

SERIES: DSM1-S | DESCRIPTION: DC-DC CONVERTER

FEATURES

- 1 W isolated output
- industry standard SIP package
- single and dual unregulated output
- 4,000 Vdc isolation voltage
- certified to UL 62368-1
- -40 to 100°C temperature range with derating



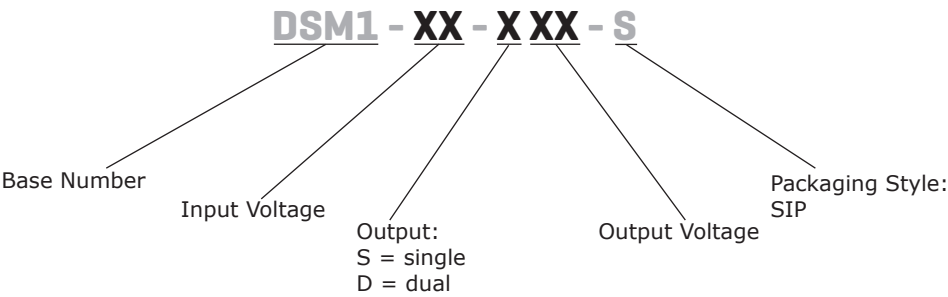
MODEL

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)					
DSM1-5-S3-S	5	4.5~5.5	3.3	303	1	100	74
DSM1-5-S5-S	5	4.5~5.5	5	200	1	100	79
DSM1-5-S12-S	5	4.5~5.5	12	84	1	100	78
DSM1-5-S15-S	5	4.5~5.5	15	67	1	100	85
DSM1-5-D3-S	5	4.5~5.5	±3.3	±152	1	100	75
DSM1-5-D5-S	5	4.5~5.5	±5	±100	1	100	77
DSM1-5-D12-S	5	4.5~5.5	±12	±42	1	100	80
DSM1-5-D15-S	5	4.5~5.5	±15	±34	1	100	80
DSM1-12-S3-S	12	10.8~13.2	3.3	303	1	100	79
DSM1-12-S5-S	12	10.8~13.2	5	200	1	100	82
DSM1-12-S12-S	12	10.8~13.2	12	84	1	100	80
DSM1-12-S15-S	12	10.8~13.2	15	67	1	100	81
DSM1-12-D3-S	12	10.8~13.2	±3.3	±152	1	100	80
DSM1-12-D5-S	12	10.8~13.2	±5	±100	1	100	76
DSM1-12-D12-S	12	10.8~13.2	±12	±42	1	100	80
DSM1-12-D15-S	12	10.8~13.2	±15	±34	1	100	81
DSM1-24-S3-S	24	21.6~26.4	3.3	303	1	100	78
DSM1-24-S5-S	24	21.6~26.4	5	200	1	100	79
DSM1-24-S12-S	24	21.6~26.4	12	84	1	100	79
DSM1-24-S15-S	24	21.6~26.4	15	67	1	100	80
DSM1-24-D3-S	24	21.6~26.4	±3.3	±152	1	100	76
DSM1-24-D5-S	24	21.6~26.4	±5	±100	1	100	80
DSM1-24-D12-S	24	21.6~26.4	±12	±42	1	100	80
DSM1-24-D15-S	24	21.6~26.4	±15	±34	1	100	81

Notes:

1. At full load, nominal input, 20 MHz bandwidth oscilloscope.
2. The efficiency is test by nominal input and max. full load at 25°C.
3. All specifications measured at Ta=25°C, nominal input voltage, rated output load, and after warm up unless otherwise specified.

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
input voltage range		-10		+10	%
filter	capacitance filter				

OUTPUT

parameter	conditions/description	min	typ	max	units
maximum capacitive load ^{4,5}	3.3, 5 Vdc output models			1,500	μF
	±3.3, ±5, 12 Vdc output models			470	μF
	±12, ±15, 15 Vdc output models			220	μF
voltage accuracy		-5		+5	%
line regulation	measured from low to high line, full load		±1.2		%
load regulation	measured from 10~100% load				
	3.3, 5 Vdc output models			10	%
	12, 15 Vdc output model			15	%
switching frequency	at Vin nominal, full load	50			kHz

Note: 4. The capacitive load is tested by minimum input and constant resistive load.
5. For dual output models, maximum capacitance applies to individual outputs.

SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 second	4,000			Vdc
isolation capacitance			80		pF
safety approvals	certified to 62368-1: UL				
EMC	EN 55032/55024 ⁶				
EMI	EN 55032, Class A/B				
ESD	IEC 61000-4-2, air ±8 kV; contact ±6 kV, perf. Criteria A				
radiated immunity	IEC 61000-4-3, 3 V/m, perf. Criteria A				
EFT/burst	IEC 61000-4-4, ±0.5 kV, perf. Criteria A				
surge	IEC 61000-4-5, ±0.5 kV, perf. Criteria A				
conducted immunity	IEC 61000-4-6, 3 Vrms, perf. Criteria A				
PFMF	IEC 61000-4-8, 1 A/m, perf. Criteria A				
vibration	MIL-STD-202G				
MTBF	at 25°C	17,100,000			hours
RoHS	yes				

Note: 6. Refer to Figures 2 and 3 for recommended EMC circuit.

ENVIRONMENTAL

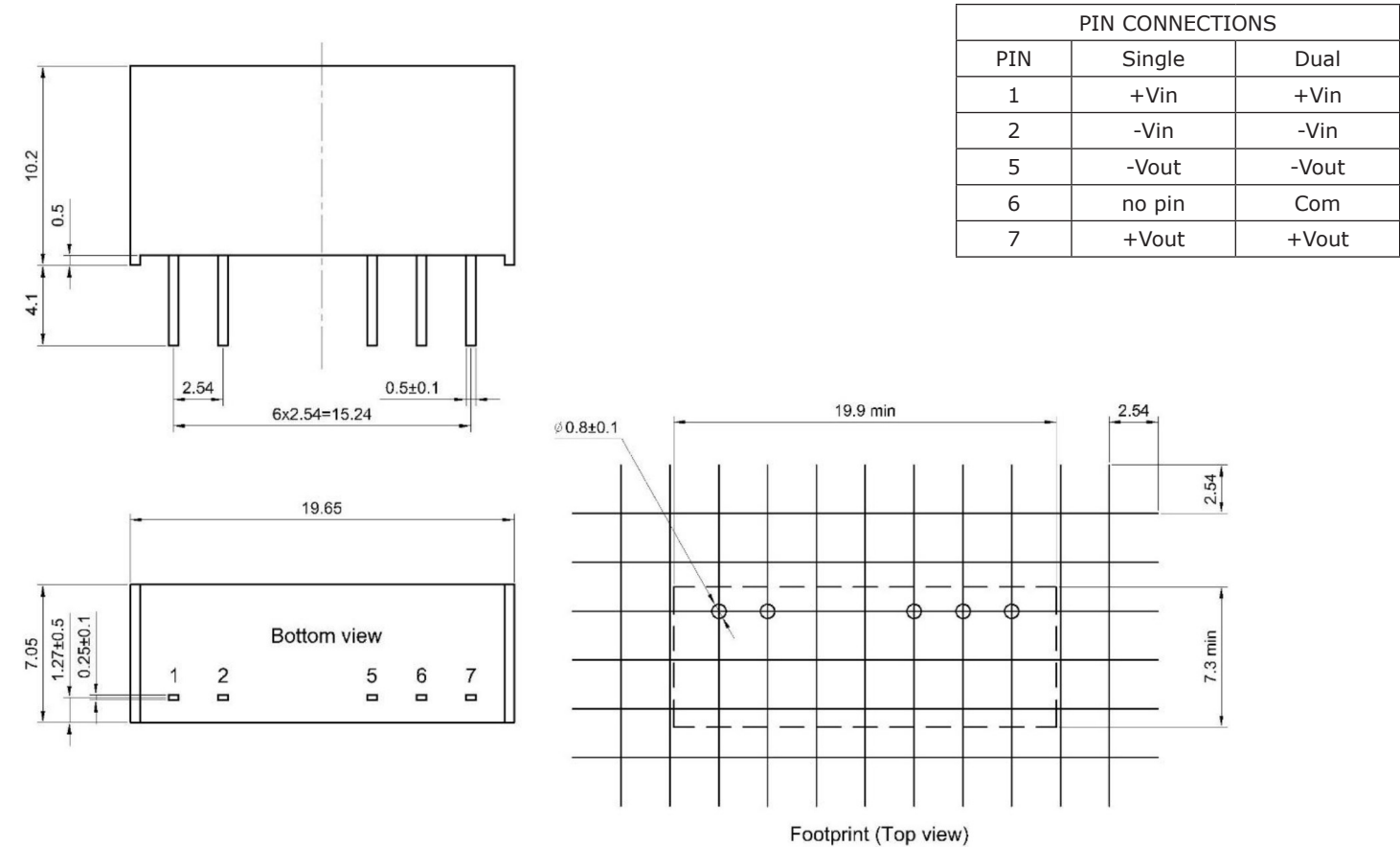
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-40		100	°C
storage temperature		-55		125	°C
maximum case temperature				110	°C
operating humidity	non-condensing	5		95	%

MECHANICAL

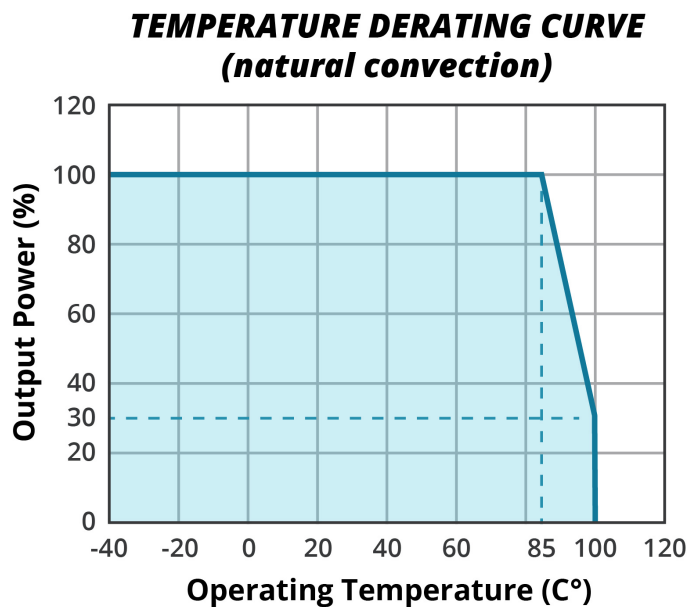
parameter	conditions/description	min	typ	max	units
dimensions	19.65 x 7.05 x 10.20				mm
case material	UL94V-0 black plastic				
potting material	epoxy (UL94V-0)				
weight			2.8		g

MECHANICAL DRAWING

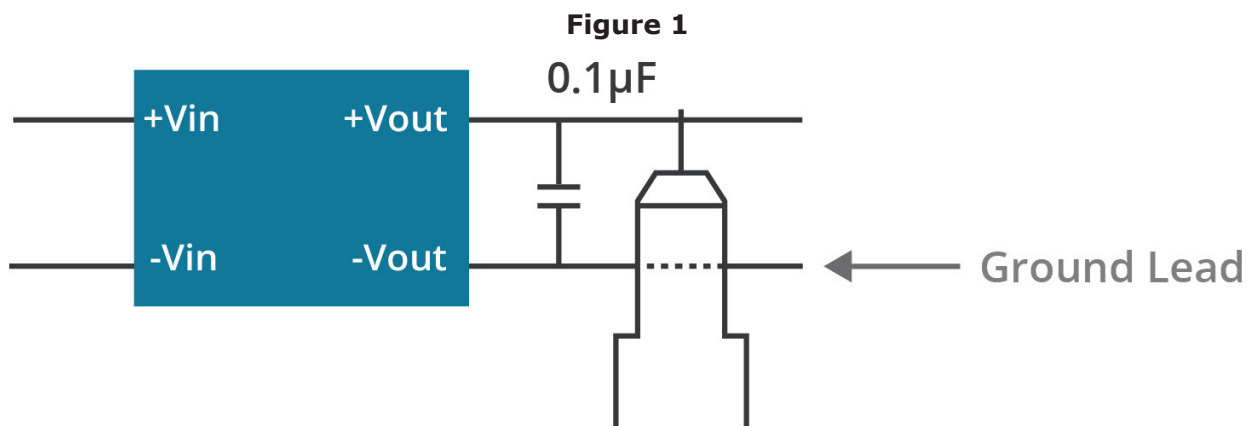
units: mm
tolerance: ±0.25 mm



DERATING CURVE



RIPPLE AND NOISE MEASURE METHOD



Note: Measured with 20MHz bandwidth and $0.1\mu F$ ceramic capacitor.

EMI RECOMMENDED CIRCUIT FOR EN 55032 CLASS A/B

Figure 2
Single output

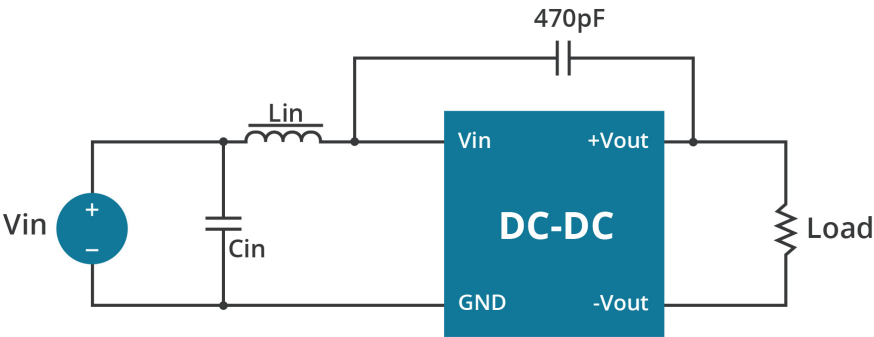


Table 1
Single output

Recommended EMI Filter Values				
Vin	Class A		Class B	
	Lin	Cin	Lin	Cin
5	47 μ H	2.2 μ F	47 μ H	10 μ F
12	22 μ H	2.2 μ F	22 μ H	4.7 μ F
24	10 μ H	2.2 μ F	22 μ H	4.7 μ F

Figure 3
Dual output

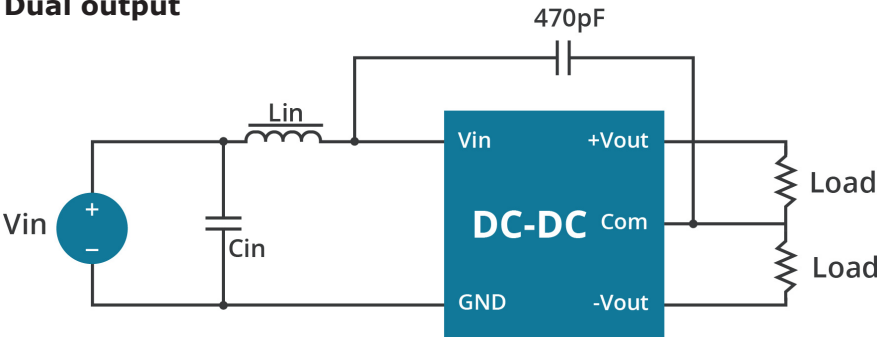


Table 2
Dual output

Recommended EMI Filter Values				
Vin	Class A		Class B	
	Lin	Cin	Lin	Cin
5	22 μ H	2.2 μ F	100 μ H	4.7 μ F
12	22 μ H	2.2 μ F	22 μ H	4.7 μ F
24	10 μ H	2.2 μ F	47 μ H	2.2 μ F

REVISION HISTORY

rev.	description	date
1.0	initial release	09/24/2024
1.01	company address updated	11/05/2024

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



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CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

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