



2D8A1_3UP series

2W - Single & Dual output DC-DC converter - Fixed input - Isolated & unregulated

DC-DC Converter

2 Watt

- ⊕ 8Pin DIP Package
- ⊕ Continuous short-circuit protection
- ⊕ No-load input current as low as 5mA
- ⊕ Operating ambient temp. range: -40°C to +105°C
- ⊕ High efficiency up to 89%
- ⊕ I/O isolation test voltage 3kVDC
- ⊕ Industry standard pin-out
- ⊕ IEC62368, UL62368, EN62368 approved

Introducing our cutting-edge 2D8A1_3UP series with a DIP8 Package, designed to meet the demanding needs of modern electronic applications. This package offers continuous short-circuit protection, ensuring your devices remain safe and operational under any circumstances. With a no-load input current as low as 5mA, it maximizes efficiency even in standby mode. Our DIP package operates within a wide ambient temperature range from -40°C to +105°C, making it suitable for various environments and conditions. It boasts an impressive high efficiency of up to 89%, ensuring optimal performance and energy savings.

The I/O isolation test voltage stands at a robust 3kVDC, providing reliable insulation and safety. Adhering to an industry-standard pin-out, our DIP package integrates seamlessly into your existing designs. It is built to comply with international standards IEC62368, UL62368, and EN62368, ensuring high quality and safety.



Common specifications

Short circuit protection	Continuous
Operation temperature	-40°C ~ +105°C
Storage temperature	-55°C ~ +125°C
Storage humidity	95% RH (non-condensing)
MTBF: (MIL-HDBK-217F@25°C)	>3,500,000 hours
Case Material	DAP
Dimensions	12.7 x 6.8 x 10.16 mm
Weight	1.5g (typ.)
Cooling	Free air convection

Input specifications

Item	Test condition	Min	Typ	Max	Units
Voltage range	Vo, Io Nom		±10		%
Filter	Capacitor				

Example:

2D8A1_1205S3UP

2 = 2 Watt; D8 = DIP8; A1 = Series; 12 = 12Vin; 05 = 5Vout;
S = Single output; 3 = 3kVDC; U = Unregulated output;
P = Short circuit protection

Output specifications

Item	Test condition	Min	Typ	Max	Units
Output voltage accuracy	100% load			±5	%
Line regulation	For 1.0% of Vin			1.2	%
Load regulation (10% to 100% load)	5V		8	15	%
	9V		6	10	%
	12V		5	10	%
	15V		4	10	%
	24V		3	10	%
Ripple & noise	BW = DC to 20MHz		75	150	mVp-p
Switching frequency Full load, nominal input	at 5Vin		215		kHz
	at other Vin		250		kHz

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage		3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance	Input/Output capacitance 100kHz/0.1V		20		pF

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Product Selection Guide

Part Number	Input Voltage [VDC, Nom]	Output Voltage [VDC]	Output Current [mA]	Full Load Efficiency [% , Typ.]	Capacitive Load [μF, Max.]
2D8A1_0505S3UP	05	5	400	84	2400
2D8A1_0509S3UP	05	9	223	85	820
2D8A1_0512S3UP	05	12	167	85	470
2D8A1_0515S3UP	05	15	133	86	220
2D8A1_0524S3UP	05	24	84	87	100
2D8A1_1205S3UP	12	5	400	85	2400
2D8A1_1209S3UP	12	9	223	87	820
2D8A1_1212S3UP	12	12	167	87	470
2D8A1_1215S3UP	12	15	133	88	220
2D8A1_1224S3UP	12	24	84	89	100
2D8A1_1505S3UP	15	5	400	85	2400
2D8A1_1509S3UP	15	9	223	87	820
2D8A1_1512S3UP	15	12	167	87	470
2D8A1_1515S3UP	15	15	133	88	220
2D8A1_1524S3UP	15	24	84	89	100
2D8A1_2405S3UP	24	5	400	85	2400
2D8A1_2409S3UP	24	9	223	87	820
2D8A1_2412S3UP	24	12	167	87	470
2D8A1_2415S3UP	24	15	133	88	220
2D8A1_2424S3UP	24	24	84	89	100

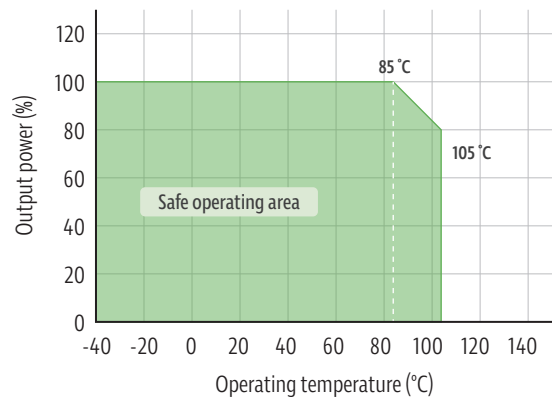
Part Number	Input Voltage [VDC, Nom]	Output Voltage [VDC]	Output Current [mA]	Full Load Efficiency [% , Typ.]	Capacitive Load [μF, Max.]
2D8A1_0505D3UP	05	±5	±200	82	±1200
2D8A1_0509D3UP	05	±9	±112	85	±330
2D8A1_0512D3UP	05	±12	±84	85	±330
2D8A1_0515D3UP	05	±15	±67	87	±220
2D8A1_0524D3UP	05	±24	±42	88	±47
2D8A1_1205D3UP	12	±5	±200	82	±1200
2D8A1_1209D3UP	12	±9	±112	85	±330
2D8A1_1212D3UP	12	±12	±84	87	±330
2D8A1_1215D3UP	12	±15	±67	88	±100
2D8A1_1224D3UP	12	±24	±42	89	±47
2D8A1_1505D3UP	15	±5	±200	82	±1200
2D8A1_1509D3UP	15	±9	±112	85	±330
2D8A1_1512D3UP	15	±12	±84	87	±330
2D8A1_1515D3UP	15	±15	±67	88	±100
2D8A1_1524D3UP	15	±24	±42	89	±47
2D8A1_2405D3UP	24	±5	±200	82	±1200
2D8A1_2409D3UP	24	±9	±112	85	±330
2D8A1_2412D3UP	24	±12	±84	87	±330
2D8A1_2415D3UP	24	±15	±67	88	±100
2D8A1_2424D3UP	24	±24	±42	89	±47

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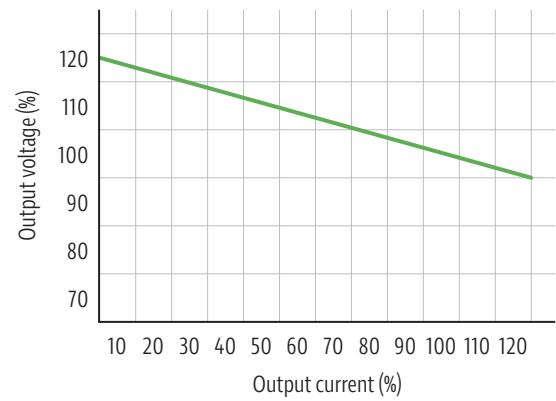
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Typical characteristics

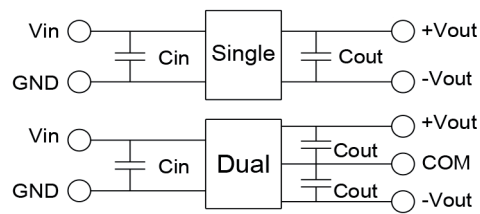
Temperature derating graph



Tolerance envelope graph

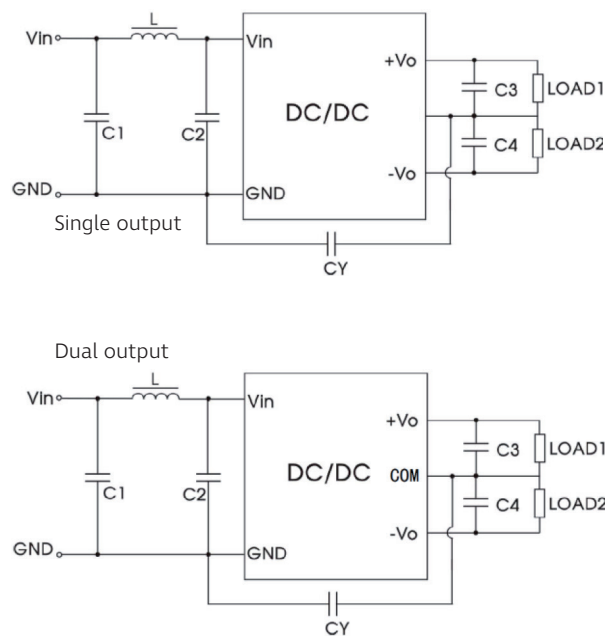


Recommended test circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
5VDC	4.7µF/25V	5Vdc	10µF/16V	±5Vdc	±4.7µF/16V
12VDC	2.2µF/25V	9VDC	2.2µF/16V	±9Vdc	±1µF/16V
15VDC	2.2µF/25V	12VDC	2.2µF/25V	±12Vdc	±1µF/25V
24VDC	1µF/50V	15VDC	1µF/25V	±15Vdc	±1µF/25V
		24VDC	1µF/25V	±24Vdc	±1µF/50V

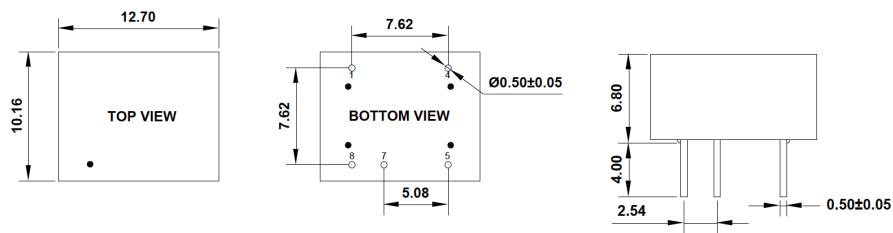
EMC (CLASS B) compliance circuit



EMC recommended circuit value table

EMI	C1	4.7µF /50V
EMI	C2	4.7µF /50V
EMI	CY	1nF/4kV
EMI	C3, C4	Recommended test circuit
EMI	L	6.8µH

Mechanical dimensions



UNIT: mm Unless otherwise specified, all tolerances are ± 0.25

Fig. 1

Pin-Out (8Pin-Single)	
Pin	Function
1	-Vin
4	+Vin
5	-Vout
7	+Vout

Pin-Out (8Pin-Dual)	
Pin	Function
1	-Vin
4	+Vin
5	-Vout
7	Com
8	-Vout