

1D8A1_1.5UP series

1W - Single/Dual Output DC-DC Converter - Isolated & Unregulated



DC-DC Converter

1 Watt

- ⊕ DIP8 Package
- ⊕ No-load input current as low as 5mA
- ⊕ Continuous short-circuit protection
- ⊕ Up to 87% efficiency
- ⊕ Unregulated output types
- ⊕ 1.5kVDC isolation
- ⊕ Operating temperature: -40°C to +105°C
- ⊕ Industry standard pinout
- ⊕ UL/cUL/IEC/EN 62368-1 approved

Introducing our new power 1D8A1_1.5UP series in a DIP8 package, designed to provide high performance and reliability in a compact form. With no-load input current as low as 5mA, these modules ensure minimal energy consumption when idle, making them highly efficient. Our power modules feature continuous short-circuit protection, ensuring the safety and durability of your devices. Achieving up to 87% efficiency, they offer optimal power conversion, reducing energy loss and maximizing performance. With unregulated output types and a robust 1.5kVDC isolation, these modules provide versatile solutions for various applications. They operate reliably in extreme temperatures, ranging from -40°C to +105°C, making them suitable for harsh environments.

Designed with an industry-standard pinout, those modules are easy to integrate into your existing systems. They are UL/cUL/IEC/EN 62368-1 approved, ensuring compliance with international safety regulations.



Common specifications

Short circuit protection	Continuous
Operation temperature	-40°C ~+105°C (with derating)
Storage temperature	-55°C ~+125°C
Humidity	95 %RH (non Condensing)
MTBF: (MIL-HDBK-217F@25°C)	3,500,000 Hours
Case material	DAP
Switching frequency	Full load, nominal input@3.3V, 5V Vin - 215/370 kHz Full load, nominal input@other Vin - 250 kHz
Dimensions	12.7 x 10.16 x 6.8 mm
Weight	1.5g
Cooling	Free air convection

Input specifications

Item	Test condition	Min	Typ	Max	Units
Voltage Range	Vo, Io Nom @Vin: 3.3V, 5V, 9V Vo, Io Nom @ Vin: 12V, 15V, 24V	±10 ±20			%
Input filter	Capacitor				

Example:

1D8A1_1205D1.5UP

1 = 1Watt; D8 = DIP8; A1 = Pinning; 12 = 12Vin; 05 = 5Vout; D = Dual Output; 1.5 = 1.5kVDC isolation; U = Unregulated Output; P = Short Circuit Protection

Output specifications

Item	Test condition	Min	Typ	Max	Units
Voltage tolerance	100% full load			±5	%
Line regulation	For 1.0% of Vin			1.2	%
Load regulation 10% to 100%	3.3V		15	20	%
	5V		10	15	%
	9V		8	10	%
	12V		7	10	%
	15V		6	10	%
Ripple & noise	24V		5	10	%
	BW = DC to 20MHz @Vo: 3.3V, 5V, 9V, 12V, 15V BW = DC to 20MHz @ Vo: 24V		30 50	75 100	mVp-p

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Insulation resistance	500VDC	1000			MΩ
Insulation voltage			1500		VDC
Isolation capacitance	Input-output, 100kHz/0.1V		20		pF

EMC specifications

EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMI	RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air ±8kV, Contact ±6kV perf. Criteria B

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Product Selection Guide - single output

Approval	Part number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%) typ.	Capacitive Load (μF)
UL	1D8A1_0303S1.5UP	3.3	3.3	303	76	2400
UL	1D8A1_0305S1.5UP	3.3	5	200	82	2400
UL	1D8A1_0309S1.5UP	3.3	9	112	83	1000
UL	1D8A1_0312S1.5UP	3.3	12	84	84	470
UL	1D8A1_0315S1.5UP	3.3	15	67	84	330
UL	1D8A1_0324S1.5UP	3.3	24	42	85	100
UL	1D8A1_0503S1.5UP	5	3.3	303	76	2400
UL	1D8A1_0505S1.5UP	5	5	200	82	2400
UL	1D8A1_0509S1.5UP	5	9	112	83	1000
UL	1D8A1_0512S1.5UP	5	12	84	84	470
UL	1D8A1_0515S1.5UP	5	15	67	84	330
UL	1D8A1_0524S1.5UP	5	24	42	85	100
UL	1D8A1_0903S1.5UP	9	3.3	303	76	2400
UL	1D8A1_0905S1.5UP	9	5	200	82	2400
UL	1D8A1_0909S1.5UP	9	9	112	83	1000
UL	1D8A1_0912S1.5UP	9	12	84	84	470
UL	1D8A1_0915S1.5UP	9	15	67	84	330
UL	1D8A1_0924S1.5UP	9	24	42	85	100
UL	1D8A1_1203S1.5UP	12	3.3	303	78	2400
UL	1D8A1_1205S1.5UP	12	5	200	82	2400
UL	1D8A1_1209S1.5UP	12	9	112	85	1000
UL	1D8A1_1212S1.5UP	12	12	84	85	680
UL	1D8A1_1215S1.5UP	12	15	67	87	330
UL	1D8A1_1224S1.5UP	12	24	42	85	220
UL	1D8A1_1503S1.5UP	15	3.3	303	78	2400
UL	1D8A1_1505S1.5UP	15	5	200	82	2400
UL	1D8A1_1509S1.5UP	15	9	112	85	1000
UL	1D8A1_1512S1.5UP	15	12	84	85	680
UL	1D8A1_1515S1.5UP	15	15	67	87	330
UL	1D8A1_1524S1.5UP	15	24	42	85	220
UL	1D8A1_2403S1.5UP	24	3.3	303	78	2400
UL	1D8A1_2405S1.5UP	24	5	200	82	2400
UL	1D8A1_2409S1.5UP	24	9	112	85	1000
UL	1D8A1_2412S1.5UP	24	12	84	85	680
UL	1D8A1_2415S1.5UP	24	15	67	87	330
UL	1D8A1_2424S1.5UP	24	24	42	85	220

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Product Selection Guide - Dual output

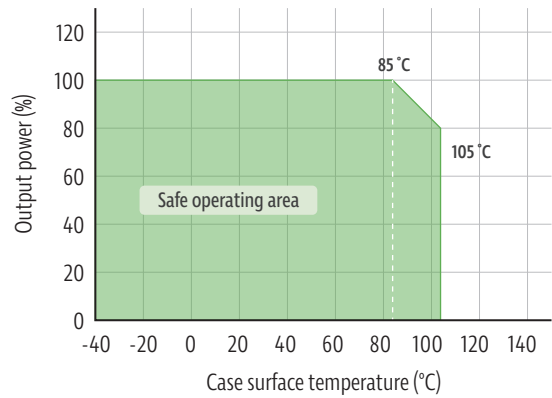
Approval	Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%) typ.	Capacitive Load (μF)
UL	1D8A1_0303D1.5UP	3.3	±3.3	±151	76	±1200
UL	1D8A1_0305D1.5UP	3.3	±5	±100	82	±1200
UL	1D8A1_0309D1.5UP	3.3	±9	±56	83	±470
UL	1D8A1_0312D1.5UP	3.3	±12	±42	84	±220
UL	1D8A1_0315D1.5UP	3.3	±15	±34	84	±1000
UL	1D8A1_0324D1.5UP	3.3	±24	±21	85	±47
UL	1D8A1_0503D1.5UP	5	±3.3	±151	76	±1200
UL	1D8A1_0505D1.5UP	5	±5	±100	82	±1200
UL	1D8A1_0509D1.5UP	5	±9	±56	83	±470
UL	1D8A1_0512D1.5UP	5	±12	±42	84	±220
UL	1D8A1_0515D1.5UP	5	±15	±34	84	±1000
UL	1D8A1_0524D1.5UP	5	±24	±21	85	±47
UL	1D8A1_0903D1.5UP	9	±3.3	±151	76	±1200
UL	1D8A1_0905D1.5UP	9	±5	±100	82	±1200
UL	1D8A1_0909D1.5UP	9	±9	±56	83	±470
UL	1D8A1_0912D1.5UP	9	±12	±42	84	±220
UL	1D8A1_0915D1.5UP	9	±15	±34	84	±1000
UL	1D8A1_0924D1.5UP	9	±24	±21	85	±47
UL	1D8A1_1203D1.5UP	12	±3.3	±151	78	±1200
UL	1D8A1_1205D1.5UP	12	±5	±100	82	±1200
UL	1D8A1_1209D1.5UP	12	±9	±56	85	±680
UL	1D8A1_1212D1.5UP	12	±12	±42	85	±330
UL	1D8A1_1215D1.5UP	12	±15	±34	87	±220
UL	1D8A1_1224D1.5UP	12	±24	±21	85	±100
UL	1D8A1_1503D1.5UP	15	±3.3	±151	78	±1200
UL	1D8A1_1505D1.5UP	15	±5	±100	82	±1200
UL	1D8A1_1509D1.5UP	15	±9	±56	85	±680
UL	1D8A1_1512D1.5UP	15	±12	±42	85	±330
UL	1D8A1_1515D1.5UP	15	±15	±34	87	±220
UL	1D8A1_1524D1.5UP	15	±24	±21	85	±100
UL	1D8A1_2403D1.5UP	24	±3.3	±151	78	±1200
UL	1D8A1_2405D1.5UP	24	±5	±100	82	±1200
UL	1D8A1_2409D1.5UP	24	±9	±56	85	±680
UL	1D8A1_2412D1.5UP	24	±12	±42	85	±330
UL	1D8A1_2415D1.5UP	24	±15	±34	87	±220
UL	1D8A1_2424D1.5UP	24	±24	±21	85	±100

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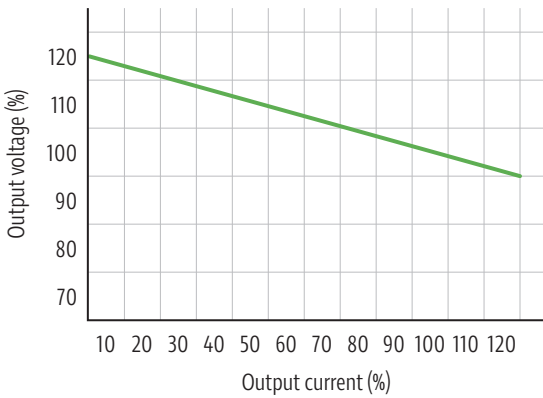
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Typical characteristics

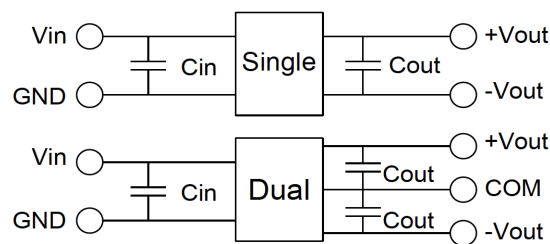
Temperature derating graph



Tolerance envelope graph



Recommended test circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
3.3VDC	4.7μF/25V	3.3VDC	10μF/16V	±3.3VDC	±4.7μF/16V
5VDC	4.7μF/25V	5VDC	10μF/16V	±5VDC	±4.7μF/16V
9VDC	4.7μF/25V	9VDC	2.2μF/16V	±9VDC	±1μF/16V
12VDC	2.2μF/25V	12VDC	2.2μF/25V	±12VDC	±1μF/25V
15VDC	2.2μF/25V	15VDC	1μF/25V	±15VDC	±1μF/25V
24VDC	1μF/50V	24VDC	1μF/50V	±24VDC	±1μF/50V

EMC (CLASS B) compliance circuit

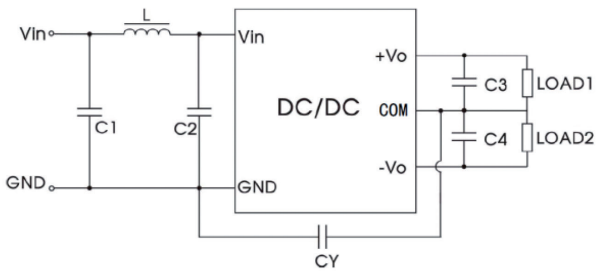
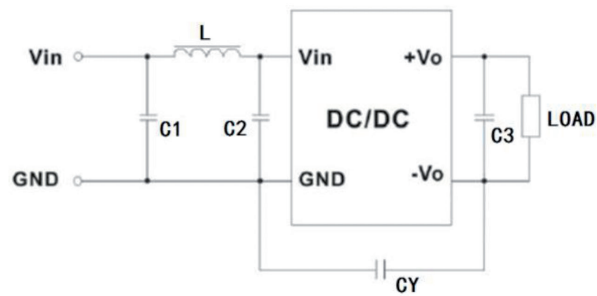


Fig. 1

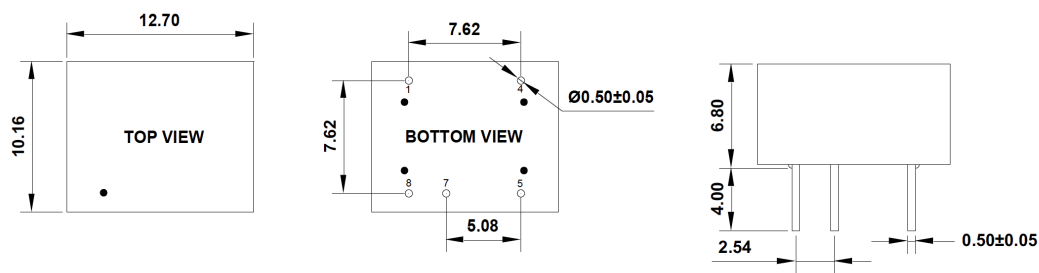
EMC recommended circuit value table

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

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Mechanical dimensions



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

PIN Connection							
PIN	1	2	3	4	5	7	8
8Pin-S	-Vin			+Vin	+Vout	-Vout	
8Pin-D	-Vin			+Vin	+Vout	Com	-Vout