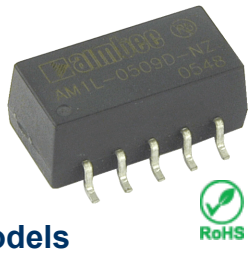
Series AM1L-NZ

1 Watt | DC-DC Converter



FEATURES:

- RoHS compliant
- SMD Package
- Low ripple and noise
- High efficiency up to 83%
- Operating temperature -40°C to + 85°C
- Input / Output Isolation 1000 & 3000VDC
- Pin compatible with multiple manufacturers
- UL94-VO Package

Models
Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Efficiency (%)
AM1L-0303S-NZ	3.0-3.6	3.3	304	1000	70
AM1L-0305S-NZ	3.0-3.6	5	200	1000	71
AM1L-0309S-NZ	3.0-3.6	9	111	1000	71
AM1L-0312S-NZ	3.0-3.6	12	84	1000	72
AM1L-0315S-NZ	3.0-3.6	15	67	1000	72
AM1L-0324S-NZ	3.0-3.6	24	40	1000	72
AM1L-0503S-NZ	4.5-5.5	3.3	304	1000	70
AM1L-0505S-NZ	4.5-5.5	5	200	1000	78
AM1L-0509S-NZ	4.5-5.5	9	111	1000	74
AM1L-0512S-NZ	4.5-5.5	12	84	1000	77
AM1L-0515S-NZ	4.5-5.5	15	67	1000	78
AM1L-0524S-NZ	4.5-5.5	24	40	1000	73
AM1L-1203S-NZ	10.8-13.2	3.3	304	1000	75
AM1L-1205S-NZ	10.8-13.2	5	200	1000	73
AM1L-1209S-NZ	10.8-13.2	9	111	1000	75
AM1L-1212S-NZ	10.8-13.2	12	84	1000	79
AM1L-1215S-NZ	10.8-13.2	15	67	1000	80
AM1L-1224S-NZ	10.8-13.2	24	40	1000	73
AM1L-2403S-NZ	21.6-26.4	3.3	304	1000	70
AM1L-2405S-NZ	21.6-26.4	5	200	1000	72
AM1L-2409S-NZ	21.6-26.4	9	111	1000	72
AM1L-2412S-NZ	21.6-26.4	12	84	1000	83
AM1L-2415S-NZ	21.6-26.4	15	67	1000	81
AM1L-2424S-NZ	21.6-26.4	24	40	1000	80
AM1L-0505SH30-NZ	4.5-5.5	5	200	3000	70
AM1L-0509SH30-NZ	4.5-5.5	9	111	3000	75
AM1L-0512SH30-NZ	4.5-5.5	12	84	3000	78
AM1L-0515SH30-NZ	4.5-5.5	15	67	3000	80
AM1L-1205SH30-NZ	10.8-13.2	5	200	3000	72
AM1L-1209SH30-NZ	10.8-13.2	9	111	3000	76
AM1L-1212SH30-NZ	10.8-13.2	12	84	3000	79
AM1L-1215SH30-NZ	10.8-13.2	15	67	3000	81

Models
Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Efficiency (%)
AM1L-0505D-NZ	4.5-5.5	±5	±100	1000	75
AM1L-0509D-NZ	4.5-5.5	±9	±56	1000	78
AM1L-0512D-NZ	4.5-5.5	±12	±42	1000	79
AM1L-0515D-NZ	4.5-5.5	±15	±33	1000	78
AM1L-1205D-NZ	10.8-13.2	±5	±100	1000	76
AM1L-1209D-NZ	10.8-13.2	±9	±56	1000	78
AM1L-1212D-NZ	10.8-13.2	±12	±42	1000	79

Models

Dual output (continue)

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Efficiency (%)
AM1L-1215D-NZ	10.8-13.2	±15	±33	1000	77
AM1L-2405D-NZ	21.6-26.4	±5	±100	1000	76
AM1L-2409D-NZ	21.6-26.4	±9	±56	1000	75
AM1L-2412D-NZ	21.6-26.4	±12	±42	1000	77
AM1L-2415D-NZ	21.6-26.4	±15	±33	1000	75
AM1L-0505DH30-NZ	4.5-5.5	±5	±100	3000	72
AM1L-0509DH30-NZ	4.5-5.5	±9	±56	3000	75
AM1L-0512DH30-NZ	4.5-5.5	±12	±42	3000	78
AM1L-0515DH30-NZ	4.5-5.5	±15	±33	3000	79
AM1L-1205DH30-NZ	10.8-13.2	±5	±100	3000	74
AM1L-1209DH30-NZ	10.8-13.2	±9	±56	3000	76
AM1L-1212DH30-NZ	10.8-13.2	±12	±42	3000	78
AM1L-1215DH30-NZ	10.8-13.2	±15	±33	3000	79

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	3 5 12	3.0-3.6 4.5-5.5 10.8-13.2		VDC
Filter	Capacitor			

Isolation Specifications

Parameters	Conditions	Typical	Maximum	Units
Tested voltage	60 sec	1000 & 3000		VDC
Resistance		> 1000		MOhm
Capacitance		60		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	See the tolerance graph	±5		%
Voltage balance	Dual Output	±2		%
Short Circuit protection	1sec			
Line voltage regulation (Single)	For 1.0% of Vin	±1.2		%
Line voltage regulation (Dual)	For 1.0% of Vin	±1.2		%
Load voltage regulation (Single)	Load 10 – 100%	10		%
Load voltage regulation (Dual)	Load 10 – 100%	10		%
Temperature coefficient		±0.03		%/°C
Ripple & Noise	At 20MHz Bandwidth	75	100	mV p-p

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	100		**KHz**
Case temperature			+95	**°C**
Operating temperature	Without derating	-40 to +85		**°C**
Storage temperature		-55 to +125		**°C**
Cooling	Free air convection			
Humidity	Non Condensing		95	**%**
Case material		Plastic UL94-VO		
Weight		1.5		g
Dimensions	Single 1000VDC		12.7 x 11.2 x 6.7 mm	
	Dual 1000VDC		15.2 x 11.2 x 6.7 mm	
	Single and Dual 3000VDC		15.24 x 11.2 x 6.7 mm	
MTBF	>980 000 hrs single, 1 000 000hrs dual (MIL-HDBK -217F, Ground Benign, t=+25°C)			

Safety Specifications

Standards	
Agency approvals	cULus (for 3000VDC Isolated models and 5 and 12 Vin models with 1000VDC Isolation), CE (for 5 and 12 Vin single models)

Pin Out Specifications

1000VDC

Pin	Single
1	- V Input
2	+ V Input
3	N. C.
4	- V Output
5	.+V Output
6	N.C.
7	N.C.
8	N.C.

Pin	Dual
1	- V Input
2	+ V Input
3	N. C.
4	Common
5	.-V Output
6	N.C.
7	+V Output
8	N.C.
9	N.C.
10	N.C.

3000VDC

Pin	Single	Dual
1	- V Input	- V Input
2	+ V Input	+ V Input
3	N.C.	N.C.
4	Omitted	Omitted
5	-V Output	Common
6	N.C.	-V Output
7	N.C.	N.C.
8	+V Output	+V Output
9	Omitted	Omitted
10	N.C.	N.C.
11	N.C.	N.C.
12	N.C.	N.C.

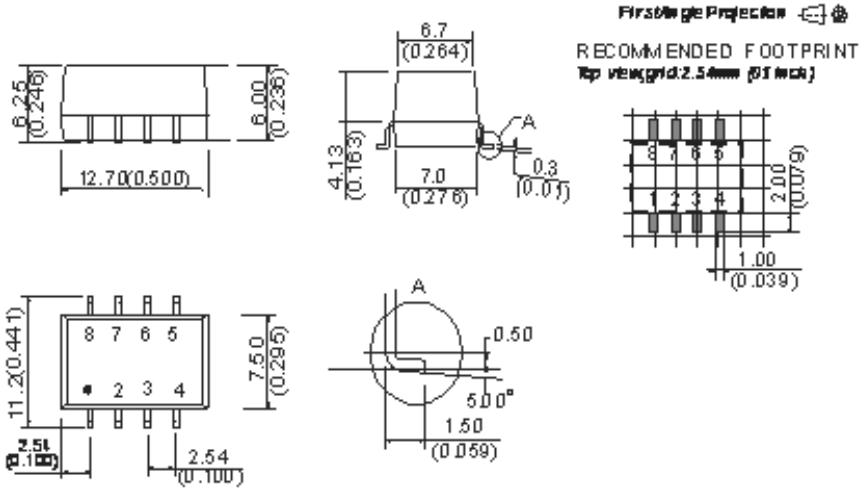
External capacitor – Single output

Vin (VDC)	External capacitor (µF)	Vout (VDC)	External capacitor (µF)
5	4.7	5	10
12	2.2	9	4.7
24	1	12	2.2
-	-	15	1

External capacitor – Dual output

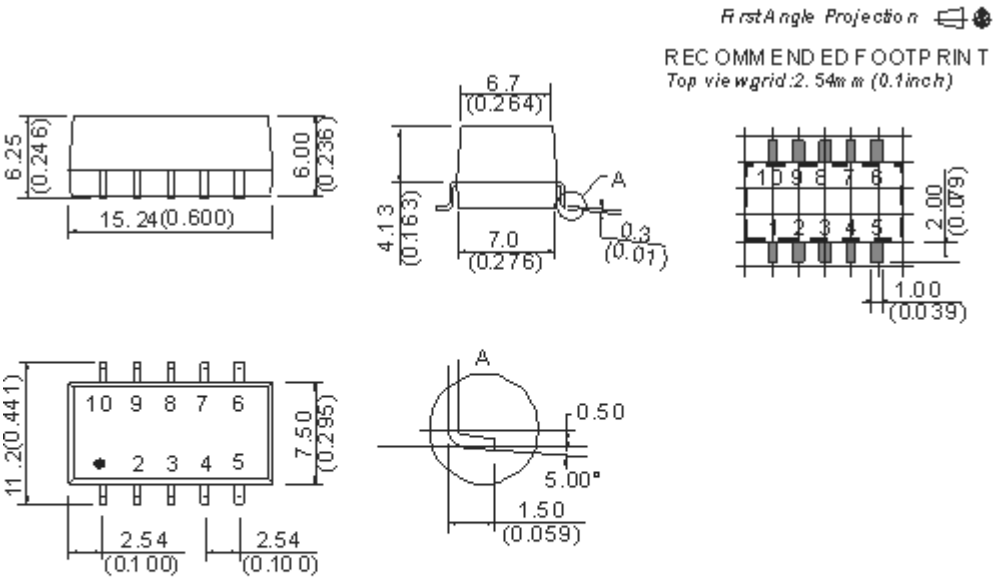
Vin (VDC)	External capacitor (µF)	Vout (VDC)	External capacitor (µF)
5	4.7	5	4.7
12	2.2	9	2.2
24	1	12	1
-	-	15	0.47

Dimensions Single 1000VDC



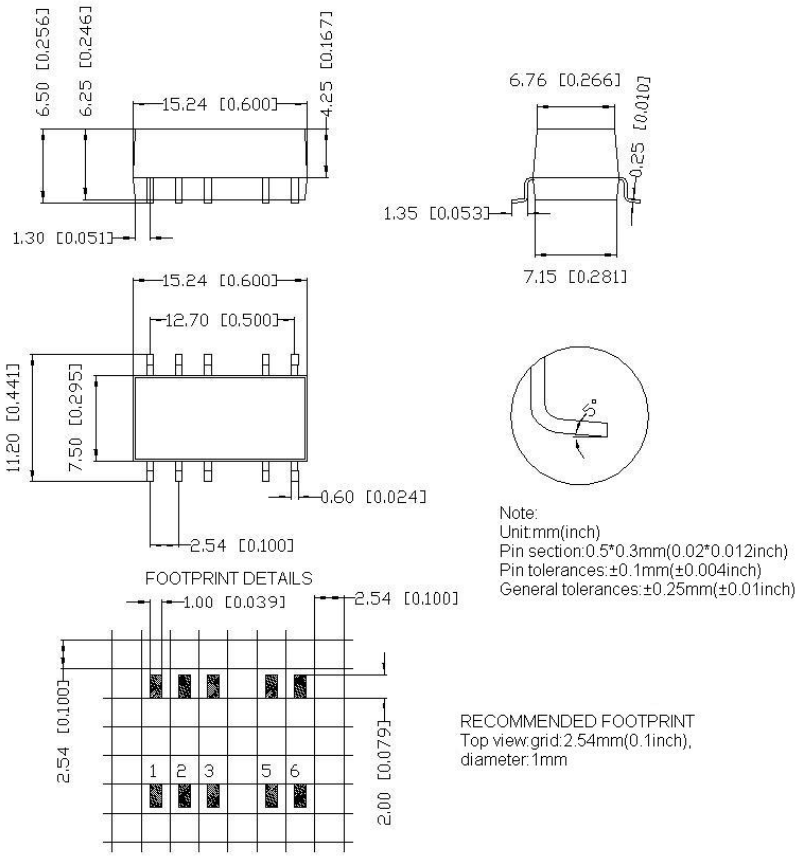
Note:
Unit:mm(inch)
Pin section 0.60*0.25mm(0.024*0.010inch)
Pin tolerances: ±0.10mm(±0.004inch)
General tolerances: ±0.15mm(±0.006inch)

Dimensions Dual 1000VDC

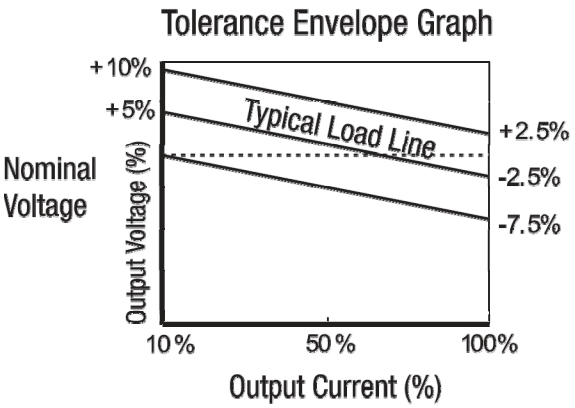


Note:
Unit:mm(inch)
Pin section: 0.60*0.25mm(0.024*0.010inch)
Pin tolerances: ±0.10mm(±0.004inch)
General tolerances: ±0.15mm(±0.006inch)

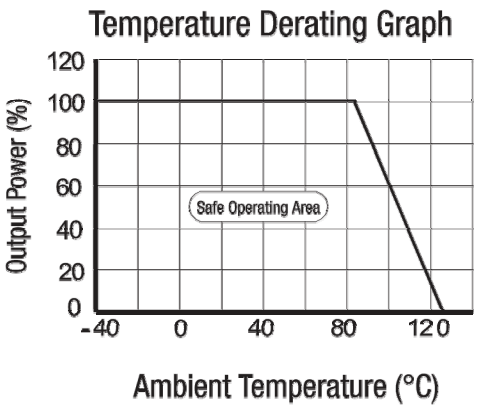
Dimensions Single and Dual 3000VDC



Tolerance Graph



Derating



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