AM2DS-JZ

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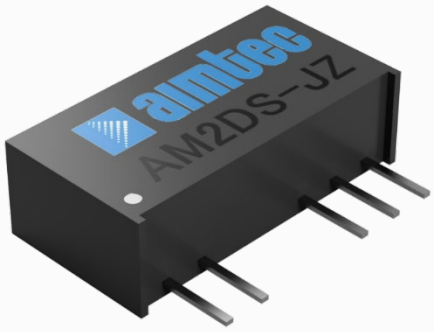


SIP7 Package

The AM2DS-JZ is a 2W SIP7 DC/DC converter that offers great cost savings thanks to an improved manufacturing process. It also features excellent reliability and performance while offering a standard input voltage range of 5-24VDC as well as an output voltage of 3.3-24V. This compact SIP7 design will surely benefit your new system design.

This new series offers great operating temperatures, from -40 to 105°C with full power up to 85°C. Also, an isolation of 1500 or 3000VDC for improved reliability and system safety as well as a great 3,500,000h MTBF come standard.

The AM2DS-JZ is perfect for instrumentation, industrial controls, industrial applications, communication and IoT applications.

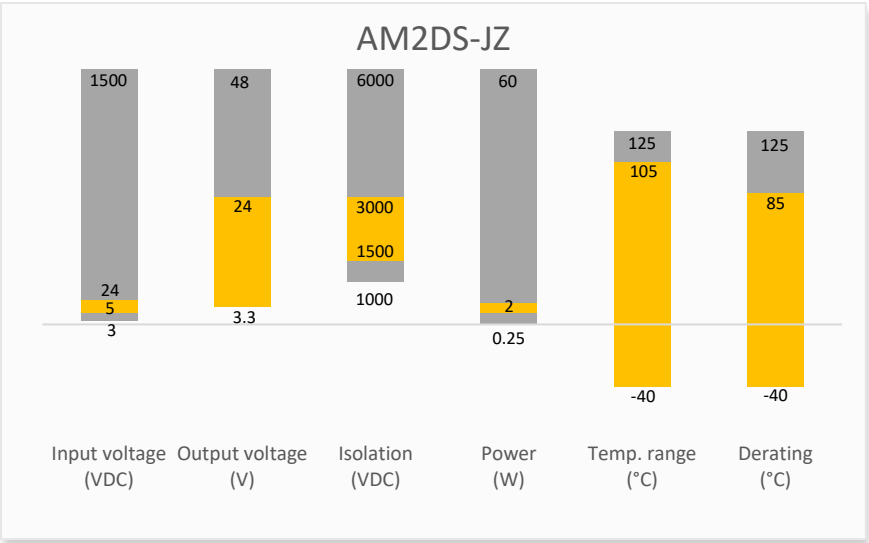
Features

- High I/O Isolation of 1500/3000VDC
- Continuous Short circuit protection
- Operating Temp: -40 °C to +105 °C
- Industry standard SIP7 pin-out
- Efficiency up to 86%
- Unregulated output

RoHS

3yr Warranty

Summary



Training



Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

IoT

Industrial

Telecom

Portable Equipment

Models & Specifications

Single Output							
Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current Full | No load typ. (mA)	Output Current max | min (mA)*	Isolation (VDC)	Maximum capacitive Load (µF)	Efficiency Typ. (%)
AM2DS-0503SJZ	5 (4.5-5.5)	3.3	534 / 8	400 / 40	1500	2400	78
AM2DS-0505SJZ	5 (4.5-5.5)	5	477 / 8	400 / 40	1500	2400	84
AM2DS-0507SJZ	5 (4.5-5.5)	7.2	477 / 8	278 / 28	1500	1000	84
AM2DS-0509SJZ	5 (4.5-5.5)	9	471 / 8	222 / 22	1500	1000	85
AM2DS-0512SJZ	5 (4.5-5.5)	12	471 / 8	167 / 17	1500	560	85
AM2DS-0515SJZ	5 (4.5-5.5)	15	466 / 8	133 / 13	1500	560	86
AM2DS-0524SJZ	5 (4.5-5.5)	24	466 / 8	83 / 8	1500	220	86
AM2DS-1203SJZ	12 (10.8-13.2)	3.3	223 / 8	400 / 40	1500	2400	79
AM2DS-1205SJZ #	12 (10.8-13.2)	5	223 / 8	400 / 40	1500	2400	82
AM2DS-1209SJZ	12 (10.8-13.2)	9	223 / 8	222 / 22	1500	1000	82
AM2DS-1212SJZ #	12 (10.8-13.2)	12	223 / 8	167 / 17	1500	560	84
AM2DS-1215SJZ #	12 (10.8-13.2)	15	223 / 8	133 / 13	1500	560	85
AM2DS-1224SJZ #	12 (10.8-13.2)	24	223 / 8	83 / 8	1500	220	86
AM2DS-1505SJZ	15 (13.5-16.5)	5	167 / 8	400 / 40	1500	2400	80
AM2DS-1515SJZ	15 (13.5-16.5)	15	167 / 8	133 / 13	1500	560	81
AM2DS-1524SJZ	15 (13.5-16.5)	24	167 / 8	83 / 8	1500	220	81
AM2DS-2403SJZ	24 (21.6-26.4)	3.3	110 / 8	400 / 40	1500	2400	76
AM2DS-2405SJZ #	24 (21.6-26.4)	5	110 / 8	400 / 40	1500	2400	80
AM2DS-2409SJZ	24 (21.6-26.4)	9	110 / 8	222 / 22	1500	1000	81
AM2DS-2412SJZ #	24 (21.6-26.4)	12	110 / 8	167 / 17	1500	560	84
AM2DS-2415SJZ #	24 (21.6-26.4)	15	110 / 8	133 / 13	1500	560	86
AM2DS-2424SJZ #	24 (21.6-26.4)	24	110 / 8	83 / 8	1500	220	86
AM2DS-0503SH30JZ	5 (4.5-5.5)	3.3	534 / 8	400 / 40	3000	2400	78
AM2DS-0505SH30JZ	5 (4.5-5.5)	5	477 / 8	400 / 40	3000	2400	84
AM2DS-0507SH30JZ	5 (4.5-5.5)	7.2	477 / 8	278 / 28	3000	1000	84
AM2DS-0509SH30JZ	5 (4.5-5.5)	9	471 / 8	222 / 22	3000	1000	85
AM2DS-0512SH30JZ	5 (4.5-5.5)	12	471 / 8	167 / 17	3000	560	85
AM2DS-0515SH30JZ	5 (4.5-5.5)	15	466 / 8	133 / 13	3000	560	86
AM2DS-0524SH30JZ	5 (4.5-5.5)	24	466 / 8	83 / 8	3000	220	86
AM2DS-1205SH30JZ #	12 (10.8-13.2)	5	208 / 8	400 / 40	3000	2400	82
AM2DS-1206SH30JZ	12 (10.8-13.2)	6.4	208 / 8	312 / 31	3000	1000	82
AM2DS-1209SH30JZ	12 (10.8-13.2)	9	208 / 8	222 / 22	3000	1000	82
AM2DS-1212SH30JZ #	12 (10.8-13.2)	12	208 / 8	167 / 17	3000	560	84
AM2DS-1215SH30JZ #	12 (10.8-13.2)	15	208 / 8	133 / 13	3000	560	85
AM2DS-1224SH30JZ #	12 (10.8-13.2)	24	208 / 8	83 / 8	3000	220	86
AM2DS-1505SH30JZ	15 (13.5-16.5)	5	167 / 8	400 / 40	3000	2400	80
AM2DS-1509SH30JZ	15 (13.5-16.5)	9	167 / 8	222 / 22	3000	1000	80
AM2DS-1512SH30JZ	15 (13.5-16.5)	12	167 / 8	167 / 17	3000	560	81
AM2DS-1515SH30JZ	15 (13.5-16.5)	15	167 / 8	133 / 13	3000	560	81
AM2DS-1524SH30JZ	15 (13.5-16.5)	24	167 / 8	83 / 8	3000	220	81
AM2DS-2403SH30JZ	24 (21.6-26.4)	3.3	104 / 8	400 / 40	3000	2400	76
AM2DS-2405SH30JZ #	24 (21.6-26.4)	5	104 / 8	400 / 40	3000	2400	80
AM2DS-2407SH30JZ	24 (21.6-26.4)	7.2	104 / 8	278 / 27	3000	1000	80

AM2DS-2409SH30JZ	24 (21.6-26.4)	9	104 / 8	222 / 22	3000	1000	81
AM2DS-2412SH30JZ #	24 (21.6-26.4)	12	104 / 8	167 / 17	3000	560	84
AM2DS-2415SH30JZ #	24 (21.6-26.4)	15	104 / 8	133 / 13	3000	560	86
AM2DS-2418SH30JZ	24 (21.6-26.4)	18	104 / 8	111 / 11	3000	220	86
AM2DS-2424SH30JZ #	24 (21.6-26.4)	24	104 / 8	83 / 8	3000	220	86
* Performance will be degraded if the load is not within the output current range.							

Dual Output

Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current Full | No load typ. (mA)	Output Current max | min (mA)*	Isolation (VDC)	Maximum capacitive Load (µF)	Efficiency Typ. (%)
AM2DS-0503DJZ	5 (4.5-5.5)	±3.3	534 / 8	±303 / ±30	1500	±1200	75
AM2DS-0505DJZ	5 (4.5-5.5)	±5	477 / 8	±200 / ±20	1500	±1200	84
AM2DS-0509DJZ	5 (4.5-5.5)	±9	471 / 8	±111 / ±11	1500	±470	85
AM2DS-0512DJZ	5 (4.5-5.5)	±12	471 / 8	±83 / ±8	1500	±220	85
AM2DS-0515DJZ	5 (4.5-5.5)	±15	466 / 8	±67/ ±7	1500	±220	86
AM2DS-0524DJZ	5 (4.5-5.5)	±24	466 / 8	±42 / ±4	1500	±100	86
AM2DS-1203DJZ #	12 (10.8-13.2)	±3.3	223 / 8	±303 / ±30	1500	±1200	75
AM2DS-1205DJZ #	12 (10.8-13.2)	±5	223 / 8	±200 / ±20	1500	±1200	80
AM2DS-1207DJZ	12 (10.8-13.2)	±7.2	223 / 8	±139 / ±13	1500	±470	80
AM2DS-1209DJZ	12 (10.8-13.2)	±9	223 / 8	±111 / ±11	1500	±470	82
AM2DS-1212DJZ #	12 (10.8-13.2)	±12	223 / 8	±83 / ±8	1500	±220	83
AM2DS-1215DJZ #	12 (10.8-13.2)	±15	223 / 8	±67/ ±7	1500	±220	83
AM2DS-1224DJZ	12 (10.8-13.2)	±24	223 / 8	±42 / ±4	1500	±100	83
AM2DS-1505DJZ	15 (13.5-16.5)	±5	167 / 8	±200 / ±20	1500	±1200	80
AM2DS-1515DJZ	15 (13.5-16.5)	±15	167 / 8	±67/ ±7	1500	±220	82
AM2DS-2403DJZ	24 (21.6-26.4)	±3.3	110 / 8	±303 / ±30	1500	±1200	76
AM2DS-2405DJZ #	24 (21.6-26.4)	±5	110 / 8	±200 / ±20	1500	±1200	80
AM2DS-2407DJZ	24 (21.6-26.4)	±7.2	110 / 8	±139 / ±13	1500	±470	80
AM2DS-2409DJZ	24 (21.6-26.4)	±9	110 / 8	±111 / ±11	1500	±470	81
AM2DS-2412DJZ #	24 (21.6-26.4)	±12	110 / 8	±83 / ±8	1500	±220	83
AM2DS-2415DJZ #	24 (21.6-26.4)	±15	110 / 8	±67/ ±7	1500	±220	83
AM2DS-2424DJZ	24 (21.6-26.4)	±24	110 / 8	±42 / ±4	1500	±100	83
AM2DS-0503DH30JZ	5 (4.5-5.5)	±3.3	534 / 8	±303 / ±30	3000	±1200	75
AM2DS-0505DH30JZ	5 (4.5-5.5)	±5	477 / 8	±200 / ±20	3000	±1200	84
AM2DS-0509DH30JZ	5 (4.5-5.5)	±9	471 / 8	±111 / ±11	3000	±470	85
AM2DS-0512DH30JZ	5 (4.5-5.5)	±12	471 / 8	±83 / ±8	3000	±220	85
AM2DS-0515DH30JZ	5 (4.5-5.5)	±15	466 / 8	±67/ ±7	3000	±220	86
AM2DS-0524DH30JZ	5 (4.5-5.5)	±24	466 / 8	±42 / ±4	3000	±100	86
AM2DS-1203DH30JZ #	12 (10.8-13.2)	±3.3	208 / 8	±303 / ±30	3000	±1200	75
AM2DS-1205DH30JZ #	12 (10.8-13.2)	±5	208 / 8	±200 / ±20	3000	±1200	80
AM2DS-1207DH30JZ	12 (10.8-13.2)	±7.2	208 / 8	±139 / ±13	3000	±470	80
AM2DS-1209DH30JZ	12 (10.8-13.2)	±9	208 / 8	±111 / ±11	3000	±470	82
AM2DS-1212DH30JZ #	12 (10.8-13.2)	±12	208 / 8	±83 / ±8	3000	±220	83
AM2DS-1215DH30JZ #	12 (10.8-13.2)	±15	208 / 8	±67/ ±7	3000	±220	83
AM2DS-1224DH30JZ	12 (10.8-13.2)	±24	208 / 8	±42 / ±4	3000	±100	83
AM2DS-1505DH30JZ	15 (13.5-16.5)	±5	167 / 8	±200 / ±20	3000	±1200	80
AM2DS-1515DH30JZ	15 (13.5-16.5)	±15	167 / 8	±67/ ±7	3000	±220	82
AM2DS-2403DH30JZ	24 (21.6-26.4)	±3.3	104 / 8	±303 / ±30	3000	±1200	76
AM2DS-2405DH30JZ #	24 (21.6-26.4)	±5	104 / 8	±200 / ±20	3000	±1200	80

AM2DS-2407DH30JZ	24 (21.6-26.4)	±7.2	104 / 8	±139 / ±13	3000	±470	80
AM2DS-2409DH30JZ	24 (21.6-26.4)	±9	104 / 8	±111 / ±11	3000	±470	81
AM2DS-2412DH30JZ #	24 (21.6-26.4)	±12	104 / 8	±83 / ±8	3000	±220	83
AM2DS-2415DH30JZ #	24 (21.6-26.4)	±15	104 / 8	±67/ ±7	3000	±220	83
AM2DS-2424DH30JZ	24 (21.6-26.4)	±24	104 / 8	±42 / ±4	3000	±100	83
* Performance will be degraded if the load is not within the output current range.							

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Filter	Capacitor			
Absolute maximum rating	Maximum duration 1s, 5Vin	> -0.7	9	VDC
	Maximum duration 1s, 12Vin	> -0.7	18	VDC
	Maximum duration 1s, 15Vin	> -0.7	21	VDC
	Maximum duration 1s, 24Vin	> -0.7	30	VDC
Input reflected ripple current		15		mA

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, leakage ≤ 1mA	>1500		VDC
	60 sec, leakage ≤ 1mA for H30 models	>3000		VDC
Resistance	500VDC	>1000		MΩ
Capacitance	100kHz/0.1V	20		pF

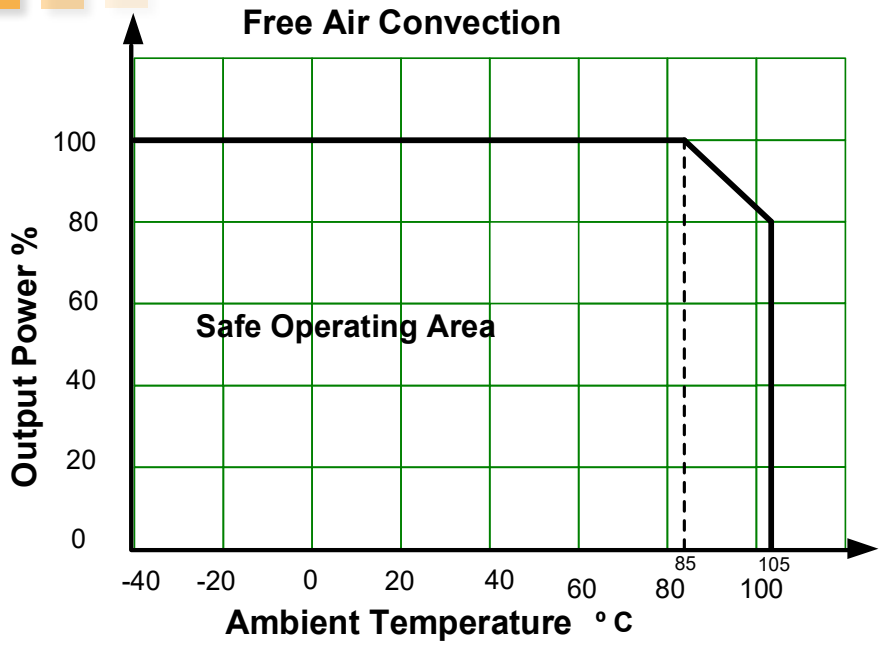
Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	See output voltage tolerance	10	16	%
Line regulation	Per 1% Vin change, 3.3Vout models		1.5	%
	Per 1% Vin change, other models		1.2	%
Load regulation	10-100% load, 5Vin, 3.3Vout models		20	%
	10-100% load, 5Vin, 5/7.2Vout models		15	%
	10-100% load, 5Vin, other models		10	%
	10-100% load, 12/15/24Vin, 3.3Vout models	15		%
	10-100% load, 12/15/24Vin, 5Vout models	7		%
	10-100% load, 12/15/24Vin, 6.4Vout models	10		%
	10-100% load, 12/15/24Vin, 7.2Vout models	6		%
	10-100% load, 12/15/24Vin, 9/12Vout models	5		%
	10-100% load, 12/15/24Vin, 15Vout models	4		%
	10-100% load, 12/15/24Vin, 18/24Vout models	3		%
Ripple & Noise*	5Vin models	75	200	mV pk-pk
	Other models	75	180	mV pk-pk
Temperature coefficient		±0.02		%/°C
* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the application note for specific details.				

General Specifications				
Parameters	**Conditions**	**Typical**	**Maximum**	**Units**
Switching frequency	Full load, nominal input, 5Vin models	220		KHz
	Full load, nominal input, other models	260		KHz
Short circuit protection	Continuous, Auto recovery			
Operating temperature	With derating	-40 to +105		°C
Storage temperature		-55 to +125		°C
Case temperature rise	Ta = 25°C, 12/15/24Vin, 1500V isolation models	15		°C
	Ta = 25°C, other models	25		°C
Manual soldering temperature	1.5mm away from case, duration ≤ 10sec		300	°C
Cooling	Free air convection			
Humidity	Non-condensing	>5	95	% RH
Vibration	10-150Hz, 5G, 0.75mm, along all axis			
Case material	Black plastic (flammability to UL 94V-0)			
Weight		2.4		g
Dimensions (L x W x H)	0.77 x 0.28 x 0.40 inches (19.65 x 7.05 x 10.16 mm)			
MTBF	3 500 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load			
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.				

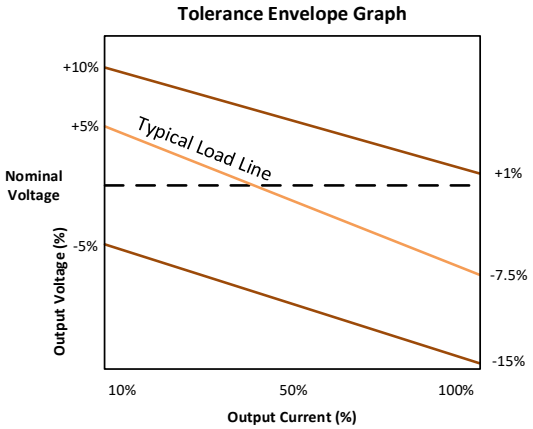
Safety Specifications		
Parameters		
Standards	Information technology Equipment	Design to meet IEC/EN/Designed to meet UL62368 (For models marked with # only)
	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B with the recommended EMI circuit
	Electrostatic Discharge Immunity	IEC 61000-4-2 Air ±8KV, Contact ±6KV, Criteria B

Derating

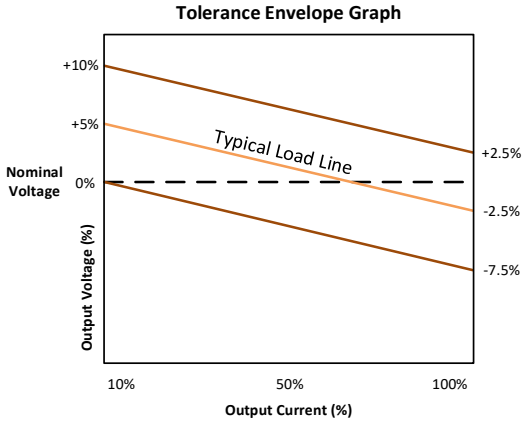


Output voltage tolerance

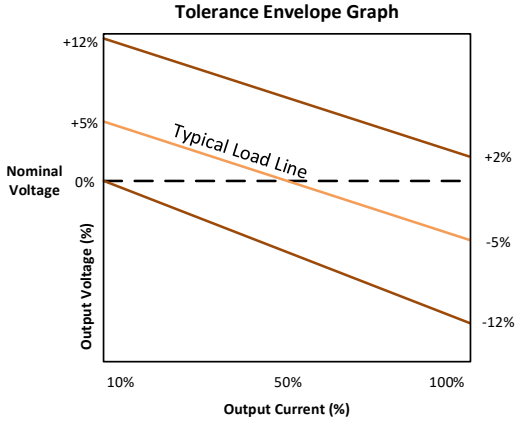
5Vin, 3.3Vout models



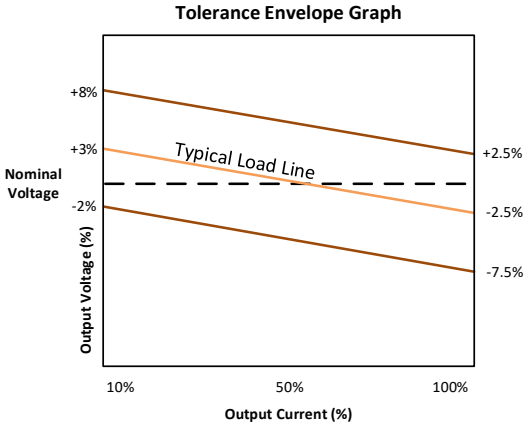
5Vin, other output models
12/15/24Vin, 5/7.2Vout models



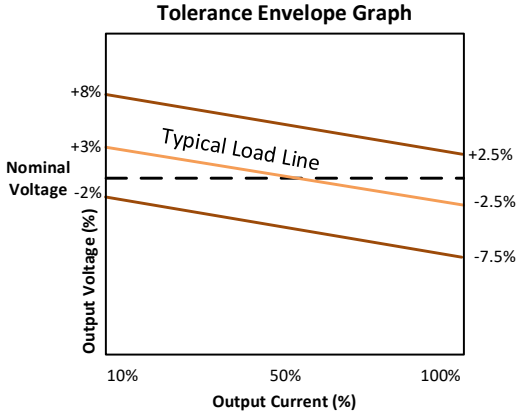
12/15/24Vin, 3.3Vout models



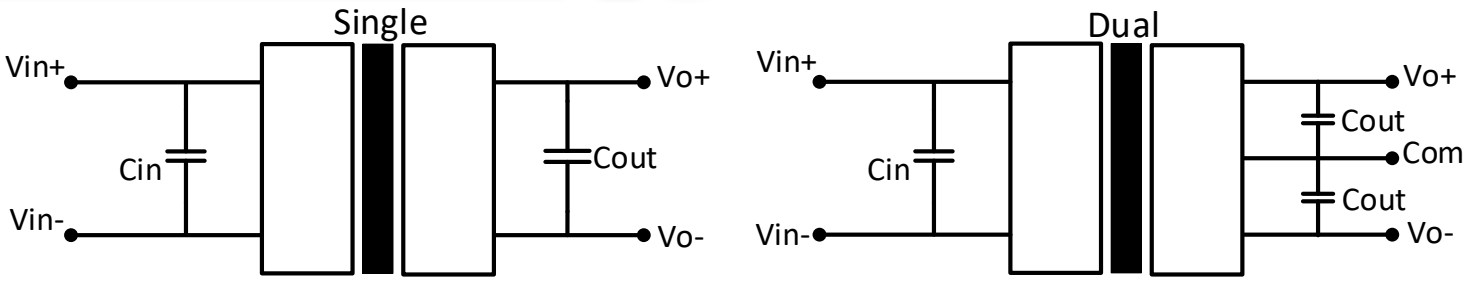
12/15/24Vin, 5/6.4/7.2Vout models



12/15/24Vin, other output models

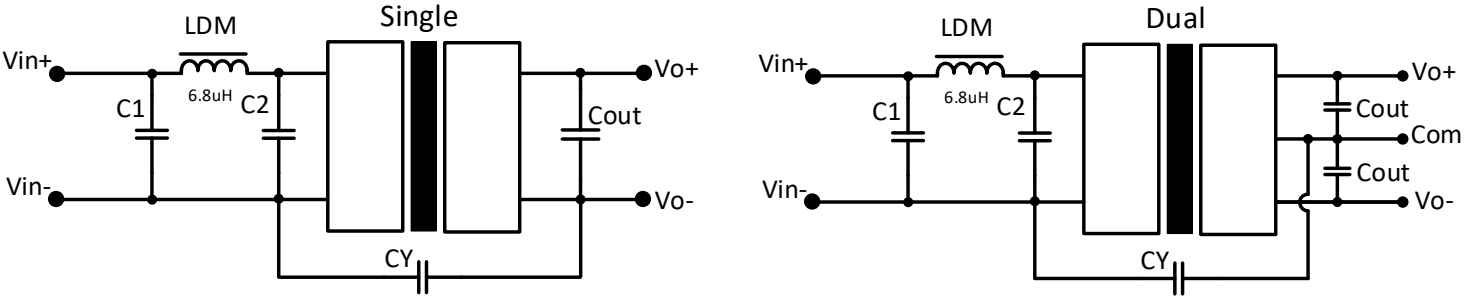


Typical application circuit



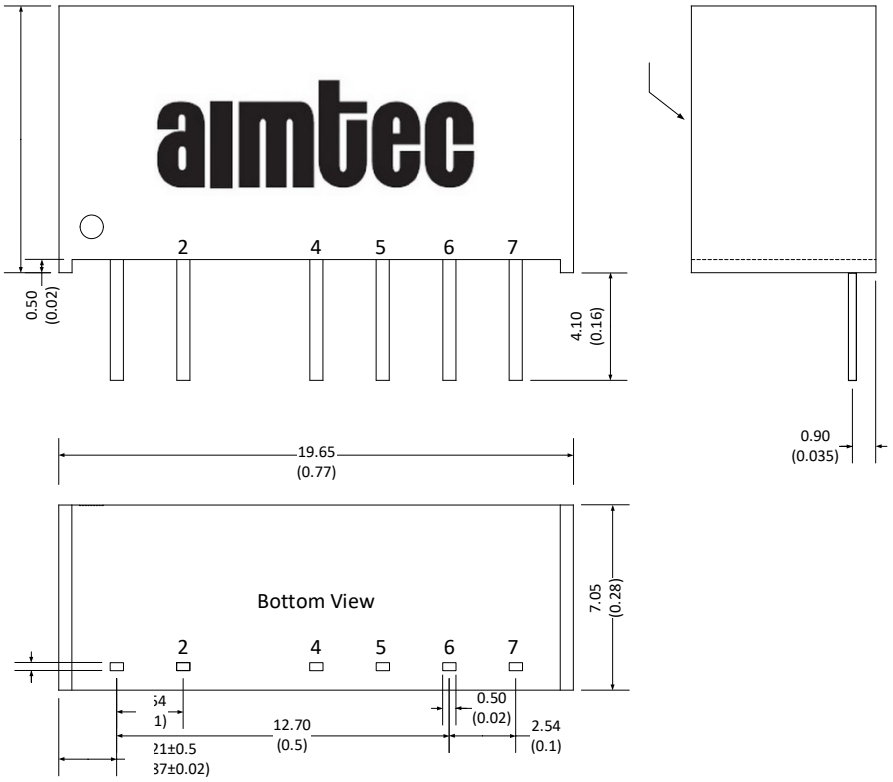
Vin	Cin	Single output models		Dual output models	
		Vout	Cout	Vout	Cout
5	10μF/16V	3.3V	10μF/16V	±3.3V	4.7μF/16V
12	2.2μF/25V	5V	10μF/16V	±5V	4.7μF/16V
15	2.2μF/25V	6.4V	4.7μF/16V	±7.2V	2.2μF/25V
24	1μF/50V	7.2V (5Vin series)	10μF/16V	±9V (5Vin series)	1μF/25V
-	-	7.2V (other series)	2.2μF/25V	±9V (other series)	2.2μF/25V
-	-	9V	2.2μF/25V	±12V	1μF/25V
-	-	12V	2.2μF/25V	±15V (5Vin series)	0.47μF/25V
-	-	15V	1μF/25V	±15V (other series)	1μF/25V
-	-	18V	1μF/50V	±24V	0.47μF/50V
-	-	24V	1μF/50V	-	-

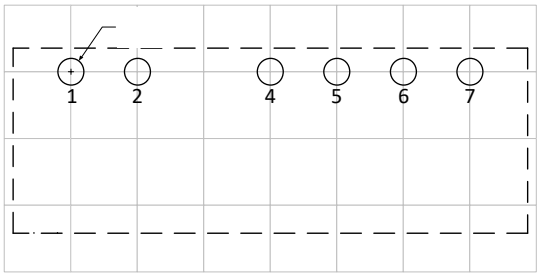
Recommended EMI circuit



Vin	C1/C2	Vout	CY		Cout
			1500VDC isolation	3000VDC isolation	
5V	4.7μF/16V	All output	270pF/2kVdc	270pF/4kVdc	Refer to Cout in typical circuit
12V/15V/24V	4.7μF/50V	All output	270pF/2kVdc	270pF/3kVdc	Refer to Cout in typical circuit

Dimensions





Grid size: 2.54*2.54mm

Note:
Unit: mm(inch)
General tolerance: ±0.25 (0.01)
Pin tolerance: ±0.1 (0.004)

Pin Out Specifications				
Pin	1.5KV isolation Single output	1.5KV isolation Dual output	3KV isolation Single output	3KV isolation Dual output
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	Com	-V Output	-V Output
6	+V Output	+V Output	No pin	Com
7	No pin	No pin	+V Output	+V Output

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