DFA6 SERIES
SINGLE OUTPUT

DESCRIPTION

The DFA6 Series provides quick power conversion solutions to analog and digital systems. Requires few external components. The converters provide plug-and-play versatility. The series features an input range of 3:1. The output is electrically isolated, thereby allowing the output to be configured for positive or negative output voltage. The DFA6 provides compact system power in less than 2.3 square inches (14.8 cm^2).

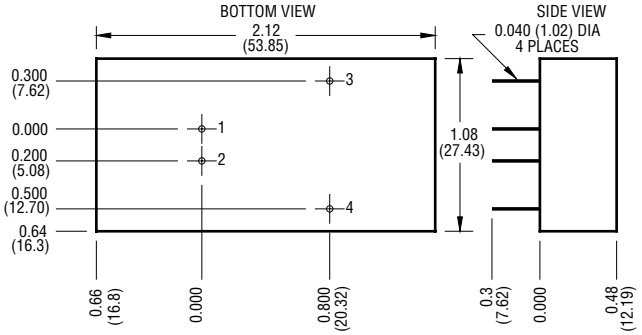
The DFA6 Series' ultra-wide input and no load input current (7mA) makes it well suited for battery operation in commercial and industrial applications. Full overload protection is provided by pulse-by-pulse current limiting.

FEATURES

- Up to 6 Watts Output Power
- Overcurrent Protection
- Efficiency to 83%
- Low Input to Output Capacitance
- 700V Isolation, Input to Output
- Ultra-Wide Input Range (3:1)

Selection Chart

Model	Input Range VDC (4)		Output VDC	Output mA
	Min	Max		
DFA6U12S5	9	27	5	1000
DFA6U12S12	9	27	12	500
DFA6U12S15	9	27	15	400
DFA6U48S5	20	60	5	1000
DFA6U48S12	20	60	12	500
DFA6U48S15	20	60	15	400



Mechanical tolerances unless otherwise noted:
X.XX dimensions: ±0.040 inches
X.XXX dimensions: ±0.010 inches

General Specifications (1)

All Models			Units
Isolation			
Isolation Voltage Input to Output 10μA Leakage	MIN	700	VDC
Input to Output Capacitance	TYP	400	pF
Environmental			
Case Operating Range, Tc No Derating	MIN MAX	-40 85	°C
Storage Range	MIN MAX	-55 105	°C
Thermal Impedance (2)	TYP	20	°C/Watt
General			
MTBF (Calculated)	TYP	800,000	HRS
Unit Weight	TYP	1.0 / 28	oz / gm
Chassis Mounting Kits		CM2A1	

Pin	Function
1	+INPUT
2	-INPUT
3	+OUT
4	-OUT

NOTES

(1) All parameters measured at Tc=25°C, nominal input voltage and full rated load unless otherwise noted. Refer to the Technical Reference Section for the definition of terms, measurement circuits and other information.

(2) The case Thermal Impedance is specified as the case temperature rise over ambient per package dissipated

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Input Parameters (1)								
Model		**DFA6U12S5**	**DFA6U12S12**	**DFA6U12S15**	**DFA6U48S5**	**DFA6U48S12**	**DFA6U48S15**	**Units**
Voltage Range	MIN MAX	9 27			20 60			VDC
Reflected Ripple (2)	TYP TYP	1.8 0.93			0.85 0.44			A_{PP} A_{rms}
Input Current Full Load No Load	TYP TYP	520 6	600 12		130 5	154 6	160 6	mA
Efficiency	TYP	80	83		80	82	79	%
Switching Frequency	TYP	125						kHz
Maximum Input Overvoltage 100ms Maximum 12V Models 48V Models	MAX	34 72						VDC
Turn-on Time, 1% Output Error	TYP	6						ms

Output Parameters (1)								
Model		**DFA6U12S5**	**DFA6U48S5**	**DFA6U12S12**	**DFA6U48S12**	**DFA6U12S15**	**DFA6U48S15**	**Units**
Output Voltage		5		12		15		VDC
Output Voltage Accuracy	MIN TYP MAX	4.95 5.00 5.05		11.90 12.00 12.10		14.90 15.00 15.10		VDC
Rated Load Range	MIN MAX	0.0 1.0		0.0 0.5		0.0 0.4		A
Load Regulation 25% - 100% of Rated Load	TYP MAX	0.1 0.3		0.2 0.4		0.2 0.4		%
Line Regulation Vin = Min to Max VDC	TYP MAX	0.02 0.2		0.2 0.8		0.2 0.8		%
Short Term Stability (3)	TYP	< 0.05						%/24Hrs
Input Ripple Rejection (4)	TYP	> 40						dB
Noise, Peak - Peak (2)	TYP	50						mV_{PP}
RMS Noise	TYP	8						mV_{rms}
Temperature Coefficient	TYP MAX	50 150						ppm/°C
Short Circuit Protection +OUT to -OUT		Continuous, Current Limit Protection						

NOTES

(1) All parameters measured at Tc=25°C, nominal input voltage and full rated load unless otherwise noted. Refer to the Technical Reference Section for the definition of terms, measurement circuits and other information.

(2) Noise is measured per Technical Reference Section. Measurement bandwidth is 0-20 MHz for peak-peak measurements, 10 kHz to 1 MHz for RMS measurements. Output noise is measured with a 1µf / 35V Tantalum capacitor, 1 inch from the output pins to simulate standard PCB decoupling capacitance. Reflected Ripple is measured with the appropriate input capacitor, and into a 10 µH source impedance. See application notes for input capacitor requirements.

(3) Short term stability is specified after a 30 minute warmup at full load, constant line and recording the drift over a 24 hour period.

(4) The input ripple rejection is specified for DC to 120 Hz ripple with a modulation amplitude of 1% of Vin.

DFA6 SERIES APPLICATION NOTES:

External Capacitance Requirements

No external capacitance is required for operation of the DFC6 Series. To meet the reflected ripple requirements of the converter, an input impedance of less than 0.35 Ohms from DC to 250KHz is required. If a capacitive input source is farther than 1" from the converter, an additional capacitor may be required at the input pins for proper operation. External output capacitance is not required for operation, however it is recommended that 1µF to 10µF of tantalum and 0.001 to 0.1µF ceramic capacitance be selected for reduced system noise. Additional output capacitance may be added for increased filtering, but should not exceed 400µF.

Negative Outputs

A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting -OUT as the negative output.

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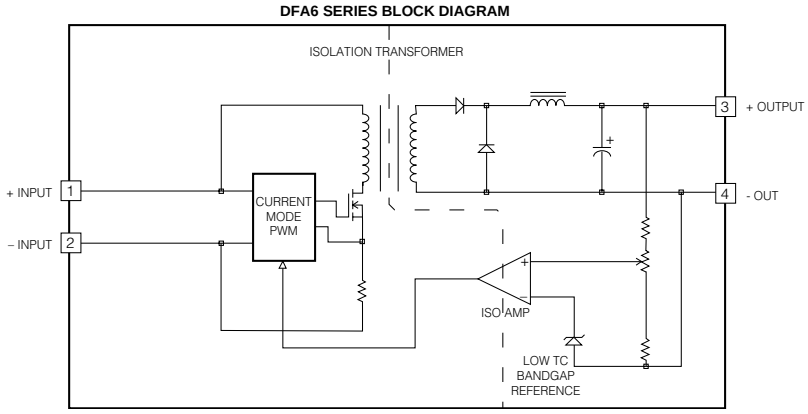
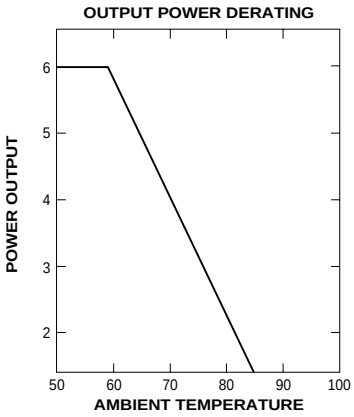
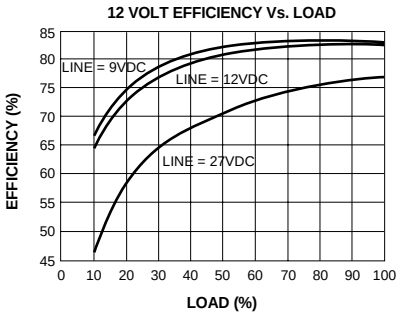
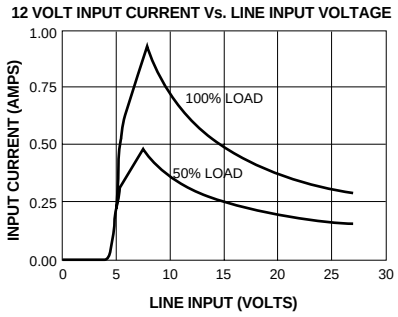


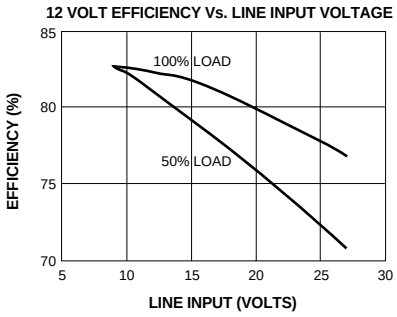


Typical Performance: (Tc=25°C, Vin=Nom VDC, Rated Load)

Data for 12 Volt Input Models







Data for 48 Volt Input Models