

Wide Input Voltage Range 60 Watt Dc-Dc Converter



FEATURES:

- 2"X1" DIL Package
- 2:1 Wide Input Range
- 100% Burned In
- High Efficiency Up To 91%
- Customized Solutions Available
- Over Temperature Protection
- Remote Control ON/OFF
- UL94V-0 Package Material



Specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage	Input Current		Output Voltage	Output Current	Efficiency	Capacitor Load
	Vdc	No-Load (mA TYP)	Full Load (mA TYP)	Vdc	mA	%TYP	uF max.
93D-24S03R3NL	18-36	90	2160	3.3	14000	87	16500
93D-24S05R3NL	18-36	90	2760	5	12000	88	16500
93D-24S12R3NL	18-36	40	2780	12	5000	89	3300
93D-24S15R3NL	18-36	40	2780	15	4000	89	2200
93D-48S03R3NL	36-72	60	1010	3.3	14000	88	16500
93D-48S05R3NL	36-72	60	1360	5	12000	89	16500
93D-48S12R3NL	36-72	30	1380	12	5000	90	3300
93D-48S15R3NL	36-72	30	1370	15	4000	91	2200

Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Types				2:1	
Filter	Pi Network				
Protection	Fuse Recommended				

Output Specifications (Temperature Coefficient : ±0.05%/°C)

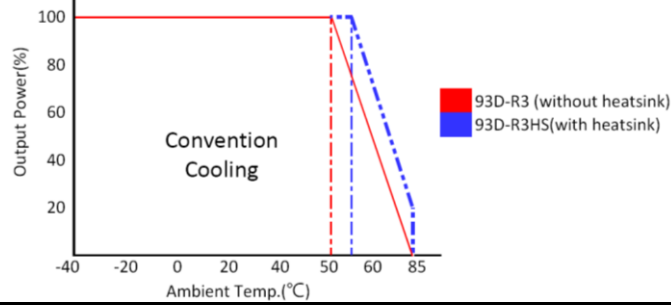
Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	Full load @ Vin(nom.)			±2	%
Short Circuit/ Restart Protection	Hiccup, automatic recovery				
Over load protection			150		%
Line Regulation				±0.5	%
Load Regulation	10% to 100% load			±0.5	%
Ripple & Noise	BW=DC To 20MHz			100	mVp-p
Transient response setting time	25% Step Load Change		250		us
External Trim Adj. Range				±10	%

General Specifications

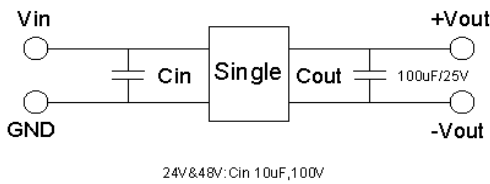
Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency			300		KHz
Operating Temperature	Refer to temperature derating graph (with derating)	-40		85	°C
Humidity	Non Condensing	5%		95	%
Cooling	Free air Convection				
Case material		Nickel Coated with Non-Conductive Base			
Weight		48.6g			
Dimensions	93D-R3 Model 93D-R3HS Model	50.8X25.4X13.1 50.8X25.4X17.8			mm
Potting Material		Epoxy (UL94V-0 rated)			
Remote ON/OFF	ON OFF	Open Short to -Vin			
Isolation Voltage				1600	VDC
MTBF	MIL-HDBK-217F @25°C , Ground Benign	109600			Hours
Storage Temperature		-55		+125	°C
Case Temperature				+110	°C
Isolation Capacitance				2200	pF

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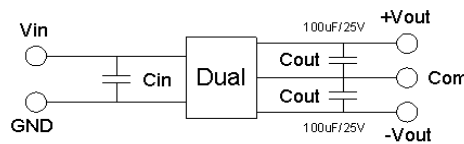
Temperature Derating Graph



Recommended Test Circuit



24V & 48V : C_{in} 10 μ F, 100V



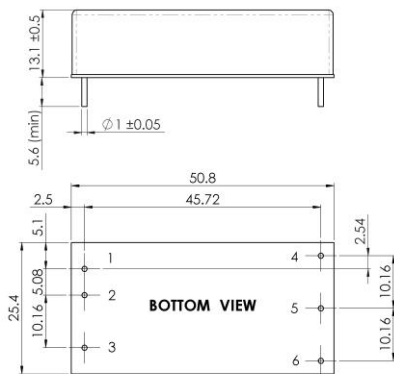
24V & 48V : C_{in} 10 μ F, 100V

Part Number

93D - 24 S 05 R 3 NL
 A B C D E F G
 A : Series
 B : Input Voltage
 C : Single Output(S), DUAL(D)
 D : Output Voltage
 E : Regulated(R)
 F : Package (3 or 3HS)
 G : RoHS Version

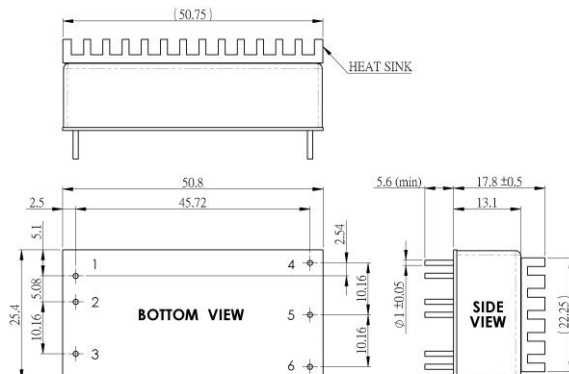
Markings and dimensions

93D-R3 Outline



Unit : mm
 Tolerance : XX.X ± 0.5 , XX.XX ± 0.25

93D-R3HS Outline



Unit : mm
 Tolerance : XX.X ± 0.5 , XX.XX ± 0.25

PIN Assignment

PIN	1	2	3	4	5	6
Function	+Vin	-Vin	Ctrl	+Vout	-Vout	Trim