

Features

1. Rated power: 1W max
2. Input voltage range $\pm 10\%$
3. Unregulated output
4. High efficiency up to 85%
5. Isolation voltage 3KVDC
6. Small no load input current
7. Compact SMD package
8. Operating temperature range: $-40 \sim +105^{\circ}\text{C}$ ambient
9. Continuous short circuit protection
10. Meet UL/EN/IEC 62368-1/EN 55032 Class B
11. 3 year warranty



3 years
Warranty

The AMF(E)_LT series are unregulated DC/DC converters offered in compact SMD package with 3KVDC isolation. These converters feature high efficiency, low ripple and noise, continuous short circuit protection, and wide operating temperature range $-40 \sim +105^{\circ}\text{C}$. They are widely used in distributed power system in industrial applications where isolation and voltage converting is needed.

Selection Guide

Model	Input Voltage [VDC]	V _{OUT} [VDC]	I _{OUT} [mA]Max.	Efficiency [%] Typ.	Capacitive Load[uF]Max.
AMF0503LT-1WR3	5(4.5-5.5)	3.5	303	74	2400
AMF0505LT-1WR3	5(4.5-5.5)	5	200	82	2400
AMF0509LT-1WR3	5(4.5-5.5)	9	111	83	1000
AMF0512LT-1WR3	5(4.5-5.5)	12	84	83	560
AMF0515LT-1WR3	5(4.5-5.5)	15	67	83	560
AMF0524LT-1WR3	5(4.5-5.5)	24	42	85	220
AME0503LT-1WR3	5(4.5-5.5)	± 3.3	± 151	74	± 1200
AME0505LT-1WR3	5(4.5-5.5)	± 5	± 100	82	± 1200
AME0509LT-1WR3	5(4.5-5.5)	± 9	± 56	83	± 470
AME0512LT-1WR3	5(4.5-5.5)	± 12	± 42	83	± 220
AME0515LT-1WR3	5(4.5-5.5)	± 15	± 34	83	± 220
AME0524LT-1WR3	5(4.5-5.5)	± 24	± 21	85	± 100

Electrical Specification

Unless otherwise indicated, specifications are measured at $T_A=25^{\circ}\text{C}$, nominal input voltage, full load after warm up.

Parameters	Condition	Min.	Typ.	Max.	Unit
Input current Full load	$V_{OUT}=3.3,5V$ All others	-	270 241	-	mA
Input current No load	$V_{OUT}=3.3,5V$ $V_{OUT}=9,12V$ $V_{OUT}=15,24V$	-	5 12 18	-	mA
Reflected Ripple Current		-	15	-	mA
Surge voltage 1 second max	$V_{IN}=5V$	-0.7	-	9	VDC
Output voltage accuracy	All models	Refer to graphic in "Characteristic Curves" section			
Line regulation For V_{IN} change of $\pm 1\%$	$V_{OUT}=3.3V$ All others	-	-	± 1.5 ± 1.2	%
Load regulation[1] $I_{OUT}=10\%$ to 100% of $I_{OUT,rated}$	$V_{OUT}=3.3V, \pm 3.3V$ $V_{OUT}=5V, \pm 5V$ All others	-	15 10 8	20 15 10	%
Temperature coefficient	Full load	-	± 0.03	-	%/ $^{\circ}\text{C}$
Output ripple and noise 20MHz bandwidth	$V_{OUT}=24V, \pm 24V$ Others	-	50 30	100 75	mVp-p
Output short circuit protection		Continuous, automatic recovery			
Input filter		Capacitor			
Hot plug		None			

Notes [1 1 : Operating with less than 10% of rated load will not cause permanent damage to the converters, but the performance data may not fall into the specifications, and reliable operating is not assured.

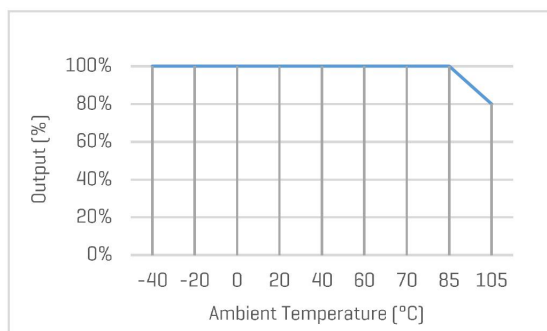
General Specifications

Parameters	Condition	Min.	Typ.	Max.	Unit
Isolation voltage 1 minute, leakage current < 1mA	Input to Output	3000	-	-	VDC
Isolation resistance Tested at 500VDC	Input to Output	1000	-	-	Mohm
Isolation capacitance 100KHz,0.1V	Input to Output	-	20	-	pF
Switching frequency	Full Load	-	270	-	KHz
Operating temperature	See "Derating Curve"	-40	-	+105	°C
Storage temperature		-55	-	+125	°C
Temperature rise at case Full load	V _{OUT} =3.3V Others	-	25 15	-	°C
Storage humidity	Non-condensing	5		95	%RH
Reflow soldering temperature		Peak temp. 217 - 245°C, maximum duration 60s			
Case material		Black plastic UL94-V0			
Cooling method		Free air convection			
Vibration		10-150Hz, 5G, 0.75mm along X, Y and Z			
Moisture sensitivity level (MSL)		IPC/JEDEC J-STD-020D.1 Level 1			
MTBF	MIL-HDBK-217F	>3,500,000 Hours, T _A =25°C			
Safety standards		UL/EN/IEC 62368-1			
EMC standards	CISPR32, EN55032	Class B with "External Circuit"			
ESD	IEC/EN61000-4-2	Contact ±4KV, Air ±8KV, perf. Criteria B			
Size & Weight		15.24*11.4*7.25mm,1.3g Typ.			

Characteristic Curves

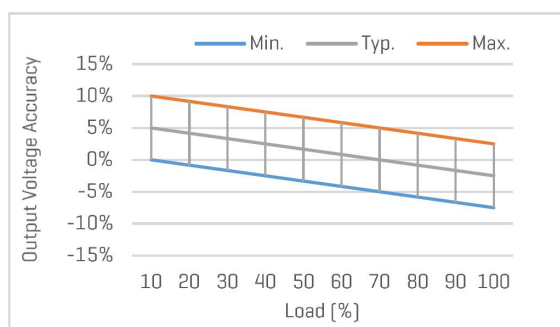
Output vs Ambient Temperature

All models

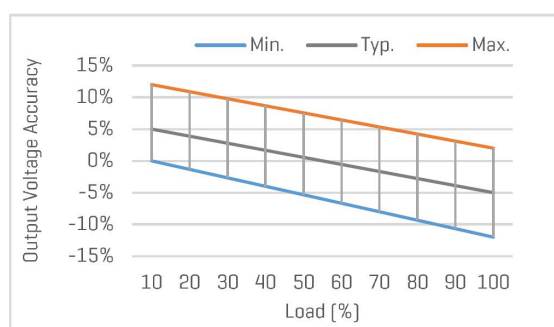


Output Voltage Accuracy vs Load

None 3.3V output models



3.3V output models



Recommended External Circuit

Typical Application Circuit

*Typical application circuit is to further lower the input and output ripple, It is not mandatory.

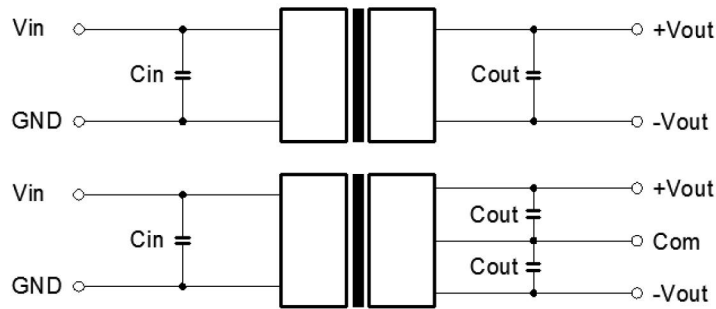


Figure 1,Typical external circuit

[Table 1]Recommend component spec

Input voltage	5V
CIN	4.7uF,16V

[Table 2]Recommend component spec

Output voltage	3.3,5V	9V	12V	15V	24V
COUT	10uF,16V	4.7uF,16V	2.2uF,25V	1uF,25V	0.47uF,50V

EMC Enhancement for EN55032 Class B

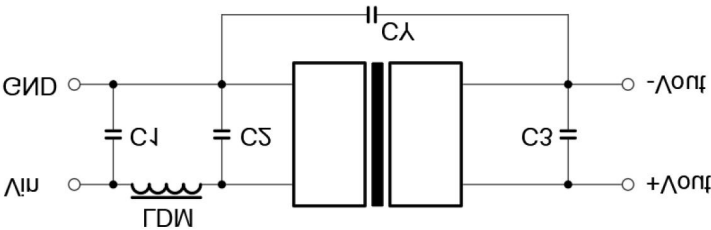


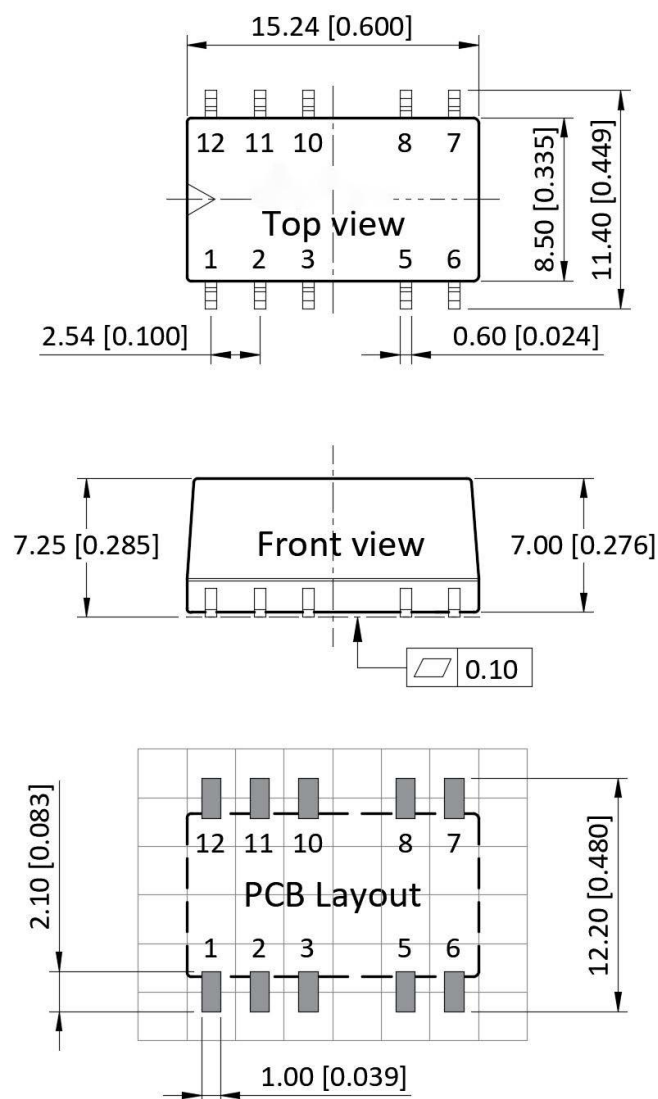
Figure 2,Circuit for EMC enhancement

[Table 3]Recommend component spec

Component	LDM	C1,C2	CY[VOUT=3.3,5,9]	CY[VOUT=12,15,24]
COUT	6.8uH	4.7uF,50V	N/C	1nF,4KV

*C3 refer to COUT in [Table 2]

Mechanical Specifications



Pin #	Single Out	Dual Out
1	-V _{IN}	-V _{IN}
2	+V _{IN}	+V _{IN}
3	-V _{OUT}	COM
4	N/C	-V _{OUT}
5	+V _{OUT}	+V _{OUT}
6	N/C	N/C

Unless otherwise specified unit: mm [inch]
 General tolerance: ± 0.25 [± 0.010]
 Pin thickness: ± 0.10 [± 0.004]
 Footprint grid 2.54 x 2.54 mm