

SERIES: DDP2-M | DESCRIPTION: DC-DC CONVERTER

FEATURES

- 2 W isolated output
- compact SMT package
- single unregulated output
- 1,500 Vdc isolation voltage
- -40 to 105°C with derating
- certified to IEC/EN/UL 62368-1
- continuous short circuit protection

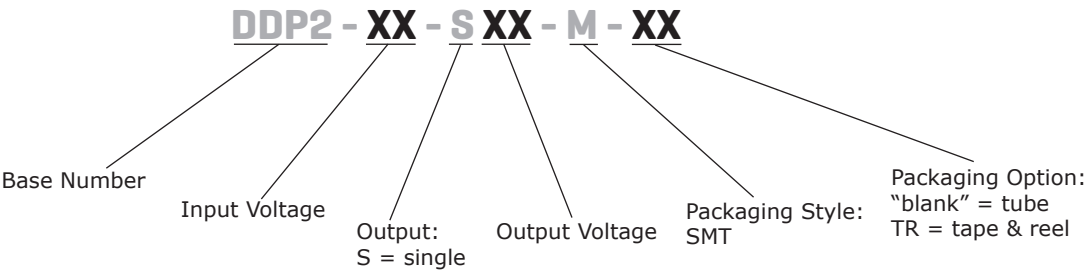


MODEL

MODEL	input voltage		output voltage (Vdc)	output current max (mA)	output power max (W)	ripple & noise ¹ max (mVp-p)	efficiency typ (%)
	typ (Vdc)	range (Vdc)					
DDP2-5-S3-M	5	4.5~5.5	3.3	600	2	150	78
DDP2-5-S5-M	5	4.5~5.5	5	400	2	150	85
DDP2-5-S9-M	5	4.5~5.5	9	223	2	150	87
DDP2-5-S12-M	5	4.5~5.5	12	167	2	150	87
DDP2-5-S15-M	5	4.5~5.5	15	133	2	150	88
DDP2-5-S24-M	5	4.5~5.5	24	84	2	150	89
DDP2-12-S3-M	12	10.8~13.2	3.3	600	2	150	80
DDP2-12-S5-M	12	10.8~13.2	5	400	2	150	85
DDP2-12-S9-M	12	10.8~13.2	9	223	2	150	87
DDP2-12-S12-M	12	10.8~13.2	12	167	2	150	87
DDP2-12-S15-M	12	10.8~13.2	15	133	2	150	88
DDP2-12-S24-M	12	10.8~13.2	24	84	2	150	89
DDP2-15-S3-M	15	13.5~16.5	3.3	600	2	150	80
DDP2-15-S5-M	15	13.5~16.5	5	400	2	150	85
DDP2-15-S9-M	15	13.5~16.5	9	223	2	150	87
DDP2-15-S12-M	15	13.5~16.5	12	167	2	150	87
DDP2-15-S15-M	15	13.5~16.5	15	133	2	150	88
DDP2-15-S24-M	15	13.5~16.5	24	84	2	150	89
DDP2-24-S3-M	24	21.6~26.4	3.3	600	2	150	80
DDP2-24-S5-M	24	21.6~26.4	5	400	2	150	85
DDP2-24-S9-M	24	21.6~26.4	9	223	2	150	87
DDP2-24-S12-M	24	21.6~26.4	12	167	2	150	87
DDP2-24-S15-M	24	21.6~26.4	15	133	2	150	88
DDP2-24-S24-M	24	21.6~26.4	24	84	2	150	89

Notes: 1. At full load, nominal input, 20 MHz bandwidth oscilloscope.
2. All specifications are measured at TA=25°C, nominal input voltage and rated output current unless otherwise specified

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
input voltage range			±10		%
filter	capacitance filter				
surge	5 Vdc input models	-0.7		9	Vdc
	9 Vdc input models	-0.7		15	Vdc
	12 Vdc input models	-0.7		18	Vdc
	15 Vdc input models	-0.7		21	Vdc
	24 Vdc input models	-0.7		30	Vdc
reflected ripple current			15		mA

OUTPUT

parameter	conditions/description	min	typ	max	units
maximum capacitive load	3.3, 5 Vdc output models			2,400	µF
	9 Vdc output models			820	µF
	12 Vdc output models			470	µF
	15 Vdc output models			220	µF
	24 Vdc output models			100	µF
voltage accuracy	at full load			±5	%
line regulation			1.2		%
load regulation	measured from 10~100% load				
	3.3 Vdc output models		15	20	%
	5 Vdc output models		8	15	%
	9 Vdc output models		6	10	%
	12 Vdc output models		5	10	%
	15 Vdc output models		4	10	%
switching frequency	24 Vdc output models		3	10	%
	at Vin nominal, full load				
	5 Vdc input models		215		kHz
	all other input models		250		kHz

PROTECTIONS

parameter	conditions/description	min	typ	max	units
short circuit protection	continuous				

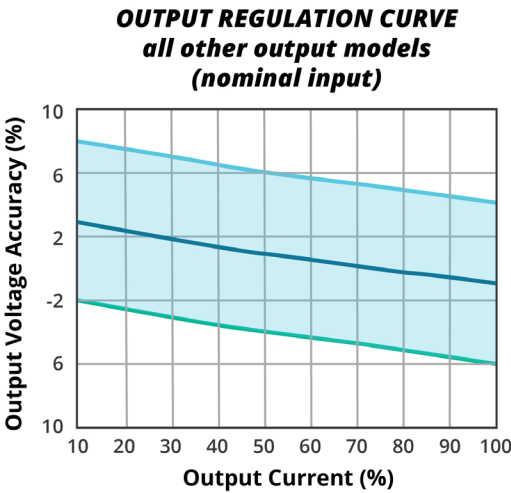
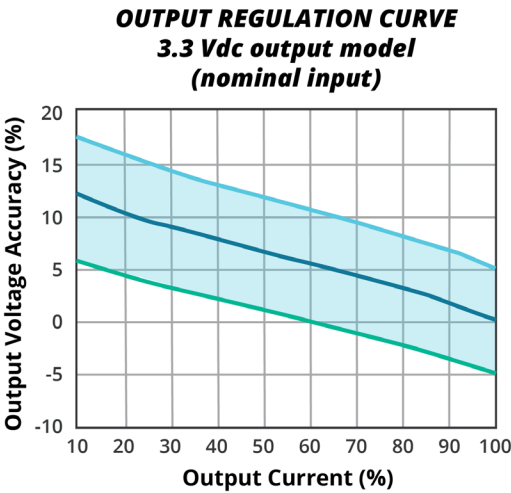
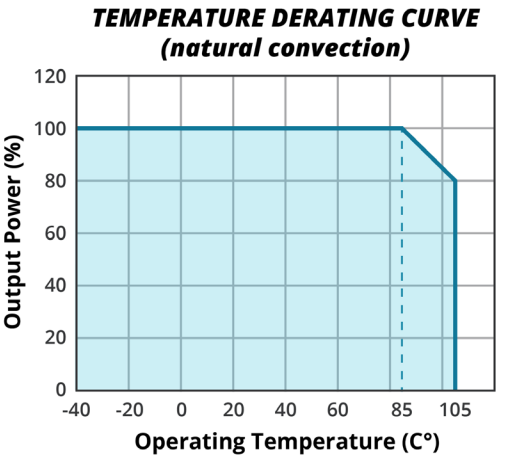
SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute	1,500			Vdc
isolation capacitance	input to output, 100 kHz/0.1V		20		pF
safety approvals	certified to 62368-1: IEC, EN, UL				
radiated emissions	CISPR32/EN55032 CLASS B (see Fig. 2 for recommended circuit)				
ESD	IEC/EN61000-4-2 air: ±8 kV, indirect contact: ±4 kV, perf. Criteria B				
radiated immunity	IEC/EN61000-4-3 3 V/m, perf. Criteria A				
EFT/burst	IEC/EN61000-4-4 ±0.5 kV, perf. Criteria B				
conducted immunity	IEC/EN61000-4-6 3 V max., perf. Criteria A				
MTBF	as per MIL-HDBK-217, at 25°C	3,500,000			hours
RoHS	yes				

ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-40		105	°C
storage temperature		-55		125	°C
operating humidity	non-condensing	-		95	%

DERATING CURVE



MECHANICAL

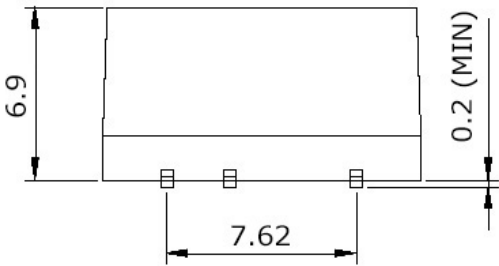
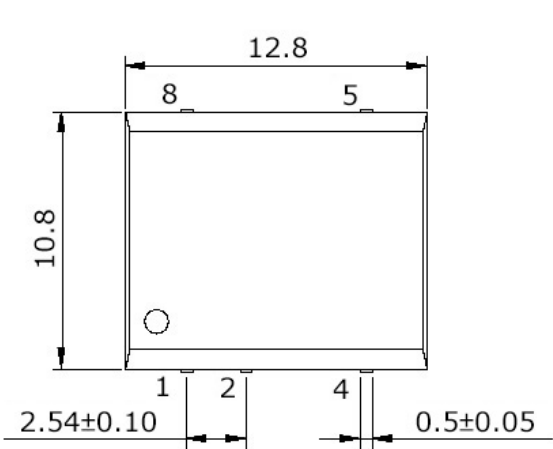
parameter	conditions/description	min	typ	max	units
dimensions	12.8 (L) x 10.8 (W) x 6.9 (H)				mm
case material	non-conductive black plastic				
weight			1.28		g

MECHANICAL DRAWING

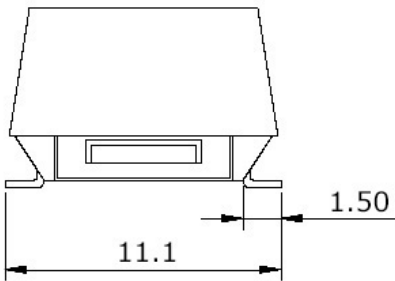
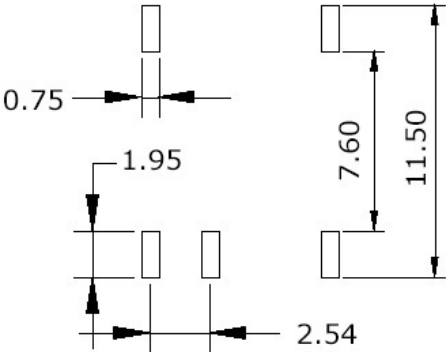
units: mm
tolerance: ±0.25 mm

PIN CONNECTIONS	
PIN	Functions
1	-Vin
2	+Vin
3	no pin
4	-Vout
5	+Vout
6	no pin
7	no pin
8	NC

NC = no connection



SUGGESTED PAD LAYOUT



RECOMMENDED TEST CIRCUIT

Figure 1



Table 1

RECOMMENDED VALUES			
Vin	Cin	Vout	Cout
5	4.7μF/25V	3.3	10μF/16V
12	2.2μF/25V	5	10μF/16V
15	2.2μF/25V	9	2.2μF/16V
24	1μF/50V	12	2.2μF/25V
-	-	15	1μF/25V
-	-	24	1μF/50V

EMC RECOMMENDED CIRCUIT

Figure 2

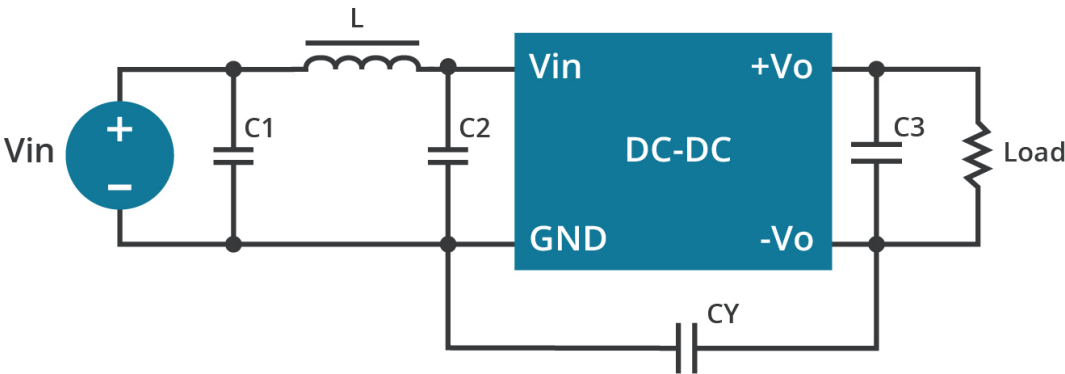


Table 2

RECOMMENDED VALUES	
C1	4.7μF/50V
C2	4.7μF/50V
CY	1nF/4kV
C3	see Fig. 1
L	6.8μH

REVISION HISTORY

rev.	description	date
1.0	initial release	09/25/2025

The revision history provided is for informational purposes only and is believed to be accurate.



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