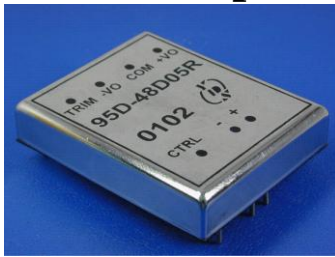




## Wide Input Voltage Range 20 Watt Dc-Dc Converter



### FEATURES:

- 2:1 Wide Input Voltage.
- Recognized By UL 60950-1
- 20 Watt Package.
- Efficiency To 80%
- PI Input Filter.
- 1500Vdc Isolation
- MTBF:>1,500,000 hrs
- Operating Temperature:-40°C TO +85°C



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
	Vdc	No-Load (mA TYP)	Full Load (mA TYP)	Vdc	Full Load (mA)	%TYP
95D-12S03RNL	9-18	25	1890	3.3	5500	80
95D-12S05RNL	9-18	25	2032	5	4000	82
95D-12S12RNL	9-18	25	1964	12	1670	85
95D-12S15RNL	9-18	25	1955	15	1330	85
95D-24S03RNL	18-36	20	945	3.3	5500	80
95D-24S05RNL	18-36	20	1016	5	4000	82
95D-24S12RNL	18-36	20	982	12	1670	85
95D-24S15RNL	18-36	20	977	15	1330	85
95D-24D12RNL	18-36	20	991	+12	+833	84
95D-24D15RNL	18-36	20	991	+15	+666	84
95D-48S03RNL	36-72	15	472	3.3	5500	80
95D-48S05RNL	36-72	15	508	5	4000	82
95D-48S12RNL	36-72	15	491	12	1670	85
95D-48S15RNL	36-72	15	488	15	1330	85
95D-48D12RNL	36-72	15	495	+12	+833	84
95D-48D15RNL	36-72	15	495	+15	+666	84

### Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Types				2:1	
Filter	PI TYPE				

### Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	Full load@Vin(nom.)			±2	%
Short Circuit Protection	Hiccup, automatic recovery				
Line Regulation				±0.5	%
Load Regulation	Single(25% to 100% load)			±0.5	%
Load Regulation	Dual(Balance load), 25% to 100% load			±2.0	%
Cross Regulation	Dual(25% to 100% load)			±5.0	%
Ripple & Noise	BW=DC To 20MHz			100	mVp-p
Transient response setting time	50% load step change		350		us

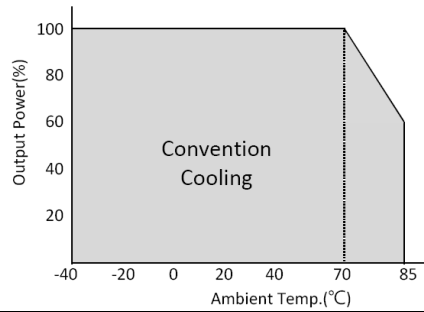
### General Specifications

Parameters	Conditions	Min	Typ	Max	Units
Isolation Resistance	500Vdc	1000			MΩ
Switching Frequency			300		KHz
Operating Temperature		-40		85	°C
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case material		Nickel Coated with Non-Conductive Base			
Weight			55		g
Dimensions	Package 1	51.4x41.6x12.3			mm
Dimensions	Package 2	51.0x51.0x10.3			mm
Potting Material		Epoxy (UL94V-0 rated)			
Radiated Emissions	EN55022	CLASS A			
Conducted Emissions	EN55022	CLASS A			



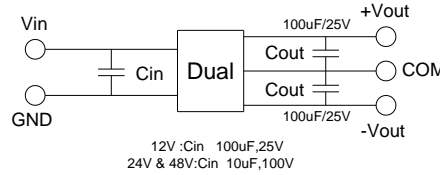
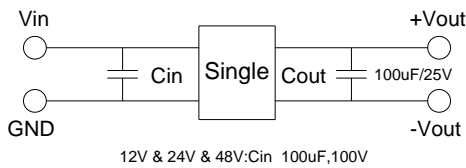
## Wide Input Voltage Range 20 Watt Dc-Dc Converter

### Temperature Derating Graph



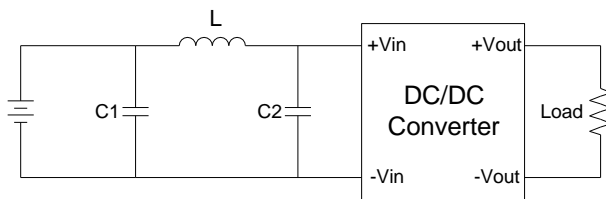
### Recommended Test Circuit

### Part Number



**95D - 24 S 05 R 2 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  
 G : RoHs Version

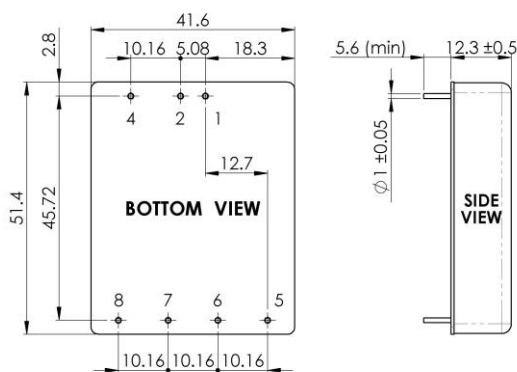
Input filter components(C1,C2,L) are used to help meet conducted emissions requirement for the module . These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.



12V: C1 C2 =330uF/100V  
 L=12uH  
 24V.48V: C1 C2 =220uF/100V  
 L=12uH

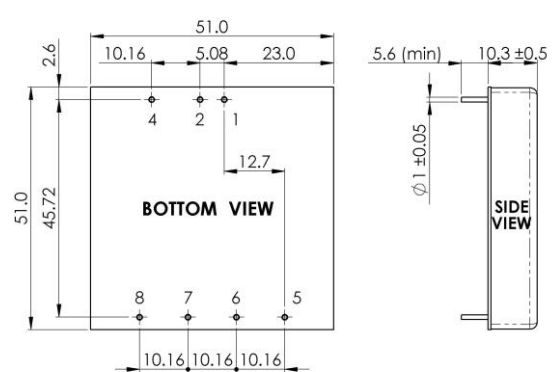
### Markings and dimensions

Standard Model (-RNL)



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

Extended model(-R2NL)



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

### PIN Connection

PIN	1	2	3	4	5	6	7	8
SINGLE	+Vin	-Vin	NO PIN	Ctrl	NC	+Vout	-Vout	Trim
DUAL	+Vin	-Vin	NO PIN	Ctrl	+Vout	COM	-Vout	Trim