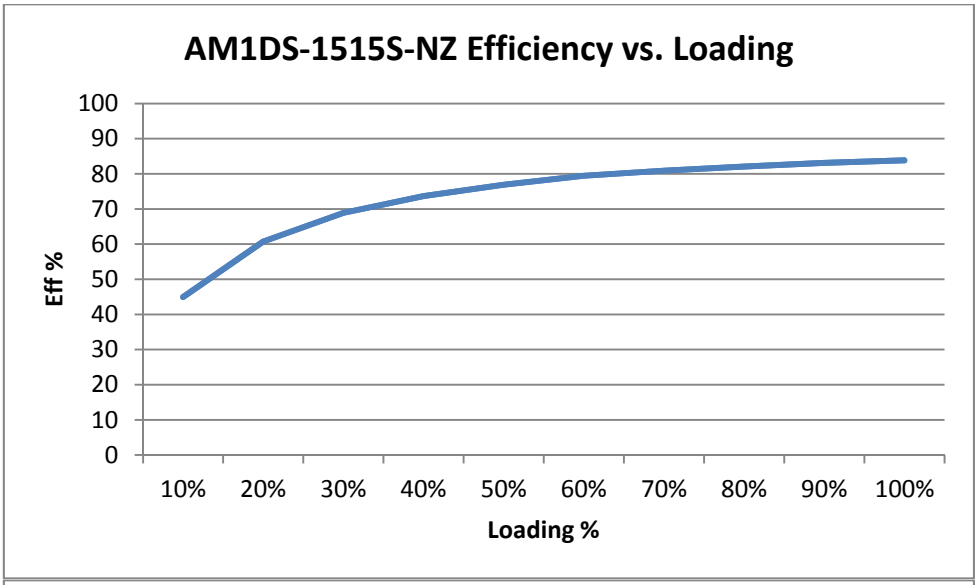
Vin	Cin	Vout	Cout	Vout (Dual)	Cout (Dual)
3.3 & 5 V	4.7	3.3 & 5 V	10µF	±3.3 & ±5 V	4.7 µF
12 V	2.2	12 V	2.2 µF	±12 V	1 µF
15 V	2.2	15 & 24 V	1 µF	±15 & ±24 V	0.47 µF
24 V	1	-	-		

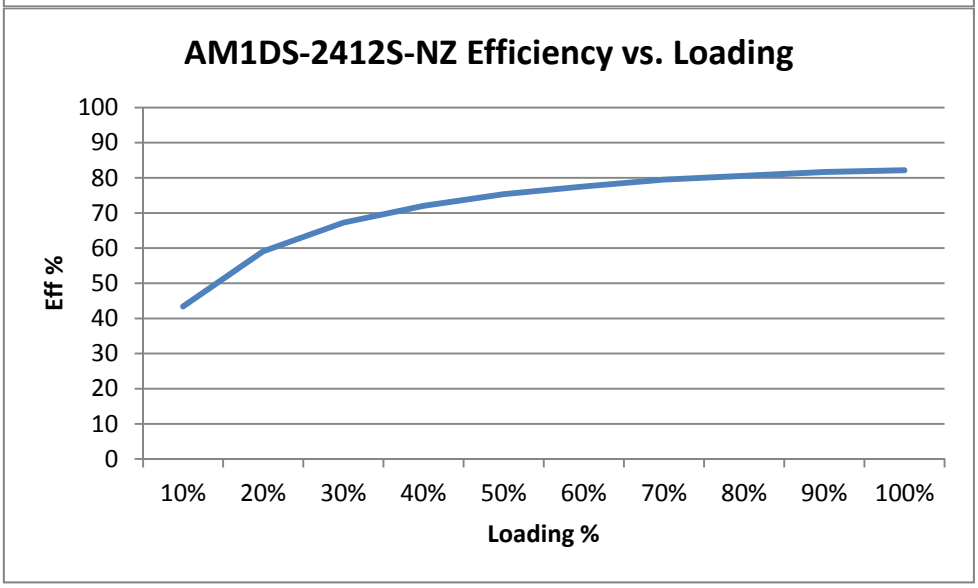
Typical Efficiency Example Charts











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