



Size: 0.77in x 0.39in x 0.49in (19.5mm x 9.8mm x 12.5mm)

FEATURES

- Wide Input Voltage Range
- 7PIN SIP Package
- High Efficiency
- Unregulated Output Types
- RoHS Compliant
- Industry Standard Pinout
- Continuous Short Circuit Protection
- 5000VAC or 6000VDC Isolation
- Isolation Capacitance as Low as 4pF
- Meets IEC60601 Standard

DESCRIPTION

The DCSPM1 series of DC/DC converters in an ultra-compact 0.77" x 0.39" x 0.49" 7pin SIP package. This series consists of single and dual unregulated output models with a wide input voltage range. Features of this series include industry standard pinout, 5000VAC or 6000VDC isolation, as well as high efficiency. This series is RoHS compliant and the design meets IEC60601 approvals.

MODEL SELECTION TABLE
Single Output Models

Model Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	Maximum Capacitive Load	Output Power
DCSPM1-03S03	3.3VDC	3.3VDC	303mA	75%	2200µF	1 Watt
DCSPM1-03S05		5VDC	200mA	80%	2200µF	
DCSPM1-03S09		9VDC	112mA	80%	1000µF	
DCSPM1-03S12		12VDC	84mA	81%	470µF	
DCSPM1-03S15		15VDC	67mA	81%	330µF	
DCSPM1-03S24		24VDC	42mA	81%	100µF	
DCSPM1-05S03	5VDC	3.3VDC	303mA	75%	2200µF	1 Watt
DCSPM1-05S05		5VDC	200mA	80%	2200µF	
DCSPM1-05S09		9VDC	112mA	80%	1000µF	
DCSPM1-05S12		12VDC	84mA	81%	470µF	
DCSPM1-05S15		15VDC	67mA	81%	330µF	
DCSPM1-05S24		24VDC	42mA	81%	100µF	
DCSPM1-12S03	12VDC	3.3VDC	303mA	75%	2200µF	1 Watt
DCSPM1-12S05		5VDC	200mA	80%	2200µF	
DCSPM1-12S09		9VDC	112mA	80%	1000µF	
DCSPM1-12S12		12VDC	84mA	83%	680µF	
DCSPM1-12S15		15VDC	67mA	83%	330µF	
DCSPM1-12S24		24VDC	42mA	82%	220µF	
DCSPM1-15S03	15VDC	3.3VDC	303mA	75%	2200µF	1 Watt
DCSPM1-15S05		5VDC	200mA	80%	2200µF	
DCSPM1-15S09		9VDC	112mA	80%	1000µF	
DCSPM1-15S12		12VDC	84mA	83%	680µF	
DCSPM1-15S15		15VDC	67mA	83%	330µF	
DCSPM1-15S24		24VDC	42mA	82%	220µF	
DCSPM1-24S03	24VDC	3.3VDC	303mA	75%	2200µF	1 Watt
DCSPM1-24S05		5VDC	200mA	80%	2200µF	
DCSPM1-24S09		9VDC	112mA	80%	1000µF	
DCSPM1-24S12		12VDC	84mA	83%	680µF	
DCSPM1-24S15		15VDC	67mA	83%	330µF	
DCSPM1-24S24		24VDC	42mA	82%	220µF	

MODEL SELECTION TABLE						
Dual Output Models						
Model Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	Maximum Capacitive Load	Output Power
DCSPM1-03D03	3.3VDC	±3.3VDC	±151mA	75%	±1200µF	1 Watt
DCSPM1-03D05		±5VDC	±100mA	80%	±1200µF	
DCSPM1-03D09		±9VDC	±56mA	80%	±470µF	
DCSPM1-03D12		±12VDC	±42mA	81%	±220µF	
DCSPM1-03D15		±15VDC	±34mA	81%	±220µF	
DCSPM1-03D24		±24VDC	±21mA	81%	±47µF	
DCSPM1-05D03	5VDC	±3.3VDC	±151mA	75%	±1200µF	1 Watt
DCSPM1-05D05		±5VDC	±100mA	80%	±1200µF	
DCSPM1-05D09		±9VDC	±56mA	80%	±470µF	
DCSPM1-05D12		±12VDC	±42mA	81%	±220µF	
DCSPM1-05D15		±15VDC	±34mA	81%	±220µF	
DCSPM1-05D24		±24VDC	±21mA	81%	±47µF	
DCSPM1-12D03	12VDC	±3.3VDC	±151mA	75%	±1200µF	1 Watt
DCSPM1-12D05		±5VDC	±100mA	80%	±1200µF	
DCSPM1-12D09		±9VDC	±56mA	80%	±680µF	
DCSPM1-12D12		±12VDC	±42mA	83%	±330µF	
DCSPM1-12D15		±15VDC	±34mA	83%	±220µF	
DCSPM1-12D24		±24VDC	±21mA	81%	±100µF	
DCSPM1-15D03	15VDC	±3.3VDC	±151mA	75%	±1200µF	1 Watt
DCSPM1-15D05		±5VDC	±100mA	80%	±1200µF	
DCSPM1-15D09		±9VDC	±56mA	80%	±680µF	
DCSPM1-15D12		±12VDC	±42mA	83%	±330µF	
DCSPM1-15D15		±15VDC	±34mA	83%	±220µF	
DCSPM1-15D24		±24VDC	±21mA	81%	±100µF	
DCSPM1-24D03	24VDC	±3.3VDC	±151mA	75%	±1200µF	1 Watt
DCSPM1-24D05		±5VDC	±100mA	80%	±1200µF	
DCSPM1-24D09		±9VDC	±56mA	80%	±680µF	
DCSPM1-24D12		±12VDC	±42mA	83%	±330µF	
DCSPM1-24D15		±15VDC	±34mA	83%	±220µF	
DCSPM1-24D24		±24VDC	±21mA	81%	±100µF	

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Rated Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
INPUT SPECIFICATIONS					
Input Voltage Range	Vo, Io Nom			±10	%
Input Filter			Capacitor		
OUTPUT SPECIFICATIONS					
Output Voltage			See Table		
Voltage Tolerance	100% Full Load			±5	%
Line Regulation	For 1% of Vin		1.2		%
Load Regulation	10% to 100%, FL	3.3V, 5V Models		20	%
		Other Outputs		15	%
Output Power			See Table		
Output Current			See Table		
Maximum Capacitive Load			See Table		
Ripple & Noise	BW=DC to 20MHz @Vo: 3.3V		100	150	mVp-p
	BW=DC to 20MHz @Other		80	120	
Temperature Coefficient	100% Load		±0.02		%
PROTECTION					
Short Circuit Protection			Continuous		
ENVIRONMENTAL SPECIFICATIONS					
Operating Temperature		-40		+105	°C
Storage Temperature		-55		+125	°C
Humidity	Non-Condensing			95	%
Cooling			Free Air Convection		
MTBF	MIL-HDBK-217F@25°C	3,500,000			Hours

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Rated Output Current unless otherwise noted.
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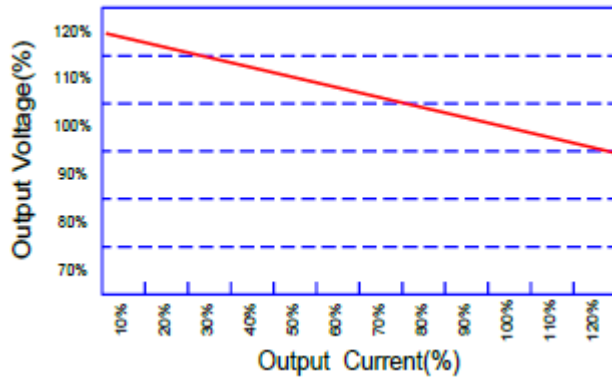
SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
GENERAL SPECIFICATIONS					
Efficiency			See Table		
Switching Frequency	Full Load, Nominal Input @3.3V, 5Vin		215/370		KHz
	Full Load, Nominal Input @Other Vin		250		
Isolation Resistance	500VDC	1000			MΩ
Isolation Capacitance	Input-Output, 100KHz/0.1V		4		pF
Isolation			5000		VAC
			6000		VDC
Patient Leakage Current	250VAC, 50/60Hz			2	μA
PHYSICAL SPECIFICATIONS					
Weight			0.14oz (4.0g)		
Dimensions (L x W x H)			0.77in x 0.39in x 0.49in (19.5mm x 9.8mm x 12.5mm)		
Case Material			DAP		
Altitude Rating		5000			M
SAFETY CHARACTERISTICS					
Safety Standards		IEC60601			
EMI		CE	EN60601-1-2/CISPR 11 Group 1		Class B ⁽¹⁾
		RE	EN60601-1-2/CISPR 11 Group 1		Class B ⁽¹⁾
EMS	ESD	EN60601-1-2 (IEC/EN61000-4-2)	Air ±15kV, Contact ±8kV		Perf. Criteria B

NOTES

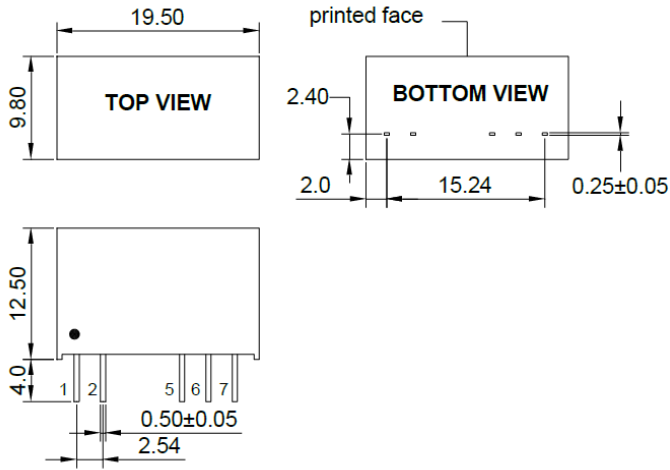
1. See Fig. 1 for recommended circuit.

**Due to advances in technology, specifications subject to change without notice.*

TOLERANCE ENVELOPE GRAPH



MECHANICAL DRAWINGS

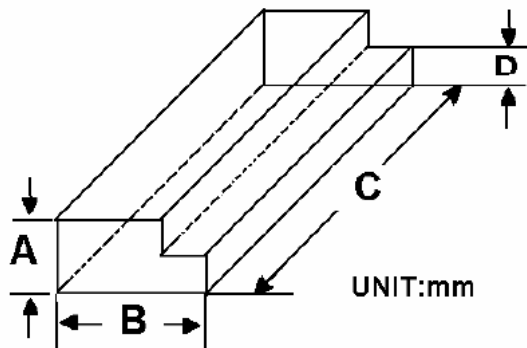


PIN Connections

Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	Com
7	+Vout	+Vout

Unit: mm, unless otherwise specified
All tolerances: ±0.25

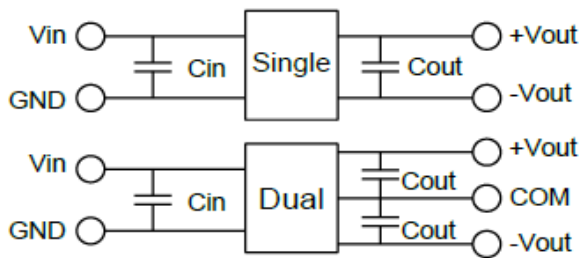
Packaging



Size (mm)

A	B	C	D
12.0	28.55	55.0	6.00

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
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/50V	±24Vdc	±1µF/50V

EMC (CLASS B) COMPLIANCE CIRCUIT

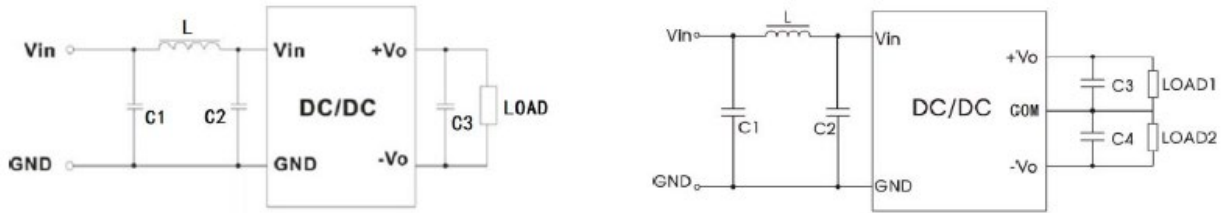


Fig. 1

EMC recommended circuit value table		
EMI	C1	22 μ F /50V
	C2	22 μ F /50V
	C3, C4	Recommended Test Circuit
	L	22 μ H

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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