DFC25 SERIES

SINGLE OUTPUT

DESCRIPTION

The DFC25 Series DC/DC converter provides tightly regulated output voltages for industrial and datacom applications from 12, 24, or 48 Volt inputs. Available output power ranges from 24.75 to 30 watts. Excellent noise performance is attained via an aluminum case, toroidal magnetics, and double shielded transformers. Common mode and differential mode input filtering is integral to the design. Selected models provide 1544 volts isolation from the input to output.

The input and output sections of the DFC25 Series are protected from overvoltage transients via internal circuitry. Same voltage models of the DFC25 family may be connected in parallel to achieve additional output current.

FEATURES

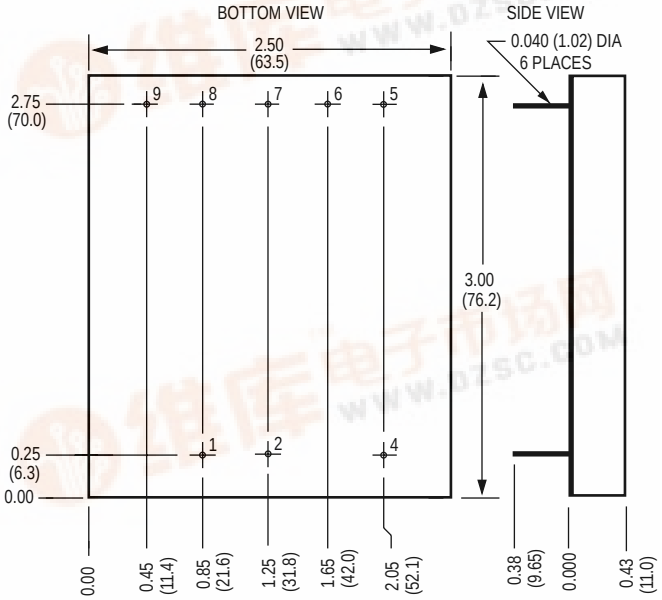
- Up to 30 Watts Output Power
- Remote ON/OFF
- Common and Differential Mode Input Filters
- +3.3, +5V, or +12V Outputs
- Remote Voltage Sense
- Efficiencies to 81%
- Operation from -25°C to 85°C
- 700/1544V Isolation
- Two Year Warranty
- UL/CSA/TÜV

Selection Chart

Model	Input Range VDC		Output VDC	Output mA MAX
	Min	Max	Nominal	
DFC25E12S3.3	9	18	3.3	7500
DFC25E24S5	18	36	5	6000
DFC25E48S5	36	72	5	6000
DFC25E48S12	36	72	12	2500

General Specifications (1)

All Models			Units
Isolation (3)			
Isolation Voltage Input to Output 12V, 24V Input 48V Input 10µA Leakage	 MIN MIN	 700 1544	Volts
Input to Output Capacitance	TYP	700	pF
Remote ON/OFF			
ON Logic Level or Pin Open	MIN	2.5	Volts
Off Logic Level or Tie to -Input	MAX	0.7	Volts
Converter Idle Current	TYP	10	mA
Output Trim Function			
Input Resistance	TYP	40	kΩ
Programming Range	MIN	±10	%
Environmental			
Case Operating Range (2)	MIN MAX	-25 +60	°C
Case Functional Range	MIN MAX	-40 +105	°C
Storage Range	MIN MAX	-45 +105	°C
Thermal Impedance	TYP	10	°C/Watt
General			
MTBF (Calculated)	TYP	1,000,000	Hours
Unit Weight	TYP	2.6/71	oz/gm



PIN CONNECTIONS	
PIN NUMBER	PIN OUT
1	-INPUT
2	+INPUT
3	N/C
4	ON/OFF
5	TRIM
6	+OUTPUT
7	-OUTPUT
8	N/C
9	N/C

NOTE: All pins are 0.040" diameter brass with tin plating.

Mechanical tolerances unless otherwise noted:
X.XX dimensions: ±0.020 inches
X.XXX dimensions: ±0.005 inches

NOTES

(1) All parameters measured at 25°C, nominal input voltage, and full rated load unless otherwise noted.

(2) Derate linearly to 0 Watts at 105°C ambient. Operation to +70°C ambient with externally supplied forced air cooling, 100LFM.

(3) Case is tied to -Input, Pin 1.

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Input Parameters (1)						
Model		**DFC25E12S3.3**	**DFC25E24S5**	**DFC25E48S5**	**DFC25E48S12**	**Units**
Reflected Ripple (2)	TYP	330	230	150	150	mAPP
Input Current Full Load No Load	 TYP TYP	 2870 100	 1563 10	 781 10	 762 10	mA
Inrush Current (4)	MAX	50	50	50	50	APK
Efficiency	TYP	72	80	80	82	%
Switching Frequency	TYP	150	150	150	150	kHz
Maximum Input Overvoltage, 100ms Maximum	MAX	24	45	85	85	VDC
Turn-on Time, 1% Output Error	TYP	10	10	10	10	ms

Output Parameters (1)						
Model		**DFC25E12S3.3**	**DFC25E24S5**	**DFC25E48S5**	**DFC25E48S12**	**Units**
Output Voltage		3.3	5	5	12	VDC
Output Voltage Accuracy	MIN TYP MAX	3.26 3.30 3.33	5.05 5.10 5.15	5.05 5.10 5.15	11.90 12.00 12.10	VDC
Rated Load Range	MIN MAX	0.75 7.50	0.60 6.00	0.60 6.00	0.25 2.50	A
Load Regulation 10% Load - Max Load	TYP	1	1	1	1	%
Line Regulation Vin = Min-Max VDC	TYP	0.2	0.2	0.2	0.2	%
Transient Response 25% Load Step (5)	TYP	2	2	2	2	%
Short Term Stability (3)	TYP	<0.05	<0.05	<0.05	<0.05	%/24Hrs
Long Term Stability	TYP	<0.1	<0.1	<0.1	<0.1	%/kHrs
Input Ripple Rejection	TYP	>40	>40	>40	>40	dB
Noise, Peak - Peak (2)	TYP	75	75	75	75	mVPP
Temperature Coefficient	TYP	100	100	100	100	ppm/°C
Short Circuit Protection from +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.

(2) Measurement bandwidth is 0-20 MHz for peak-peak measurements, 10 kHz to 1 MHz for RMS measurements. Output noise is measured with a 0.01µF/100V ceramic capacitor in parallel with a 1µF/35V Tantalum capacitor, 1 inch from the output pins to simulate standard PCB decoupling capacitance.

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

(4) Per ETSI-300-132

(5) Recovery to within 1% in less than 1 millisecond after transient has been applied.

DFC25 SERIES APPLICATION NOTES:

External Capacitance Requirements

A low ESR external capacitance is required for operation of the DFC25 Series. For maximum performance, it is recommended that the DFC25 Series use a capacitor of sufficient ripple current capacity connected across the input pins, especially if a capacitive input source is farther than 1" from the converter. To meet the reflected ripple requirements of the converter, an input impedance of less than 0.09 Ohms at 200 kHz is required. 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 each output to reduce system noise. Additional output capacitance may be added for increased filtering, but should not exceed 400µF.

Remote ON/OFF Operation

The remote ON/OFF pin may be left floating if this function is not used. It is recommended to drive this pin with TTL compatible circuitry. When the ON/OFF pin is pulled low with respect to the -INPUT, the converter is placed in a low power drain state. The input capacitors are kept fully charged in the OFF mode. For proper operation, this input may be driven from a logic gate directly. The ON/OFF pin should never be pulled more than 0.3 volts below -INPUT or have a voltage greater than +6 volts applied.