

DIP Through Hole Package



Size: 0.52in x 0.36in x 0.40in (13.2mm x 9.1mm x 10.2mm)

SMD Surface Mount Package ("S" Suffix)



Size: 0.56in x 0.36in x 0.40in (14.2mm x 9.1mm x 10.2mm)

OPTIONS

- SMD or DIP Package
- Single or Dual Output
- 1600VDC Isolation or 3000VDC Isolation

APPLICATIONS

- Automation
- Datacom
- IPC
- Industry
- Measurement
- Telecom

FEATURES

- 4:1 Ultra Wide Input Range
- Ultra Small SMD or DIP Package
- SMD Package Qualified for Lead-Free Reflow Solder Process According IPC J-STD-020D
- 1600VDC Isolation or Optional 3000VDC
- No Minimum Load Required
- Continuous Short Circuit Protection
- CE Marked
- RoHS & REACH Compliant
- IEC/EN/UL62368-1 Safety Approvals

DESCRIPTION

The DCSDW05 series of DC/DC converters offers up to 5.04 watts of output power in compact SMD or DIP package. This series consists of both single and dual output models with an ultra-wide 4:1 input range. Each model in this series requires no minimum load, is CE marked, and has continuous short circuit protection. This series is RoHS & REACH compliant and it has IEC/EN/UL62368-1 safety approvals.

MODEL SELECTION TABLE

Single Output Models

Model Number	Input Voltage Range	Output Voltage	Output Current	No Load Input Current	Maximum Capacitive Load	Efficiency	Output Power	Ripple & Noise
DCSDW05-24S33	24VDC (9~36VDC)	3.3VDC	1000mA	20mA	4400µF	76%	Up to 5.04W	75mVp-p
DCSDW05-24S05		5VDC	1000mA	30mA	2200µF	80%		
DCSDW05-24S09		9VDC	555mA	30mA	1470µF	81%		
DCSDW05-24S12		12VDC	420mA	30mA	1220µF	83%		
DCSDW05-24S15		15VDC	333mA	30mA	1000µF	83%		
DCSDW05-24S24		24VDC	210mA	30mA	470µF	83%		
DCSDW05-48S33	48VDC (18~75VDC)	3.3VDC	1000mA	10mA	4400µF	76%	Up to 5.04W	75mVp-p
DCSDW05-48S05		5VDC	1000mA	12mA	2200µF	81%		
DCSDW05-48S09		9VDC	555mA	15mA	1470µF	81%		
DCSDW05-48S12		12VDC	420mA	15mA	1220µF	83%		
DCSDW05-48S15		15VDC	333mA	15mA	1000µF	83%		
DCSDW05-48S24		24VDC	210mA	15mA	470µF	83%		

MODEL SELECTION TABLE

Dual Output Models

Model Number	Input Voltage Range	Output Voltage	Output Current	No Load Input Current	Maximum Capacitive Load	Efficiency	Output Power	Ripple & Noise
DCSDW05-24D05	24VDC (9~36VDC)	±5VDC	±500mA	30mA	±1000µF	80%	Up to 5.04W	75mVp-p
DCSDW05-24D12		±12VDC	±210mA	30mA	±680µF	83%		
DCSDW05-24D15		±15VDC	±168mA	30mA	±440µF	84%		
DCSDW05-48D05	48VDC (18~75VDC)	±5VDC	±500mA	15mA	±1000µF	80%	Up to 5.04W	75mVp-p
DCSDW05-48D12		±12VDC	±210mA	15mA	±680µF	83%		
DCSDW05-48D15		±15VDC	±168mA	15mA	±440µF	84%		

SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum 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	24Vin(nom) 48Vin(nom)		9 18	24 48	36 75	VDC
Input Surge Voltage	1 Second, Max.	24Vin(nom) 48Vin(nom)			50 100	VDC
Input Reflected Ripple Current ⁽¹⁾	24Vin(nom) 48Vin(nom)			20 15		mAp-p
Input Filter	Capacitor Type					
OUTPUT SPECIFICATIONS						
Output Voltage	See Table					
Voltage Accuracy			-1.0		+1.0	%
Line Regulation	Low Line to High Line at Full Load		-0.2		+0.2	%
Load Regulation	No Load to Full Load	Single	-1.0		+1.0	%
		Dual	-1.0		+1.0	
	10% Load to 90% Load	Single	-0.5		+0.5	
		Dual	-0.8		+0.8	
Output Power	See Table					
Output Current	See Table					
Cross Regulation	Asymmetrical Load 25%/100% FL; Dual Outputs		-5.0		+5.0	%
Maximum Capacitive Load	See Table					
Ripple & Noise	Measured by 20MHz bandwidth			75		mVp-p
Transient Response Recovery Time	25% Load Step Change			500		µs
Start-Up Time	Constant Resistive Load	Power Up		10	20	ms
		Remote ON/OFF		10	20	
Temperature Coefficient			-0.02		+0.02	%/°C
REMOTE ON/OFF CONTROL						
Ctrl Pin Applied Current via 1kΩ	DC-DC ON		Open or High Impedance			mA
	DC-DC OFF		2.0	3.0	4.0	
Remote Off Input Current					2.5	mA
Application Circuit						
PROTECTION						
Short Circuit Protection	Continuous, Automatic Recovery					
ENVIRONMENTAL SPECIFICATIONS						
Operating Ambient Temperature	With Derating		-40		+105	°C
Storage Temperature			-55		+125	°C
Maximum Case Temperature					+105	°C
Relative Humidity			5		95	%RH
Thermal Shock	MIL-STD-810F					
Vibration	MIL-STD-810F					
Lead-Free Reflow Solder Process	Only for SMD Type		IPC J-STD-020E			
Moisture Sensitivity Level (MSL)	Only for SMD Type		IPC J-STD-033C Level 2			
MTBF	MIL-HDBK-217F, Full Load			2,281,000		Hours
GENERAL SPECIFICATIONS						
Efficiency	See Table					
Switching Frequency			100			kHz
Isolation Voltage	1 minute	Standard	1600			VDC
		Suffix "S"	3000			
Isolation Resistance	500VDC		1			GΩ
Isolation Capacitance				50		pF
PHYSICAL SPECIFICATIONS						
Weight	0.10oz (2.7g)					
Dimensions (L x W x H)	DIP Package		0.52in x 0.36in x 0.40in (13.2mm x 9.1mm x 10.2mm)			
	SMD Package		0.56in x 0.36in x 0.40in (14.2mm x 9.1mm x 10.2mm)			
Case Material	Non-Conductive Black Plastic					
Base Material	Non-Conductive Black Plastic					
Potting Material	Silicone (UL94 V-0)					

SPECIFICATIONS

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

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
SAFETY CHARACTERISTICS						
Safety Approvals			IEC/EN/UL6236-1 ⁽³⁾			
EMI ⁽¹⁾			EN55032			
			Class A Class B			
EMS	EN55024					
ESD	EN61000-4-2	Air ±8kV Contact ±6kV				
			Perf. Criteria A			
Radiated Immunity	EN61000-4-3	10 V/m				
			Perf. Criteria A			
Fast Transient ⁽²⁾	EN61000-4-4	±2kV				
			Perf. Criteria A			
Surge ⁽²⁾	EN61000-4-4	±1kV				
			Perf. Criteria A			
Conducted Immunity	EN61000-4-6	10 Vr.m.s				
			Perf. Criteria A			
Power Frequency Magnetic Field	EN61000-4-8	100A/m continuous; 1000A/m 1 second				
			Perf. Criteria A			

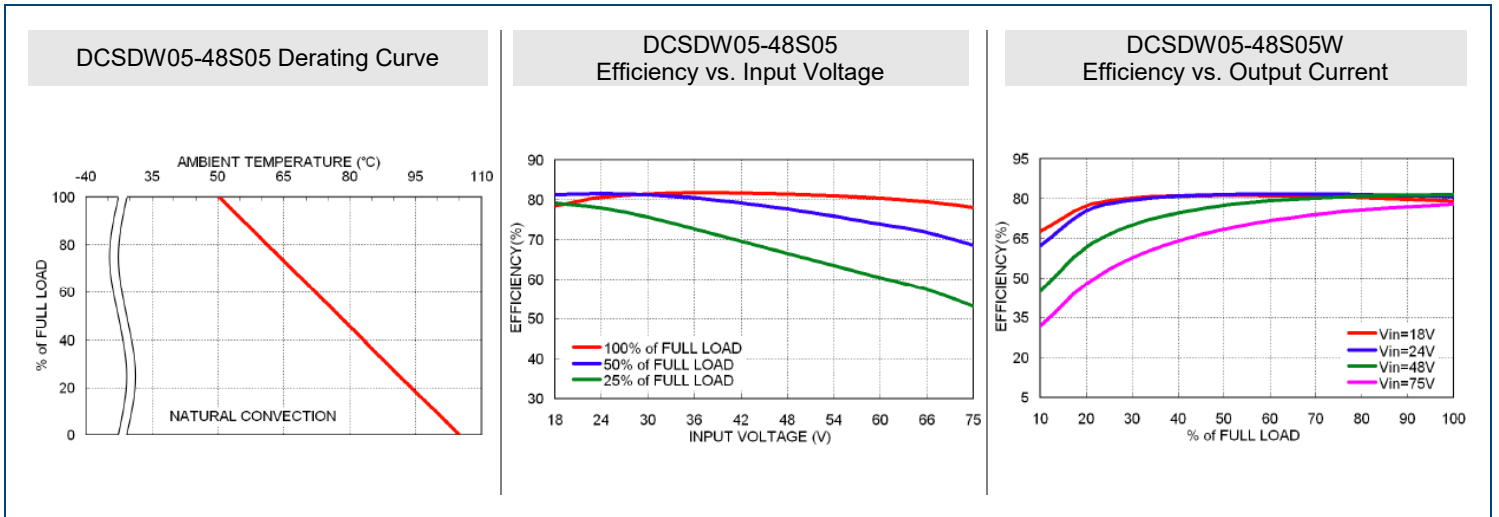
NOTES

1. The standard module meets EMI Class A or Class B and input reflected ripple current with external components. For more information, please contact factory.
2. An external input filter capacitor is required if the module is to meet EN61000-4-4 and EN61000-4-5. Suggested filter: Nippon chemi-con KY series, 220µF/100V.
3. This product is Listed to applicable standards and requirements by UL.

CAUTION: This power module is not internally fused. AN input line fuse must always be used.

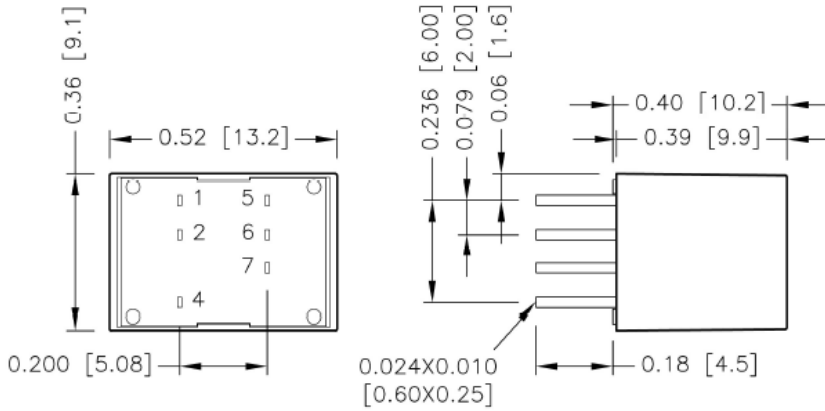
**Due to advances in technology, specifications subject to change without notice.*

DERATING CURVES



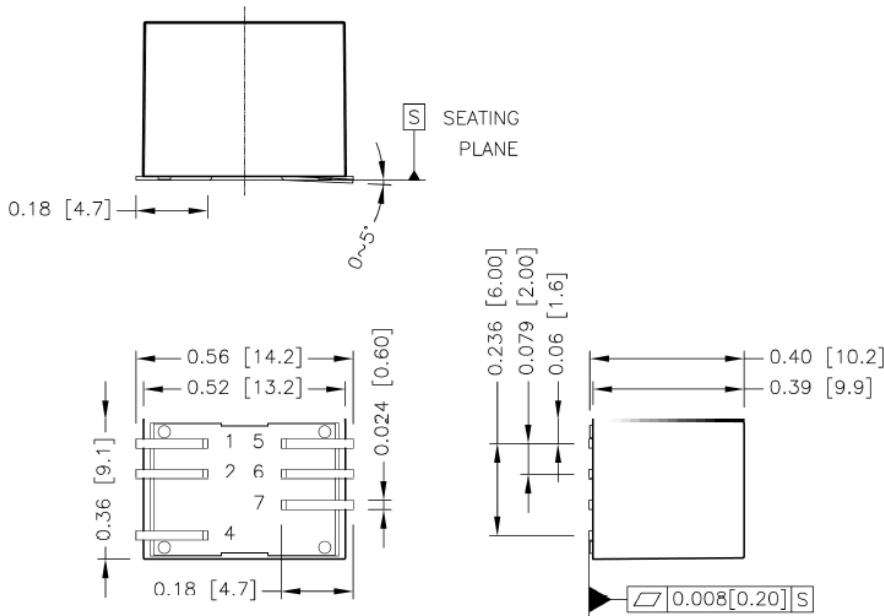
MECHANICAL DRAWINGS

DIP Type



BOTTOM VIEW

SMD Type



BOTTOM VIEW

PIN CONNECTION

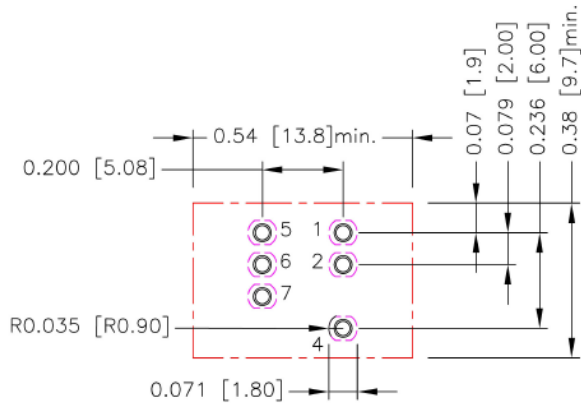
PIN	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
4	Ctrl	Ctrl
5	NC	-Vout
6	-Vout	Common
7	+Vout	+Vout

Notes:

1. All dimensions in inch (mm)
2. Tolerance: $x.xx \pm 0.02$ ($x.xx \pm 0.5$)
 $x.xxx \pm 0.01$ ($x.xx \pm .25$)
3. Pin Pitch Tolerance ± 0.01 (0.25)
4. Pin Dimension Tolerance ± 0.004 (0.1)

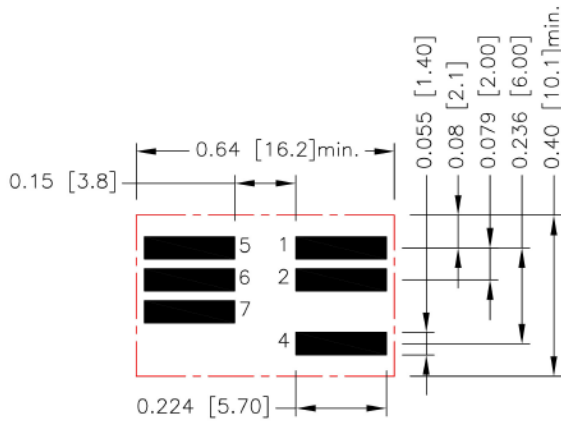
RECOMMENDED PAD LAYOUT

DIP Type



All dimensions in inch [mm]
Pad size (lead free recommended)
Through Hole 1.2.4.5.6.7: Ø0.035 [0.90]
Top View Pad 1.2.4.5.6.7: Ø0.044 [1.13]
Bottom View Pad 1.2.4.5.6.7: Groove R0.035 [0.90] L-0.071 [1.80]

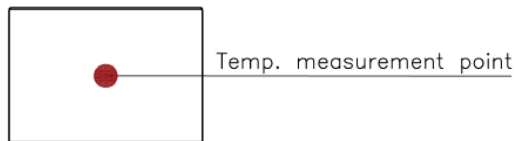
SMD Type



All dimensions in inch [mm]
Pad size (lead free recommended)
Top view pad: 0.224x0.055[5.70x1.40]

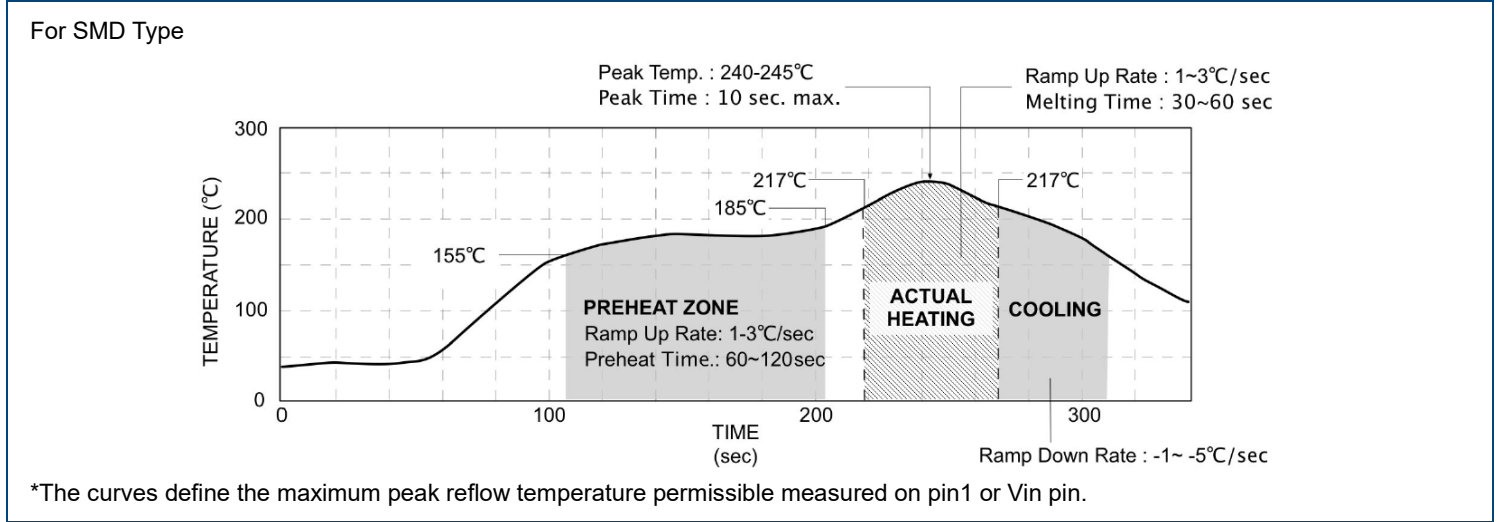
THERMAL CONSIDERATIONS

The power module operates in a variety of thermal environments. However, sufficient cooling should be provided to help ensure reliable operation of the unit. Heat is removed by conduction, convection, and radiation to the surrounding Environment. Proper cooling can be verified by measuring the point as the figure below. The temperature at this location should not exceed "Maximum case temperature". When Operating, adequate cooling must be provided to maintain the test point temperature at or below "Maximum case temperature". You can limit this Temperature to a lower value for extremely high reliability.



TOP VIEW

LEAD FREE REFLOW PROFILE



FUSE CONSIDERATION

This power module is not internally fused. An input line fuse must always be used. This encapsulated power module can be used in a wide variety of applications, ranging from simple stand-alone operation to an integrated part of sophisticated power architecture. To maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse. The input line fuse suggest as below : Vin pin.

Modules	Fuse Rating (A)	Fuse Type
24Vin Modules	1.25	Slow-Blow
48Vin Modules	0.63	Slow-Blow

The table based on the information provided in this data sheet on inrush energy and maximum DC input current at low Vin..

MODEL NUMBER SETUP

DCSDW	05	-	48	S	05	S	H
Series Name	Output Power		Input Voltage	Output Quantity	Oupput Voltage	Package Type	Isolation Option
			24: 9~36VDC 48: 18~75VDC	S: Single D: Dual	33: 3.3VDC 05: 5VDC 09: 9VDC 12: 12VDC 15: 15VDC 24: 24VDC 05: ±5VDC 12: ±12VDC 15: ±15VDC	None: DIP Package S: SMD Package	None: 1600VDC H: 3000VDC

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: 2015 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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