



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	426	30	220	72
AM1DS-0305S-NZ†*	3.0-3.6	5	200	1500	426	30	220	78
AM1DS-0505S-NZ	4.5-5.5	5	200	1500	281	25	220	80
AM1DS-0503SJZ*	4.5-5.5	3.3	303	1500	270	5	2400	74
AM1DS-0505SJZ	4.5-5.5	5	200	1500	270	5	2400	82
AM1DS-0509SJZ*	4.5-5.5	9	111	1500	241	12	1000	83
AM1DS-0512SJZ*	4.5-5.5	12	84	1500	241	12	560	83
AM1DS-0515SJZ*	4.5-5.5	15	67	1500	241	18	560	83
AM1DS-0524SJZ*	4.5-5.5	24	42	1500	241	18	220	85
AM1DS-0509S-NZ	4.5-5.5	9	111	1500	281	25	220	80
AM1DS-0512S-NZ	4.5-5.5	12	84	1500	281	25	220	80
AM1DS-0515S-NZ	4.5-5.5	15	67	1500	281	25	220	80
AM1DS-0524S-NZ†	4.5-5.5	24	42	1500	281	25	220	80
AM1DS-1205S-NZ	10.8-13.2	5	200	1500	106	15	220	80
AM1DS-1209S-NZ	10.8-13.2	9	111	1500	106	15	220	80
AM1DS-1212S-NZ	10.8-13.2	12	84	1500	106	15	220	80
AM1DS-1215S-NZ	10.8-13.2	15	67	1500	106	15	220	80
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	54	7	220	74
AM1DS-2405S-NZ†	21.6-26.4	5	200	1500	54	7	220	80
AM1DS-2412S-NZ†	21.6-26.4	12	84	1500	54	7	220	80
AM1DS-2415S-NZ†	21.6-26.4	15	67	1500	54	7	220	80
AM1DS-2424S-NZ†	21.6-26.4	24	42	1500	54	7	220	80
AM1DS-0305SH30-NZ†*	3.0-3.6	5	200	3000	415	25	220	78
AM1DS-0503SH30JZ*	4.5-5.5	3.3	303	3000	270	5	2400	74
AM1DS-0505SH30JZ*	4.5-5.5	5	200	3000	270	5	2400	82
AM1DS-0509SH30JZ*	4.5-5.5	9	111	3000	241	12	1000	83
AM1DS-0512SH30JZ*	4.5-5.5	12	84	3000	241	12	560	83
AM1DS-0515SH30JZ*	4.5-5.5	15	67	3000	241	18	560	83
AM1DS-0524SH30JZ*	4.5-5.5	24	42	3000	241	18	220	85
AM1DS-0505SH30-NZ	4.5-5.5	5	200	3000	274	20	220	80
AM1DS-0509SH30-NZ	4.5-5.5	9	111	3000	274	20	220	80
AM1DS-0512SH30-NZ	4.5-5.5	12	83	3000	274	20	220	80
AM1DS-0515SH30-NZ	4.5-5.5	15	67	3000	274	20	220	81
AM1DS-0524SH30-NZ†	4.5-5.5	24	42	3000	274	20	220	81
AM1DS-1205SH30-NZ	10.8-13.2	5	200	3000	114	15	220	80
AM1DS-1209SH30-NZ	10.8-13.2	9	111	3000	114	15	220	80
AM1DS-1212SH30-NZ	10.8-13.2	12	83	3000	114	15	220	80
AM1DS-1215SH30-NZ	10.8-13.2	15	67	3000	114	15	220	81
AM1DS-1224SH30-NZ	10.8-13.2	24	42	3000	114	15	220	81
AM1DS-2405SH30-NZ†	21.6-26.4	5	200	3000	58	7	220	79
AM1DS-2409SH30-NZ†	21.6-26.4	9	111	3000	58	7	200	80
AM1DS-2412SH30-NZ†	21.6-26.4	12	83	3000	58	7	220	81
AM1DS-2415SH30-NZ†	21.6-26.4	15	67	3000	58	7	220	81
AM1DS-2424SH30-NZ†	21.6-26.4	24	42	3000	58	7	220	81

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-0305D-NZ*	2.97-3.63	±5	±100	1500	274	20	±100	78
AM1DS-0312D-NZ*	2.97-3.63	±12	±42	1500	248	20	±100	78
AM1DS-0505D-NZ	4.5-5.5	±5	±100	1500	281	25	±100	80
AM1DS-0503DJZ*	4.5-5.5	±3.3	±152	1500	270	5	±1200	74
AM1DS-0505DJZ	4.5-5.5	±5	±100	1500	270	5	±1200	82
AM1DS-0509DJZ*	4.5-5.5	±9	±56	1500	241	12	±470	83
AM1DS-0512DJZ*	4.5-5.5	±12	±42	1500	241	12	±220	83
AM1DS-0515DJZ*	4.5-5.5	±15	±34	1500	241	18	±220	83
AM1DS-0524DJZ*	4.5-5.5	±24	±21	1500	241	18	±100	85
AM1DS-0509D-NZ	4.5-5.5	±9	±56	1500	281	25	±100	80
AM1DS-0512D-NZ	4.5-5.5	±12	±42	1500	281	25	±100	80
AM1DS-0515D-NZ	4.5-5.5	±15	±34	1500	281	25	±100	80
AM1DS-0524D-NZ‡	4.5-5.5	±24	±21	1500	281	25	±100	80
AM1DS-1205D-NZ	10.8-13.2	±5	±100	1500	106	15	±100	80
AM1DS-1212D-NZ	10.8-13.2	±12	±42	1500	106	15	±100	80
AM1DS-1215D-NZ	10.8-13.2	±15	±34	1500	106	15	±100	80
AM1DS-1512D-NZ*	13.5-16.5	±12	±42	1500	84	10	±100	80
AM1DS-1515D-NZ	13.5-16.5	±15	±34	1500	84	10	±100	80
AM1DS-2405D-NZ‡	21.6-26.4	±5	±100	1500	54	7	±100	80
AM1DS-2412D-NZ‡	21.6-26.4	±12	±42	1500	54	7	±100	80
AM1DS-2415D-NZ‡	21.6-26.4	±15	±34	1500	54	7	±100	80
AM1DS-2424D-NZ‡	21.6-26.4	±24	±21	1500	54	7	±100	80
AM1DS-0503DH30JZ*	4.5-5.5	±3.3	±152	3000	270	5	±1200	74
AM1DS-0505DH30JZ	4.5-5.5	±5	±100	3000	270	5	±1200	82
AM1DS-0509DH30JZ	4.5-5.5	±9	±56	3000	241	12	±470	83
AM1DS-0512DH30JZ	4.5-5.5	±12	±42	3000	241	12	±220	83
AM1DS-0515DH30JZ	4.5-5.5	±15	±34	3000	241	18	±220	83
AM1DS-0524DH30JZ	4.5-5.5	±24	±21	3000	241	18	±100	85
AM1DS-0505DH30-NZ	4.5-5.5	±5	±100	3000	274	20	±100	80
AM1DS-0509DH30-NZ	4.5-5.5	±9	±56	3000	274	20	±100	80
AM1DS-0512DH30-NZ	4.5-5.5	±12	±42	3000	274	20	±100	80
AM1DS-0515DH30-NZ	4.5-5.5	±15	±33	3000	274	20	±100	81
AM1DS-0524DH30-NZ‡	4.5-5.5	±24	±21	3000	274	20	±100	81
AM1DS-1205DH30-NZ	10.8-13.2	±5	±100	3000	114	15	±100	80
AM1DS-1212DH30-NZ	10.8-13.2	±12	±42	3000	114	15	±100	81
AM1DS-1215DH30-NZ	10.8-13.2	±15	±34	3000	114	15	±100	81
AM1DS-1224DH30-NZ	10.8-13.2	±24	±21	3000	114	15	±100	80
AM1DS-2405DH30-NZ‡	21.6-26.4	±5	±100	3000	58	7	±100	80
AM1DS-2409DH30-NZ‡	21.6-26.4	±9	±56	3000	58	7	±100	80
AM1DS-2412DH30-NZ‡	21.6-26.4	±12	±42	3000	58	7	±100	81
AM1DS-2415DH30-NZ‡	21.6-26.4	±15	±33	3000	58	7	±100	79
AM1DS-2424DH30-NZ‡	21.6-26.4	±24	±21	3000	58	7	±100	80

‡ With Momentary short circuit protection of 1 second

* Reference in the Safety Table

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	2.97–3.63 or 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		5	VDC
	5		9	
	12		18	
	15		21	
	24		30	
Peak Input Voltage time			1	s
No Load Input Current	3.3	30	70	mA
	5	25	60	
	12	15	50	
	15	10	35	
	24	7	30	
Input no load current for part numbers with suffix JZ	3.3 & 5VDC o/p	5	10	mA
	9 & 12VDC o/p	12	20	
	15 & 24VDC o/p	18	30	

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	See voltage accuracy graph			%
Short Circuit protection	Continuous, unless marked with ‡			
Short circuit restart	Auto recovery			
Line voltage regulation	For 1% change of Vin	3.3V output	1.5	% of Vin
		others	1.2	
Load voltage regulation	load 10~100%	3.3V output	18	%
		5V output	12	
		9V output	9	
		12V output	8	
		15V output	7	
		24V output	6	
	load 10~100% for JZ models	3.3V output	15	
		5V output	10	
		9V output	8	
		12V output	7	
		15V output	6	
		24V output	5	
Temperature coefficient	Full load		±0.03	% / °C
	Full load for JZ models		±0.02	
Ripple & Noise	20MHz Bandwidth for 3KV isolation models	3.3, 5, 12V output	30	mV p-p
		15, 24V output	60	
	20MHz Bandwidth for JZ models	24V output	30	
		Others	50	
	20MHz Bandwidth for 1.5KV isolation models		60	

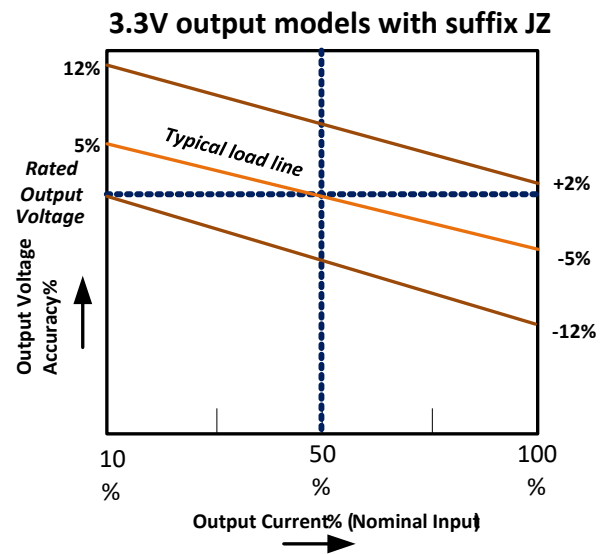
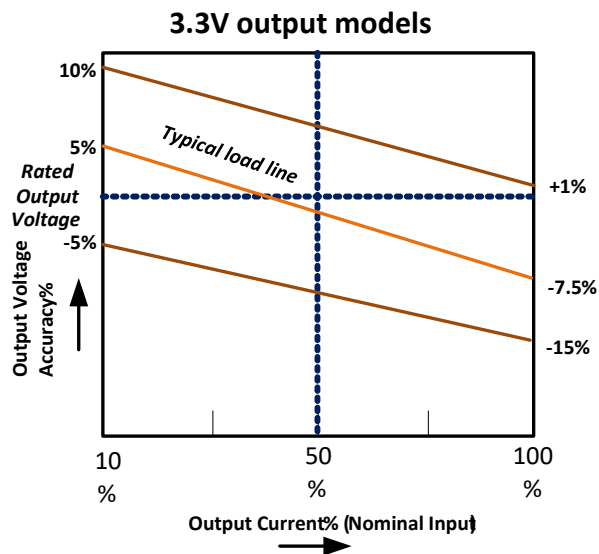
General Specifications

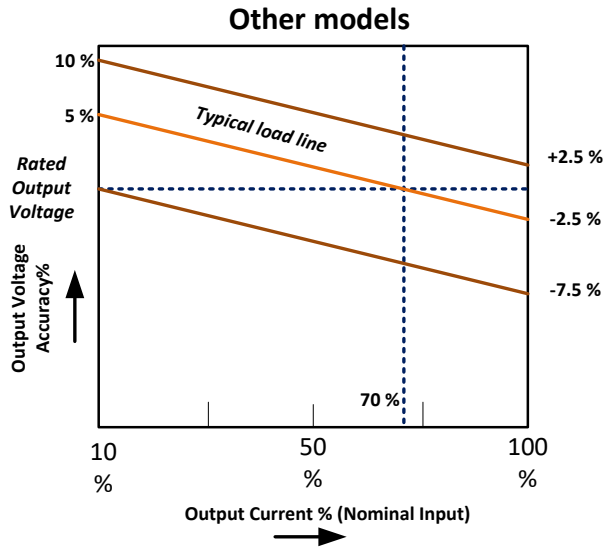
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	100		KHz
	100% load for JZ models	270		
Operating temperature	With derating above 85°C	-40 to +105		°C
Storage temperature		-55 to +125		°C
Maximum case temperature			130	°C
Cooling		Free air convection		
Humidity	Non condensing		95	% RH
Case material	Non-conductive black plastic (UL94V-0 rated)			
Weight	Others	2.4		g
	for JZ models	2.1		
Dimensions (L x W x H)	Others	0.77 x 0.24 x 0.37inches	19.50 x 6.00 x 9.30mm	
	for JZ models	0.77 x 0.24 x 0.4inches	19.65 x 6.00 x 10.16mm	
MTBF	>3,500,000hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)			
Maximum soldering temperature	1.5 mm from case for 10sec		300	°C

Safety Specifications

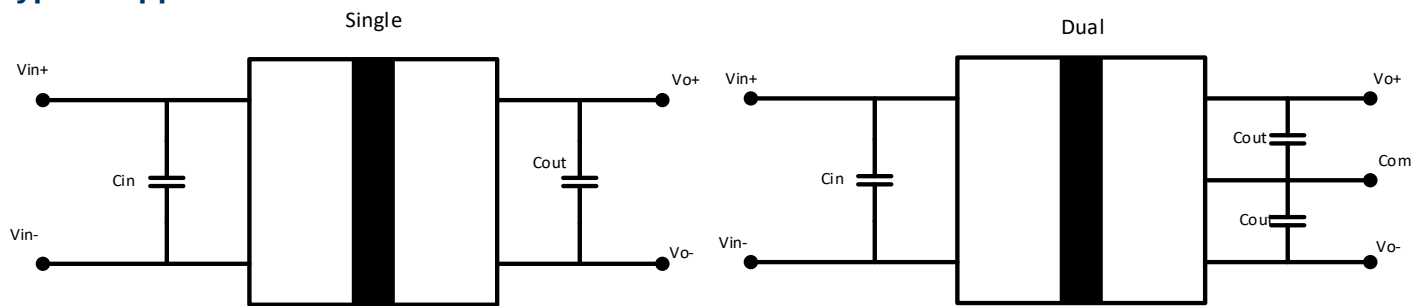
Parameters		
Agency approvals	cULus (except the models marked with *)	
Standards	Information technology Equipment	UL 60950-1 UL 62368-1 for JZ models only
	EMI - Conducted and radiated emission	EN55032 Class B with recommend circuit
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact ±6KV Criteria B for single output models
		IEC 61000-4-2 Contact ±8KV Criteria B for dual output models IEC 61000-4-2 Contact ±4kV, Air ±8kV Criteria B for JZ models

Voltage Accuracy Graph



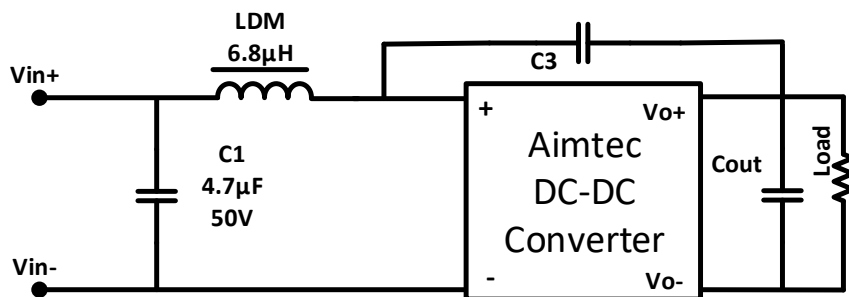


Typical Application Circuit



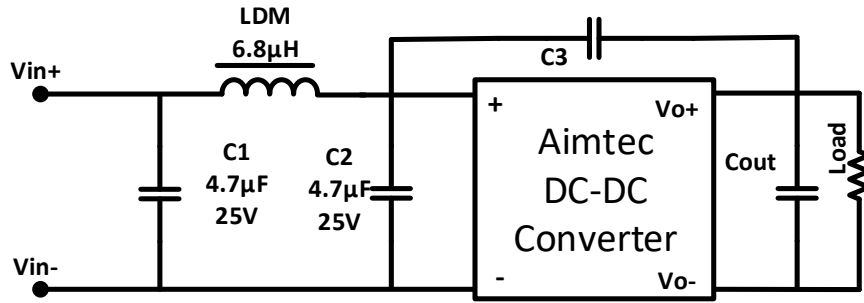
Vin	Cin	Vout (Single)	Cout (Single)	Vout (Dual)	Cout (Dual)
3.3 & 5 V	4.7	3.3 & 5 V (9V for 3KV isolation models)	10 μ F	$\pm$ 3.3 & $\pm$ 5 V	4.7 μ F
12 V	2.2	9 & 12 V	2.2 μ F	$\pm$ 9 & $\pm$ 12 V	1 μ F
15 V	2.2	15 & 24 V	1 μ F	$\pm$ 15 & $\pm$ 24 V	0.47 μ F
24 V	1	-	-	-	-

EMC Recommended Circuit (Class B)



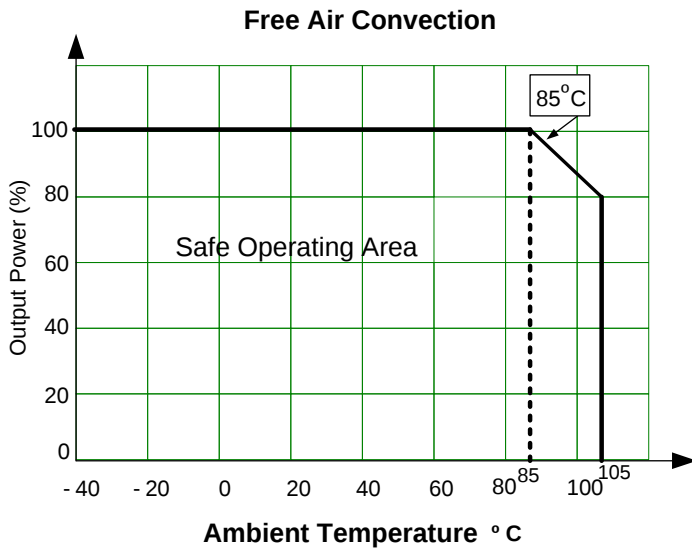
Vin	C3	Cout
3.3, 5, 12V		Refer to typical application circuit
15, 24V	1nF/2KVDC (1.5KV isolation models)	

EMC Recommended Circuit (Class B) for models with suffix JZ



Vout	C3	Cout
3.3, 5, 9V		Refer to typical application circuit
12, 15, 24V	1nF/4KVDC	

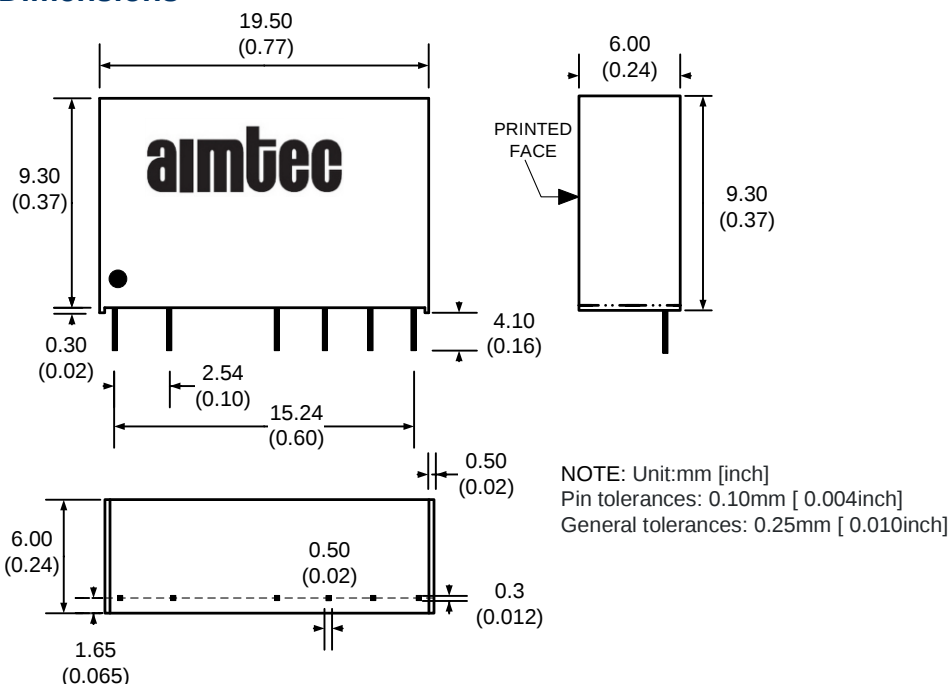
Derating



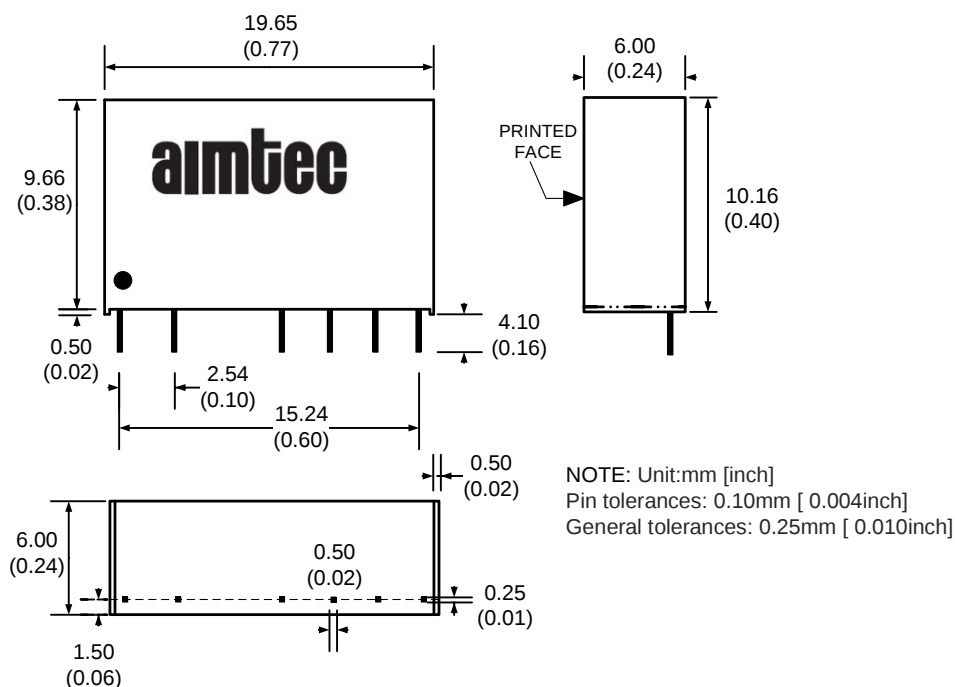
Pin Out Specifications

Pin	1500 VDC isolation		3000 VDC isolation	
	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

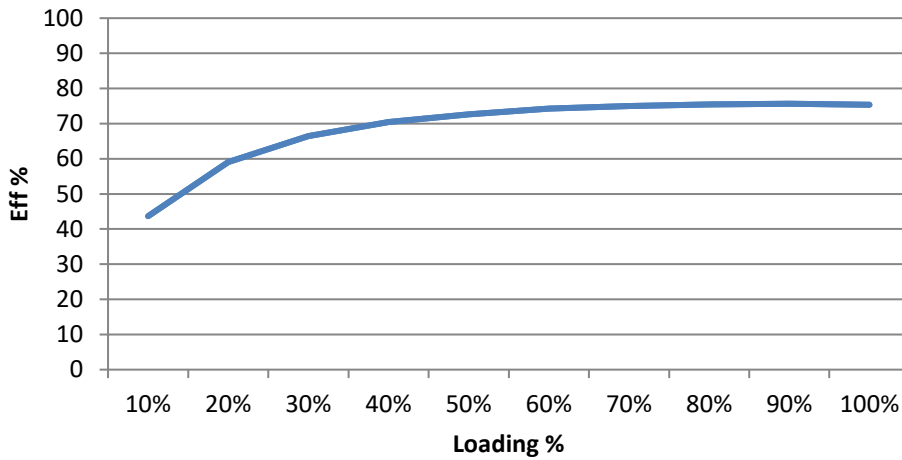


Dimensions for part numbers with suffix JZ

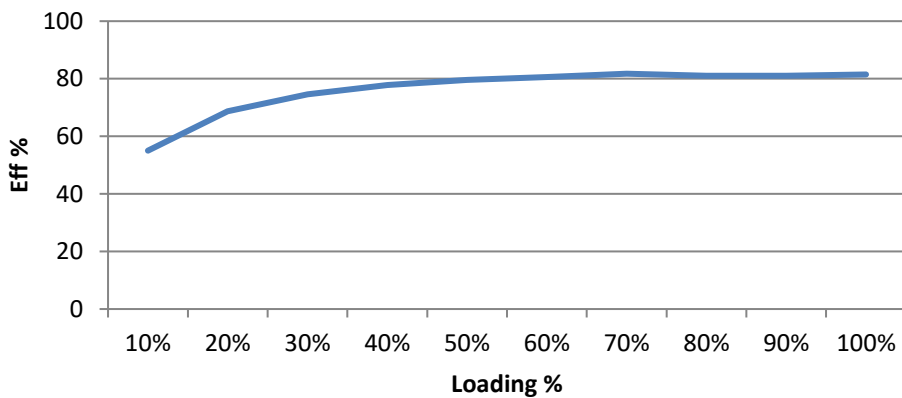


Typical Efficiency Example Charts

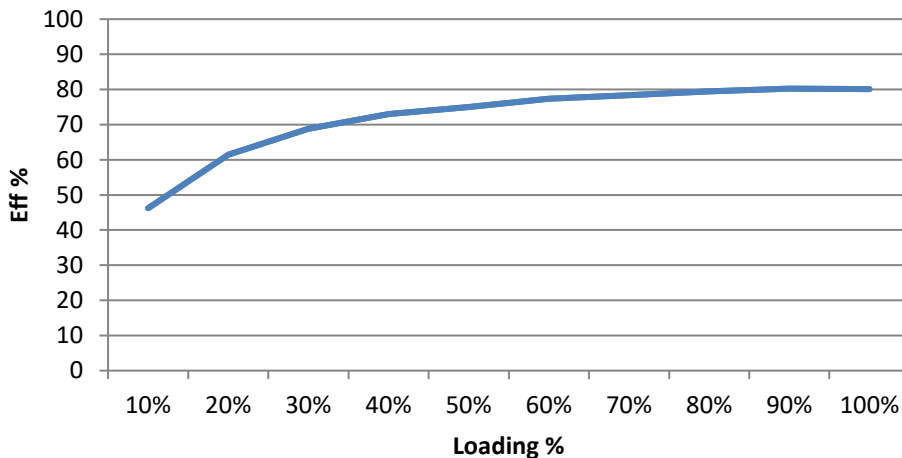
AM1DS-0305S-NZ Efficiency vs. Loading



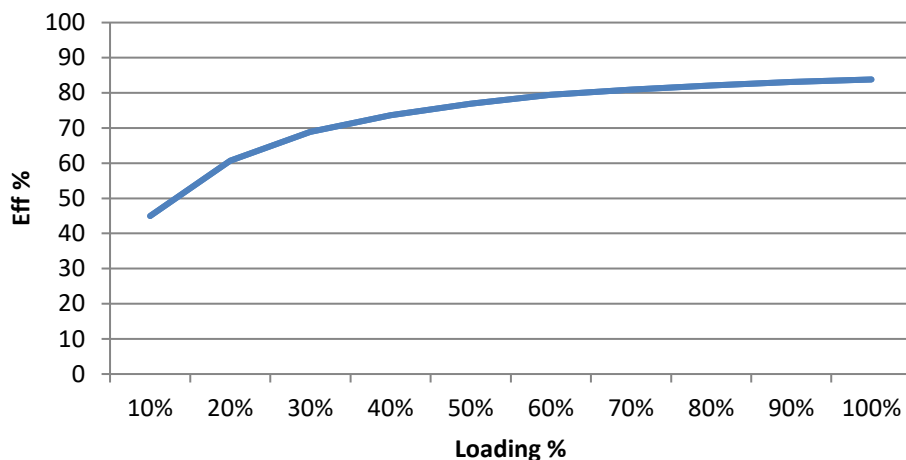
AM1DS-0505S-NZ Efficiency vs. Loading



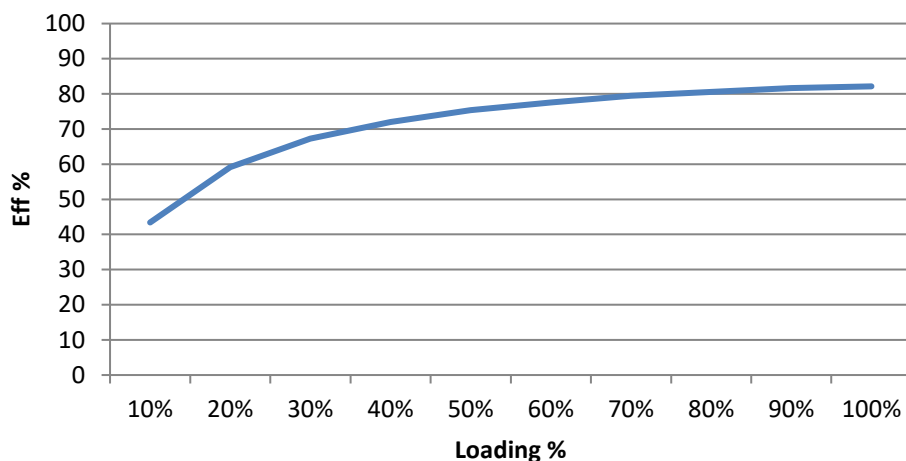
AM1DS-1205S-NZ Efficiency vs. Loading



AM1DS-1515S-NZ Efficiency vs. Loading



AM1DS-2412S-NZ Efficiency vs. Loading



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