POWER GENERAL

DCU1-20WR SERIES

20W-60W SINGLE OUTPUT DC-DC CONVERTERS
—WIDE INPUT RANGES, NON-ISOLATED OUTPUT—

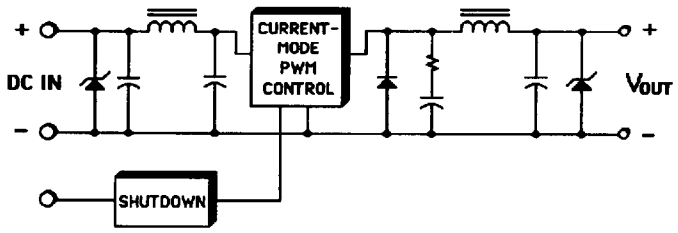
FEATURES

- 5 Wide Input Voltage Ranges
- 5 Standard Output Voltages
- Pi Input Filter
- 83% Minimum Efficiency
- Over-Voltage/Short-Circuit Protection
- Tight Line/Load Regulation
- Remote Shutdown
- External Output Trim on Most Models
- 2-Year Warranty
- **Minimum 200,000 Hours MTBF**

APPLICATIONS

- Portable, Battery-Backed Gear
- Battery-Operated Equipment

FUNCTIONAL BLOCK DIAGRAM



All DCU1-20WR models are supplied in 2.56 x 3.00 x 0.75-inch metal cases with externally non-conductive base plates.

GENERAL SPECIFICATIONS

DC INPUT VOLTAGE	Five ranges. See Electrical Characteristics table.
INPUT TRANSIENT PROTECTION	600W transient absorption zener.
INPUT REFLECTED RIPPLE	75 mA_{pp}, maximum.
EMI SUPPRESSION	Pi input filter.
CONTINUOUS OUTPUT POWER	20W to 60 W. See Electrical Characteristics table.
OVER-VOLTAGE PROTECTION	All models. See Electrical Characteristics table.
CURRENT LIMIT	Cycle-by-cycle limiting; internal thermal shutdown.
LINE REGULATION	0.5 percent, maximum, NL/FL, nominal input, +25°C.
LOAD REGULATION	1.0 percent, maximum, HL/LL, full load, +25°C.
TRANSIENT RESPONSE	200 µs recovery with 75 mV maximum deviation after 50 percent step load change.
OUTPUT NOISE/RIPPLE	30 mV_{pp}, typical; 50 mV_{pp}, maximum. See Note 3.
REVERSE BATTERY	Internal shunt diode. See Note 4.
OUTPUT VOLTAGE ACCURACY	5V model, within 2 percent of nominal; all other models, within 1 percent of nominal.
EFFICIENCY	83 percent, minimum.
REMOTE SHUTDOWN	ON = 1.8V to V_{IN}, maximum, or open circuit. OFF = 0.8V or less.
STANDBY/SLEEP MODE CURRENT DRAIN	Less than 1.0 mA at V_{IN} = 24V.
EXTERNAL TRIM	±10 percent (6V, 9V, 12V, 15V models).
OPERATING FREQUENCY	72 kHz (fixed).

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ENVIRONMENTAL OPERATING CHARACTERISTICS

OPERATING TEMPERATURE RANGE .....-40°C TO +85°C. No de-rating,-25°C TO +70°C. De-rate 3 percent/°C from 71°C to 85°C.
TEMPERATURE COEFFICIENT .....±0.02 percent/°C.
COOLING .....Free-air convection.
RELATIVE HUMIDITY.....5 to 95 percent, non-condensing.
SHOCK/VIBRATION .....Meets MIL-STD 202/IEC 68.
ALTITUDE.....0 to 10,000 feet.

STORAGE CHARACTERISTICS

TEMPERATURE RANGE .....-55°C to +105°C.
RELATIVE HUMIDITY.....5 to 95 percent, non-condensing.

RELIABILITY

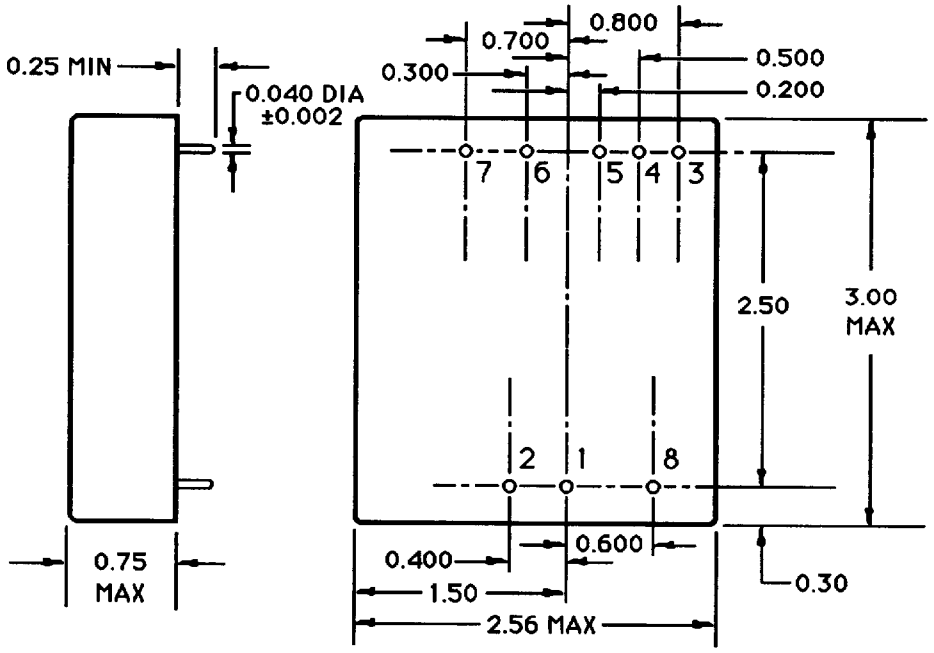
MEAN TIME BETWEEN FAILURES.....>200,000 hours, per the "parts stress" method in MIL-HDBK 217E (ground benign, TA =+25°C).

Electrical Characteristics

Model Number	DC Input Voltage			Input Current		DC Output Voltage (V)	Max. Output Current (A)	Output Voltage Accuracy	OVP Limit (Note 2) (V)	Efficiency	Max. Output Power (W)
	Min. (V)	Nom. (V)	Max. (V)	No Load (A)	Full Load (A)						
DCU1-20WR-5	8.0	24	36	0.015	1.020	5.05	4.0	±2%	6.8	83%	20
DCU1-20WR-6	9.0	24	36	0.015	1.200	6.0	4.0	±1%	8.2	83%	24
DCU1-20WR-9	12	24	36	0.015	1.780	9.0	4.0	±1%	12	84%	36
DCU1-20WR-12	15	24	36	0.015	2.330	12	4.0	±1%	15	86%	48
DCU1-20WR-15	18	24	36	0.015	2.880	15	4.0	±1%	20	87%	60

Notes:
1. All measurements are at nominal input, full load and +25°C.
2. ±5 percent.
3. Peak-to-peak and RMS metering equipment shall have a 20 MHz response with probes and cables maintaining a frequency response of 20 Hz to 20 MHz. Output ripple and spikes are measured directly at the output terminals of the power supply across a 0.1 µF ceramic capacitor without use of the probe ground.
4. External input line fuse is recommended: Use **5A/125V** slow-blow fuse.

MECHANICAL OUTLINE AND PIN CONFIGURATION

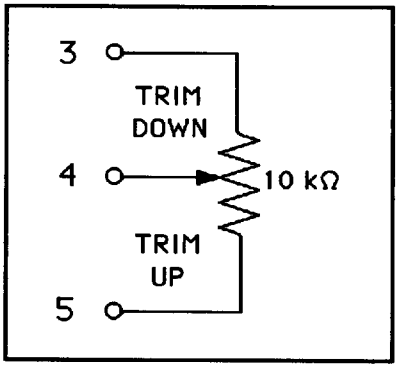


Notes:
1. Dimensions shown are in inches.
2. Tolerance = 0.00 ±0.02.
   0.000 ±0.005.
3. Weight = 6.5 oz (0.18 kg).

PIN-OUT

PIN	FUNCTION
1	+ INPUT
2	- INPUT
3	+ TRIM
4	OUTPUT TRIM
5	- TRIM
6	+ OUTPUT
7	- OUTPUT
8	REMOTE ON/OFF CONTROL

OUTPUT TRIM



Specifications are subject to change without notice. *PG/JDAE*