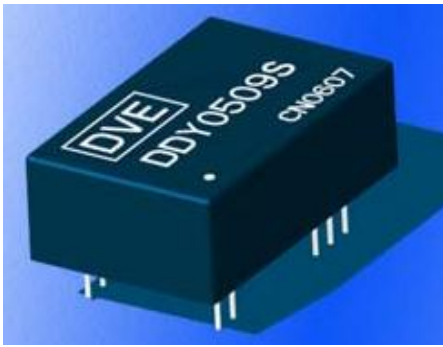




DDY Series Isolated 3W Wide Input DC-DC Converters



FEATURES

- Wide (2:1) Input Range
- Efficiency Up To 85%
- Operating Temperature: -40°C~+85°C
- 1 KVDC Isolation
- Single Output
- UL94-V0 Package
- No Heat Sink Required
- Industry Standard Pin out
- MTBF>3,500,000 hours

APPLICATIONS

The DDY Series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is wide range (voltage range: 2:1);
- 2) Where isolation is necessary between input and output (Isolation Voltage =1000VDC);
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.

SELECTION GUIDE						
	Nominal Input Voltage	Rated Output Voltage	Output Current		Efficiency	Package Style
			Min	Max		
Order Code	(V)	(V)	(mA)	(mA)	(%, Typ)	
DDY0505S	5	5	50	500	70	SIP
DDY0509S	5	9	33	330	72	SIP
DDY0512S	5	12	25	250	73	SIP
DDY0515S	5	15	20	200	75	SIP
DDY1205S	12	5	50	500	70	SIP
DDY1209S	12	9	33	330	75	SIP
DDY1212S	12	12	25	250	76	SIP
DDY1215S	12	15	20	200	78	SIP
DDY2405S	24	5	50	500	70	SIP
DDY2409S	24	9	33	330	75	SIP
DDY2412S	24	12	25	250	81	SIP
DDY2415S	24	15	20	200	81	SIP
DDY4803S	48	3.3	91	909	67	SIP
DDY4805S	48	5	50	500	78	SIP
DDY4809S	48	9	33	330	82	SIP
DDY4812S	48	12	25	250	82	SIP
DDY4815S	48	15	20	200	83	SIP

INPUT CHARACTERISTICS					
Parameter	Conditions	MIN	TYP	MAX	Units
Voltage Range	All DDY05 Types	4.5	5	9	VDC
	All DDY12 Types	9	12	18	
	All DDY24 Types	18	24	36	
	All DDY48 Types	36	48	72	

OUTPUT CHARACTERISTICS					
Parameter	Conditions	MIN	TYP	MAX	Units
Output Power	See Below Products Program	0.3		3	W
Output Voltage Accuracy	Refer To Recommended Circuit		±1	±3	%
Line Regulation	Input Voltage From Low To High		±0.2	±0.5	%
Load Regulation	From 10% To 100% Load		±0.5	±0.75	%
Temperature Drift	Refer To Recommended Circuit			0.03	%/°C
Temperature Rise	Full load		30		°C
Ripple	B/W=20Hz to 300kHz		30	60	mV p-p
Noise	B/W=DC to 20MHz		80	150	

ABSOLUTE MAXIMUM RATINGS	
Output Short-circuit protection	Continuous
Internal power dissipation	100mW(typical)
Lead temperature 1.5mm from case for 10 seconds	300°C

1 All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.

2 See below recommended circuits for more details.



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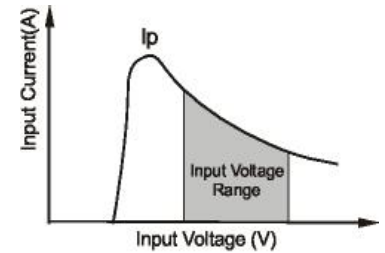
ISOLATION CHARACTERISTICS					
Parameter	Conditions	MIN	TYP	MAX	Units
Isolation Test Voltage	Flash Test for 1 minute	1000			VDC
Resistance	Viso=500VDC	1			GΩ

GENERAL CHARACTERISTICS					
Parameter	Conditions	MIN	TYP	MAX	Units
Switching Frequency	100% Load, Nominal Input Voltage	80		200	kHz
	10% Load, Nominal Input Voltage	250		600	

ENVIRONMENTAL					
Parameter	Conditions	MIN	TYP	MAX	Units
Operation		-40		85	°C
Storage temperature		-55		125	°C
Storage humidity				95	%
Cooling	Free air convection				

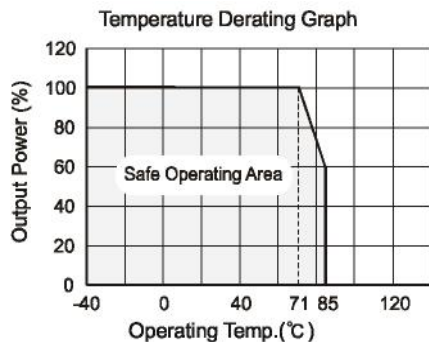


(Figure 1)



(Figure 2)

TYPICAL CHARACTERISTICS



supply should afford the startup current of this kind of DC/DC module. (See figure 2)

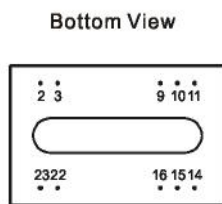
External Capacitor

Although this series of DC/DC converter can work without external capacitor, in order to keep an optimum performance, however, it needs external capacitor. (See Table 1)

Requirement on Output Load

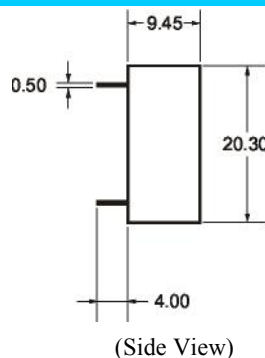
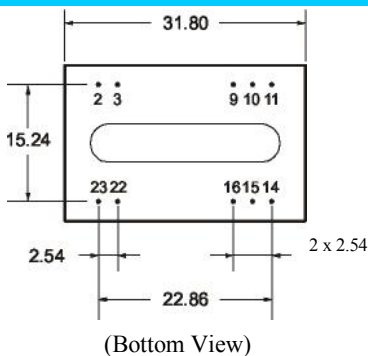
To ensure this module operate efficiently and reliably, a minimum load is specified for this kind of DC/DC converter in addition to a maximum load (namely full load). During operation, make sure the specified range of input voltage is not exceeded, the minimum output load is not less than **10%** Of the full load, and that this product **should never be operated under no load!!!** If the actual load is less below the specified minimum load, the output ripple of this type of DC/DC converter will increase drastically and at the same time efficiency & reliability of the circuit will decrease deeply. If the actual output power from the load in your circuit is very small, please connect a resistor with proper resistance at the output end to in parallel to increase the load, or use our company's other products with a lower rated output power.

FOOTPRINT DETAILS



Pin	Function
2,3	GND
9,10,11,15	NC
14	+Vo
16	0V
22	Vin
23	Vin

OUTLINE DIMENSIONS & RECOMMENDED FOOTPRINT



The products cannot be used in parallel and in plug and play.

Note: All Pins on a 2.54mm pitch; All Pin diameters are 0.50 mm (Tolerance: ±0.25);

APPLICATION NOTE

Recommended Circuit

All the DDY Series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load. Never be tested under no load (See Figure 1 & 2). If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance should not be too high. (See table 1). If you want to use the products in high EMI, please choose our metal packaged products.

Input Current

When it is used in unregulated power supply, be sure that the fluctuating range of the power supply and the rippled voltage do not exceed the module standard. Input current of power.

External Capacitor Table (See Table 1)

V _{IN}	C _{IN}	C _{OUT} (0 +70°C)	C _{OUT} (-40 +85°C)
5V&12V	100μF	100μF (electrolytic capacitor)	47μF (tantalu m capacitor)
24V&48V	10μF		