

# 5W-20W

## MODULAR DC-DC CONVERTERS WITH NON-ISOLATED I/O

- ✓ Wide Input Voltage Ranges
- ✓ Pi Input Filters—Built-in EMI Suppression
- ✓ 20W Model Includes
  - Remote Shutdown
  - Remote Load Sensing
  - Remote Output Voltage Adjustment
- ✓ Short-Circuit/Over-Voltage Protection
- ✓ Compact Packages
- ✓ Six-Sided Shielding
- ✓ High Efficiency Ratings
- ✓ 2-Year Warranty
- ✓ 200,000-Hour Minimum MTBF



### CHARACTERISTICS

EMI Suppression.....	Pi input filter, standard.
Reflected Ripple Current.....	DCU1-5, 50 mApp, max. DCU1-20, 75 mApp, max.
Continuous Output Power.....	See output voltage/current ratings.
Output Voltage Tolerance.....	DCU1-5, $\pm 2\%$ . DCU1-20WR/5, $\pm 2\%$ . All other DCU1-20 models, $\pm 1\%$ .
External Output Trim.....	DCU1-20-WR/5, +5%; other DCU1-20 models, $\pm 5\%$ .
Output Noise and Ripple.....	DCU1-5, 75 mVpp, max. DCU1-20, 50 mVpp, max. (Note 2).
Short-Circuit Protection.....	DCU1-5, pulsed overload type. DCU1-20, cycle-by-cycle current limiting; internal thermal shutdown.
Over-Voltage Protection.....	130% of rated output voltage, typ.
Reverse Voltage Protection .....	Internal shunt diode.
Transient Response .....	DCU1-5, 500 $\mu$ s recovery to within 1% of the regulation band after 25% step load change with no more than 200 mV deviation. DCU1-20, 200 $\mu$ s recovery to within 1% of the regulation band after 50% step load change with no more than 5% deviation.
Frequency of Operation .....	DCU1-5, 125 kHz. DCU1-20, 72 kHz.
Remote Shutdown .....	DCU1-20, ON = 0.5V to $V_{IN(MAX)}$ or open circuit; OFF = 0.25V or less.
Standby Mode Current Drain ....	DCU1-20 series, less than 1.0 mA at $V_{IN} = 24V$ .
Temperature Range .....	-25°C to +70°C, no de-rating.
Temperature Coefficient.....	$\pm 0.02\%/^{\circ}C$ over the entire operating temperature range.
Relative Humidity .....	0 to 95%, non-condensing.
Altitude .....	0 to 10,000 feet.
Cooling .....	Convection cooling is adequate. Moving air is recommended for operation in a confined area.
Storage Temperature .....	-40°C to +100°C.
Storage Humidity .....	0 to 95%, non-condensing.
Mean Time Between Failures...	DCU1-5, >250,000 hours. DCU1-20, >200,000 hours. (Note 4.)

Model	Input Voltage				Input Current		Max.			
	No Load				Full Load		Output			
	Min.	Nom.	Max.	Load	Load	Voltage	Current	Line	Load	Efficiency
	(V)	(V)	(V)	(A)	(A)	(V)	(A)	Reg.	Reg.	Reg.

#### DC-DC 5W Single Output

DCU1-5-WR/5	7.0	12	32	0.025	0.600	5.10	1.0	0.5%	0.5%	74%
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#### DC-DC 20W Single Output

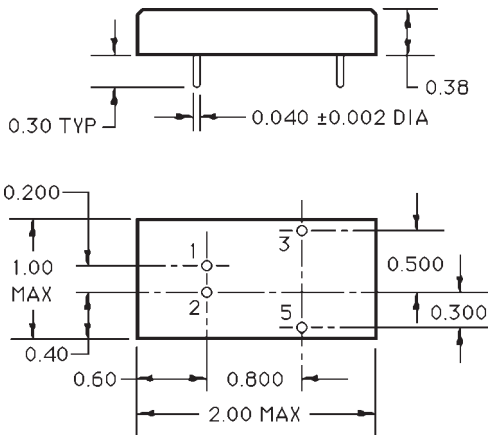
DCU1-20-WR/5	8.0	24	36	0.015	1.020	5.05	4.0	0.5%	1.0%	82%
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#### Notes

- Use of an external input line fuse is recommended:  
DCU1-5, use a 1.0A/125V slow-blow fuse.  
DCU1-20, use a 5A/125V slow-blow fuse.
- Peak-to-peak and RMS metering equipment must have a 20 MHz frequency response with probes and cables that maintain a frequency response of 20 Hz to 20 MHz. Output ripple and spikes are measured directly at the output terminals of the converter with a 0.1  $\mu$ F ceramic capacitor. The probe ground band must make direct contact with the output return or the common terminal of the converter to prevent erroneous noise measurements.
- All measurements are at nominal input, full load, and +25°C unless otherwise specified.
- MTBF is calculated using the parts stress method in MIL-HDBK 217F (ground benign,  $T_A = +25^{\circ}C$ ).

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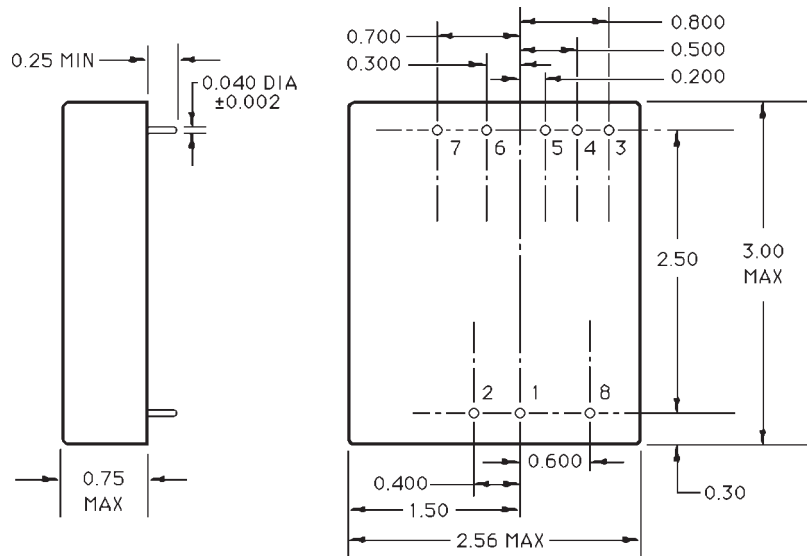
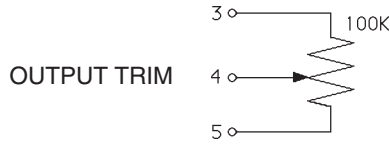


### DCU1-5 SERIES

- A. Dimensions shown are in inches.
- B. Tolerances = 0.00 ±0.02 inch.  
0.000 ±0.005 inch.
- C. Module weight = 1.5 oz. (42.5g).

### DCU1-20 SERIES

- A. Dimensions shown are in inches.
- B. Tolerances = 0.00 ±0.02 inch.  
0.000 ±0.005 inch.
- C. Module weight = 7.5 oz. (213g).



### Model Selection Guide



### Pin-Out

Pin	DCU1-5 Series	DCU1-20 Series
1	+VIN	+VIN
2	- VIN	- VIN
3	+VOUT	+Sense
4	N/A	Output Trim
5	- VOUT	- Sense
6	N/A	+VOUT
7	N/A	- VOUT
8	N/A	Remote On/Off