800 Series

Distributed By:
B. J. Wolfe Enterprises
(800) 554-1224
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IEC950

Key Features:

- **Single, Dual & Triple Outputs**
- **10.6 W/In³ Power Density**
- **Efficiency to 82%**
- **Miniature 1 x 2 x 0.375 Inch Case**
- **VDE / EN 60950 Approved**
- **>1,000,000 Hours MTBF**

General Description

The **800 series** is a family of miniature, high performance 8W DC/DC converters. The extensive use of surface mount technology, conservative component selection and a high switching frequency topology have been combined to economically provide miniature size and high power density with no sacrifice in product reliability. Twenty four models operate over 2:1 input voltage ranges of 9 to 18, 18 to 36 or 36 to 72 VDC; providing single, dual and triple output combinations of 5, 12, 15, ±5, ±12, ±15, 5±12, and 5±15 VDC. Standard features include 500 VDC input/output isolation, efficiency as high as 82%, tight line/load regulation and low output ripple and noise. A remote ON/OFF control input, continuous short circuit protection (by input current limiting) and an internal filter to reduce reflected ripple current are standard on all units. All models are fully approved to the latest revisions of VDE. The Mean Time Between Failure (MTBF) per MIL-HDBK-217F is over 1,000,000 hours (@ +25°C, ground benign).

All **800 series** models are packaged in compact, low profile 1 x 2 x 0.375 inch metal cases. Continuous six-sided shielding virtually eliminates radiated emissions. This miniature size yields a power density as high as 10.6 W/In³. Operation is specified over the wide operating temperature range of -30°C to +75°C with no derating required. Cooling is by free air convection.

Electrical Specifications

Input Specifications:

Input Voltage Range	See Model Selection Guide
Input Filter	LC Type
Reverse Polarity Input Current.	6A, Max.
Short Circuit Current Limit	150% of I_{in}
Undervoltage Shutdown	8 VDC
Reflected Ripple Current.	See Model Selection Guide
Remote On/Off Control;	
Supply On	0 VDC to 0.6 VDC
Supply Off	1 VDC to 5 VDC
Logic Input Reference	Negative (-) Input
Logic Compatibility	TTL or CMOS
Standby Current	25 mA

Output Specifications:

Voltage and Current Ratings (1)	See Model Selection Guide
Output Voltage Accuracy;	
Single, Dual Output Models.	±1%, Max.
Triple Output Models; Primary	±1%, Max.
Auxiliaries	±5%, Max.
Voltage Balance;	
Dual Outputs	±1.0%, Max.
Triple Output Models; Auxiliaries	±1.0%, Max.
Ripple & Noise, (20 MHz BW) (2)	1% Pk-Pk of V_{out}
Minimum Load	10% of Full Load
Line Regulation;	
Single or Dual Output Models	±0.5%, Max.
Triple Output Models; Primary	±0.2%, Max.
Auxiliaries	±5.0%, Max.
Load Regulation;	
Single Output Models	±0.2%, Max.
Dual Output Models	±1.0%, Max.
Triple Output Models; Primary	±0.5%, Max.
Auxiliaries	±5.0%, Max.
Temperature Coefficient @ FL.	± 0.01/°C
Transient Response	200 µSec, Max.
Short Circuit Protection	All outputs, by input current limiting
Short Circuit Duration	Continuous
Short Circuit Restart	Automatic
Over Voltage Protection	See Model Selection Guide

General Specifications:

Efficiency	See Model Selection Guide
Isolation Voltage (1 min.)	500 VDC
Isolation Resistance	$10^9\Omega$
Switching Frequency	100 kHz, Min.

Environmental Specifications:

Operating Temperature Range (Ambient)	-30°C to +75°C
Storage Temperature Range	-40°C to +125°C
Thermal Resistance (3)	9.6°C/W
Derating	None Required
Relative Humidity	Up to 95%, Non-Condensing
Cooling	Free-air Convection
EMI/RFI	Six-sided Continuous Shielded Metal Case

Physical Characteristics:

Case Size	1 x 2 x 0.375 inches (25.5 x 51 x 9.52 mm)
Case Material	Metal, Coated
Weight.	1.5 Oz (42.5g)
Shielding Connection	
12V, 24V Input Models	Pin 3 (- Input)
48V Input Models	Pin 4 (+ Input)

Reliability Specifications:

MTBF; (4)	>1,000,000 Hours

Specifications typical @ +25°C with nominal input voltage and under full output load conditions, unless otherwise noted. Specifications subject to change without notice.

WIDE 2:1 INPUT VOLTAGE RANGE HIGH ISOLATION, HIGH POWER DENSITY 8W DC/DC CONVERTERS

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Model Selection Guide

Model Number	Input					Output			Efficiency @FL (%)
	Voltage (VDC)		Current (mA)		Reflected Ripple (mA Pk-Pk)	Voltage (VDC)	Current (mA)	Over Voltage (VDC)	
	Nominal	Range	No-Load	Full-Load					
805S12	12	9 - 18	46	780	30	5	1500	6.8	79
812S12	12	9 - 18	46	786	30	12	625	15.0	79
815S12	12	9 - 18	46	786	30	15	500	18.0	79
805D12	12	9 - 18	46	786	30	±5	±750	±6.8	79
812D12	12	9 - 18	46	786	30	±12	±300	±15.0	80
815D12	12	9 - 18	46	773	30	±15	±250	±18.0	80
805S24	24	18 - 36	50	384	40	5	1500	6.8	81
812S24	24	18 - 36	50	384	40	12	625	15.0	81
815S24	24	18 - 36	50	384	40	15	500	18.0	81
805D24	24	18 - 36	50	382	40	±5	±750	±6.8	82
812D24	24	18 - 36	56	382	40	±12	±300	±15.0	82
815D24	24	18 - 36	50	382	40	±15	±250	±18.0	82
805S48	48	36 - 72	36	198	30	5	1500	6.8	79
812S48	48	36 - 72	36	198	30	12	625	15.0	79
815S48	48	36 - 72	42	198	30	15	500	18.0	79
805D48	48	36 - 72	35	204	30	±5	±750	±6.8	78
812D48	48	36 - 72	37	198	30	±12	±300	±15.0	79
815D48	48	36 - 72	42	198	30	±15	±250	±18.0	79
805/12T12	12	9 - 18	42	843	36	5/±12	1000/±100	6.8/±15	79
805/15T12	12	9 - 18	42	843	36	5/±15	1000/±100	6.8/±18	79
805/12T24	24	18 - 36	42	411	36	5/±12	1000/±100	6.8/±15	81
805/15T24	24	18 - 36	42	411	35	5/±15	1000/±100	6.8/±18	81
805/12T48	48	36 - 72	40	203	33	5/±12	1000/±100	6.8/±15	82
805/15T48	48	36 - 72	40	203	33	5/±15	1000/±100	6.8/±18	82

Specification Notes

1. Care should be taken not to exceed the maximum power ratings for any particular model. For triple output units, the current at either auxiliary output must not exceed 110% of specified ratings.
2. These units operate as complete converters with no need for external components. However, in some noise sensitive analog applications it is recommended that a 15 µF - 25V tantalum electrolytic capacitor be placed in parallel with a 0.1 µF ceramic capacitor as close to the load as possible. This will reduce the output ripple to approximately 25 mV Pk-Pk.
3. Power consumed by the case-ambient (TH_{CA}) thermal resistance is internally dissipated.
4. MTBF is calculated per MIL-HDBK-217F, conditions are ground benign @ +25°C.

Note:
For information on the standard conditions and methods used or approved by **CDI** to test DC/DC converter parameters, see the application note "DC/DC Converter Test Methods" on page 104.

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