DGP20 SERIES
TRIPLE OUTPUT

DESCRIPTION

The DGP20 Series is a high performance 20 watt triple output DC/DC converter designed for battery and telecom applications. Power densities of up to 11 watts per cubic inch provides system flexibility. The extended 2:1 input voltage range allows operation over a wide variety of sources from 9 to 72 volts.

FEATURES

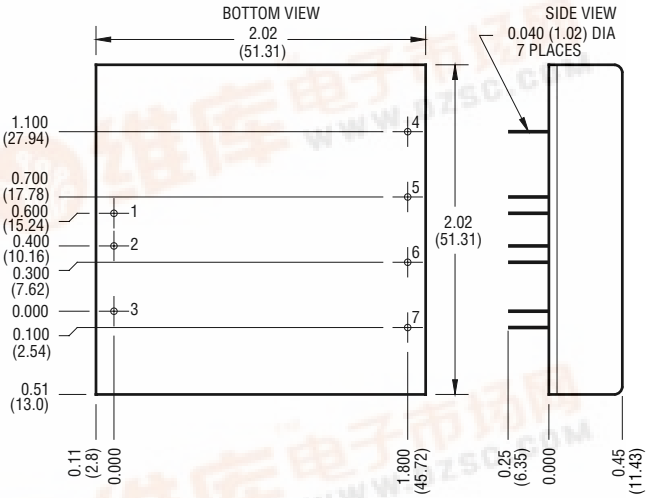
- Triple Outputs
- Five Sided Shielded Case
- Remote ON/OFF
- Efficiencies to 84%
- -40°C to +85°C Operation
- 700Volt Isolation
- Extended Range Input (2:1)

Selection Chart

Model	Input Range VDC		Output VDC	Output mA
	Min	Max		
DGP20E12T5/12	9	18	5, ±12	2500, ±310
DGP20E12T5/15	9	18	5, ±15	2500, ±250
DGP20E24T5/12	18	36	5, ±12	2500, ±310
DGP20E24T5/15	18	36	5, ±15	2500, ±250
DGP20E48T5/12	36	72	5, ±12	2500, ±310
DGP20E48T5/15	36	72	5, ±15	2500, ±250

General Specifications (1)

All Models			Units
Isolation (4)			
Breakdown Voltage Input to Output 12V , 24V Input to Output 48V 10 µA Leakage	 MIN MIN	 700 1544	VDC
Input to Output Capacitance	TYP	4000	pF
ON/OFF Function			
ON Logic Level or Leave Pin Open	MIN	>1.6	VDC
OFF Logic Level or Tie Pin to -Input	MAX	<0.7	VDC
Open Circuit Voltage	TYP	2.5	VDC
Input Resistance	TYP	20	Kohms
Converter Idle Current ON/OFF Pin Low 12V Models 4V and 48V Models	 TYP TYP	 3 5	 mA mA
Enviromental			
Case Functional Range, Tc No Derating	MIN MAX	-40 85	°C
Case Functional Range (2)	MIN MAX	-55 100	°C
Storage Range	MIN MAX	-55 105	°C
Thermal Impedance (4)	TYP	9.5	° C/Watt
General			
MTBF (Calculated)	TYP	800,000	HRS
Unit Weight	TYP	<3/85	oz/gm
Chassis Mounting Kit 12V, 24V	CM2B3		
Chassis Mounting Kit 48V	CM2A3		



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

Pin	Function
1	+INPUT
2	-INPUT
3	ON/OFF
4	+12/15V OUTPUT
5	+5V OUTPUT
6	COMMON
7	-12/15V OUTPUT

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 functional temperature range is intended to give an additional data point for use in evaluating this power supply. At the low functional temperature the power supply will function with no side effects, however, sustained operation at the high functional temperature will reduce expected operational life. The data sheet specifications are not guaranteed beyond the case operating range.

(3) The case thermal impedance is specified as the case temperature rise over ambient per package watt dissipated.

(4) Case is tied to-Input, Pin 2.

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Input Parameters (1)								
Model		**DGP20E12T5/12**	**DGP20E12T5/15**	**DGP20E24T5/12**	**DGP20E24T5/15**	**DGP20E48T5/12**	**DGP20E48T5/15**	**Units**
Voltage Range	MIN MAX	9.0 18.0		18.0 36.0		36.0 72.0		VDC
Reflected Ripple (2)	TYP	15		10		6		mA_{rms}
Input Current Full Load No Load	TYP TYP	2160 16		995 10		510 8		mA
Efficiency	TYP	77		84		82		%
Switching Frequency	TYP	220						kHz
Maximum Input Overvoltage, 100ms No Damage	MAX	23		45		85		VDC
Turn-on Time	TYP	10						ms

Output Parameters (1)					
Model		**DGP20EXXT5/XX**	**DGP20EXXT5/12**	**DGP20EXXT5/15**	**Units**
Output Voltage		+5	±12	±15	VDC
Rated Load (3)	MIN MAX	600 2500	75 310	60 250	mA
Voltage Range 100% Load	MIN TYP MAX	4.925 5.000 5.075	11.700 12.000 12.300	14.700 15.000 15.300	VDC
Output Balance (Plus to Minus Ouput, Full Load)	TYP MAX	N/A	<50	<50	mV
Load Regulation MIN-MAX Load (4)	TYP MAX	<0.5 2.0	<1.0 2.0	<1.0 2.0	%
Cross Regulation (5)	TYP	1.0	5.0	5.0	%
Line Regulation Vin=Min to Max VDC	TYP	0.1 1.0	0.4 1.5	0.4 1.5	%
Short Term Stability (6)	TYP	<0.1	<0.02	<0.02	%
Noise, 0-20MHz bw (2)	TYP	50	120	150	mV_{pp}
Temperature Coefficient	TYP MAX	50 150	50 200	50 200	ppm/° C
Short Circut Protection to Common for all Outputs		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 tantalum located 1" away from the converter to simulate PCB standard decoupling. Input reflected ripple is measured into a 1 µH source impedance.

(3) Optimum performance is obtained when this power supply is operated within the minimum to maximum load specifications.

(4) Output regulation is specified by simultaneously changing from minimum to maximum load and noting the change in each output.

(5) Cross regulation is defined as the change in one output when the other output is changed from full load to 25% of full load. The converter can be run at no load on either or both outputs with no damage.

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

DGP20 SERIES APPLICATION NOTES:

External Capacitance Requirements

No external capacitance is required for operation of the DGP20 Series. However, for maximum performance, it is recommended that the DGP20 Series use a capacitor of sufficient ripple current capacity connected across the input pins 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 from at 220KHz 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 reduced 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 an open collector/drain or a relay contact. 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, do not drive this input 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 +8 volts applied.

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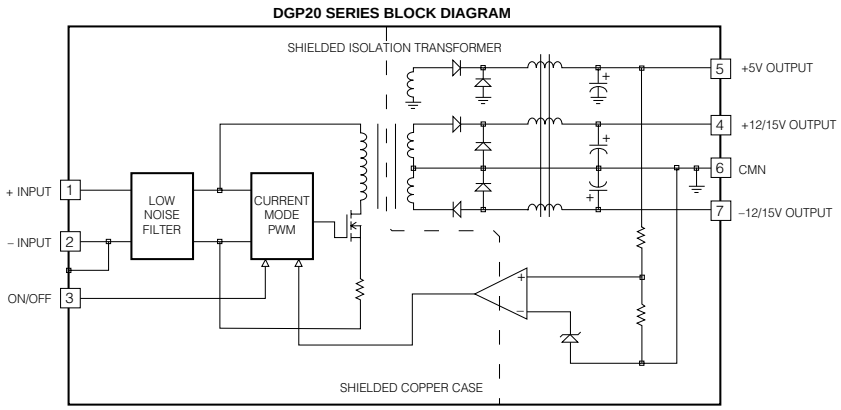

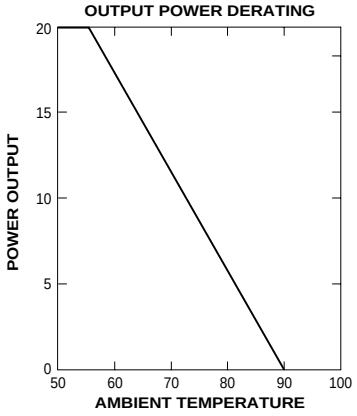

Typical Performance: (Tc=25°C, Vin=Nom VDC, Rated Load)