

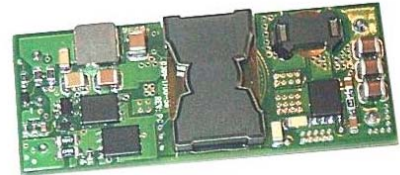
ISOLATED DC/DC CONVERTERS

48 VDC Input 8 VDC/15 A Output, 1/8 Brick

bel
POWER PRODUCTS

0RCR-15T Series RoHS Compliant Rev.B

- Isolated
- High Efficiency
- High Power Density
- Fixed Frequency
- Remote On/Off
- Input Under Voltage Lockout
- Output Overvoltage Shutdown
- OCP/SCP
- Low Cost
- Thermal Shutdown



Description

The 0RCR-15T Series are isolated DC/DC converters that operate from a nominal 48 VDC source. These converters use a half bridge power train to provide isolation and step down. These units will provide up to 130 W of output power from a nominal 48 VDC input. These units are designed to be highly efficient and low cost. Features include remote on/off, over current protection and under voltage lockout. These converters are provided in an industry standard eighth-brick package.

Part Selection

Output Voltage	Input Voltage	Max. Output Current	Max. Output Power	Typical Efficiency	Model Number Active High	Model Number Active Low
8 V	36 V-75 V	15 A	130 W	95%	0RCR-15T08H	0RCR-15T08L

- Notes:** 1. Add "G" suffix at the end of the model number to indicate Tray Packaging.
2. All part numbers above indicate RoHS 6. Change the second letter "R" to "7" for RoHS 5 part numbers.

Absolute Maximum Ratings

Parameter	Min	Typ	Max	Notes
Input Voltage (continuous)	-0.3 V	-	100 V	
Remote On/Off	-0.3 V	-	100 V	
Ambient Temperature	-40 °C	-	85 °C	
Storage Temperature	-40 °C	-	125 °C	

Input Specifications

Parameter	Min	Typ	Max	Notes
Input Voltage	36 V	-	75 V	
Input Current (full load)	-	-	3 A	
Input Current (no load)	-	-	45 mA	
Remote Off Input Current	-	2 mA	3 mA	
Input Reflected Ripple Current (pk-pk)	-	-	N/A	with simulated source impedance of 10 uH, 5 Hz to 20 MHz; use a 47 uF /100 V electrolytic capacitor with ESR = 1 ohm max. at 200 kHz at 25°C.
Input Reflected Ripple Current (rms)	-	-	N/A	
I ² t Inrush Current Transient	-	0.039 A ² s	0.062 A ² s	
Turn On Voltage Threshold	-	34.5 V	-	
Turn Off Voltage Threshold	-	32.5 V	-	

Note: All specifications are typical at 25 °C unless otherwise stated.

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Output Specifications

Parameter		Min	Typ	Max	Notes	
Output Voltage Set Point	Vin=36 V	-	6 V	-		
	Vin=48 V	-	8 V	-		
	Vin=75 V	-	12.5 V	-		
Line Regulation		-	6.5 V	-		
Load Regulation	Vin=36 V	-	0.5 V	-		
	Vin=48 V	-	0.5 V	-		
	Vin=75 V	-	0.5 V	-		
Regulation Over Temperature (-40 °C to +85 °C)		-	30mV	-		
Output Current		0 A	-	15 A		
Current Limit Threshold		-	20 A	-		
Short Circuit Surge Transient		-	1.3 A ² s	2.1A ² s		
Ripple and Noise (rms)		-	15 mV	20 mV	Test conditions: 0-20 MHz BW, with a 1 uF ceramic capacitor and a 15 uF Tantalum capacitor at the output; Vin=48 V.	
Ripple and Noise (pk-pk)		-	90 mV	100 mV		
Turn on Time		-	10 mS	-		
Overshoot at Turn on		-	0%	3%		
Output Capacitance		0 uF	-	3000 uF		
Transient Response						
25% ~ 50% Max Load	Overshoot	Vin=48 V	-	100 mV	-	Test conditions: di/dt = 0.1 A/ uS, Vin=48 V, with a 15 uF tantalum capacitor at the output.
	Settling Time		-	120 uS	150 uS	
50% ~ 25% Max Load	Overshoot		-	100 mV	-	
	Settling Time		-	120 uS	150 uS	

Note: All specifications are typical at 25 °C unless otherwise stated.

General Specifications

Parameter	Min	Typ	Max	Notes
Efficiency	93%	95%	-	Vin=48 V, Io=Iomax
Switching Frequency	180 kHz	200 kHz	220 kHz	
Over Temperature Protection	-	115 °C	-	Average PCB temperature will not exceed 115 °C.
MTBF	2,569,594 hours			Calculated Per Bell Core SR-332 (Io = Nominal; Ta = 25 °C)
Dimensions	Inches (L x W x H)			
	2.30 x 0.896 x 0.403			
	Millimeters (L x W x H)			
	58.42 x 22.76 x 10.24			
Weight	-	23 g	-	

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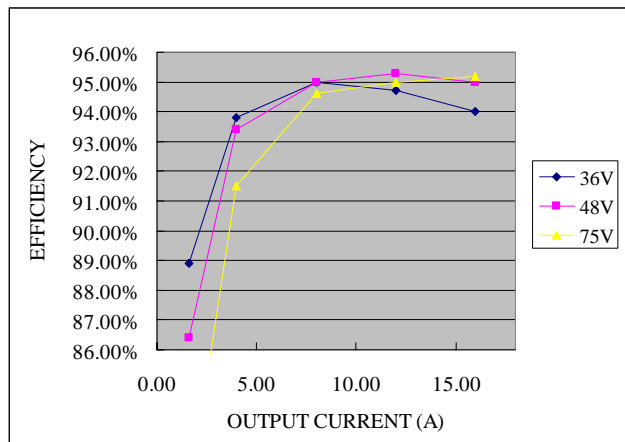
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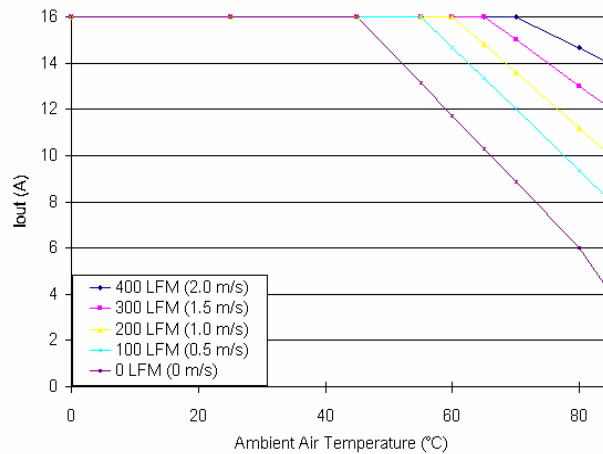
Control Specifications

Parameter	Min	Typ	Max	Notes	
Remote On/Off					
Signal Low (Unit On)	Active Low	-0.3 V	-	0.8 V	0RCR-15T08L. The remote on/off pin open, Unit on.
Signal High (Unit Off)		2.5 V	-		
Signal Low (Unit Off)	Active High	-0.3 V	-	0.8 V	0RCR-15T08H. The remote on/off pin open, Unit on.
Signal High (Unit On)		2.5 V	-		

Efficiency Data



Thermal Derating Curve



Maximum output power derating curves vs. ambient air temperature for airflow rates of 0 LFM through 400 LFM with air flowing from input to output (nominal input voltage).

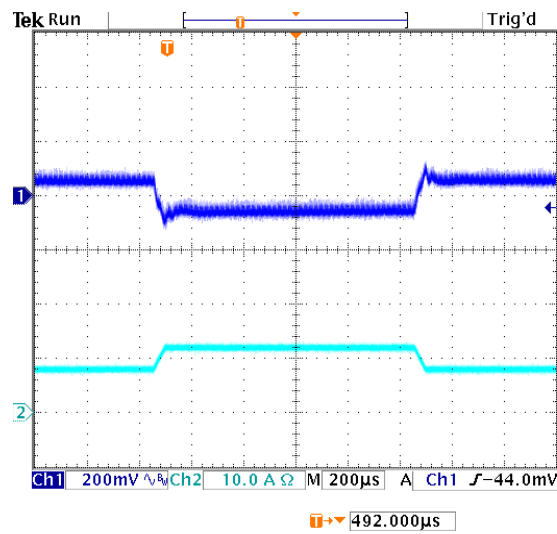
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Turn-On (Enable)

Transient Response: $di/dt=0.1$ A/uS, External Load Capacitance $C_o=15$ uF (tantalum capacitor)



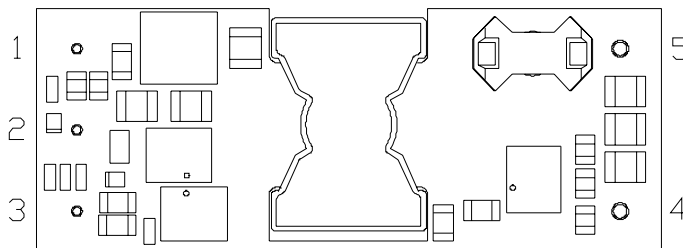
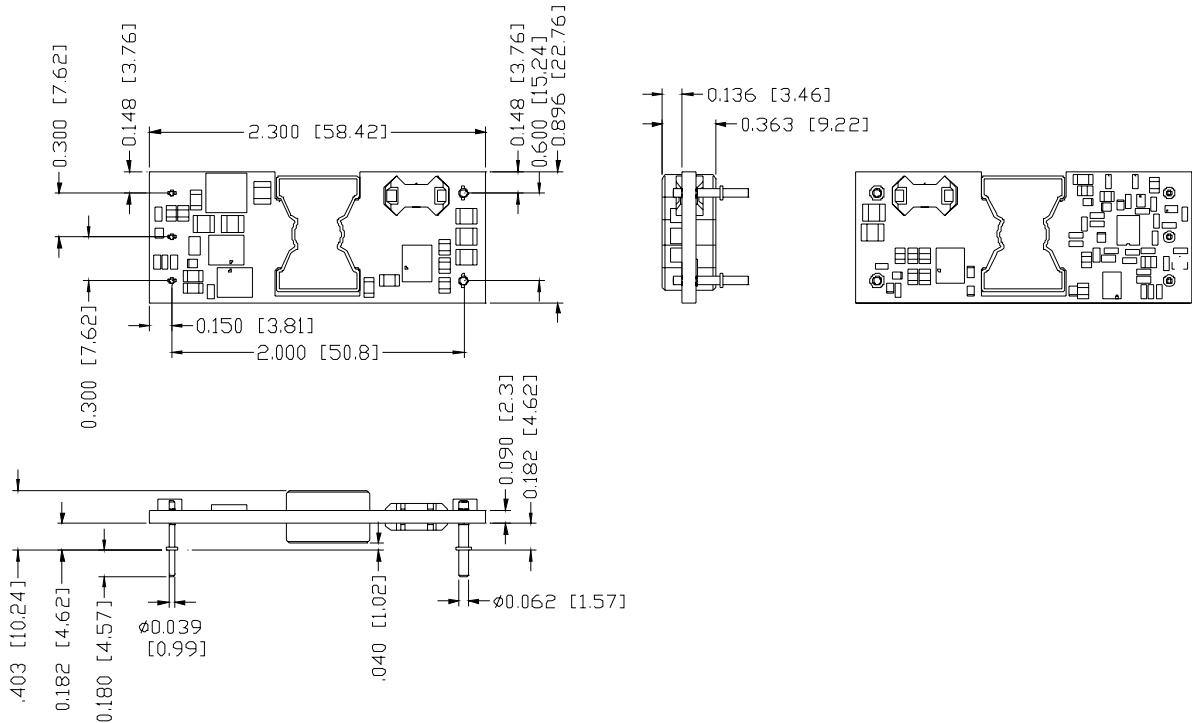
50% to 75% and 75% to 50% load Transient at 48 Vdc input and $T_a=25$ deg C
External Load Capacitance: 15 μ F tantalum capacitor

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Mechanical Outline



Pin Connections

Pin	Function
1	Vin+
2	Remote On/Off
3	Vin-
4	Vout-
5	Vout+

RoHS Compliance

Complies with the European Directive 2002/95/EC, calling for the elimination of lead and other hazardous substances from electronic products.



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