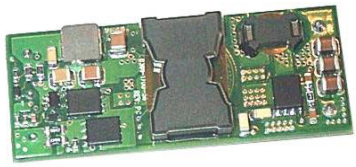
ISOLATED DC/DC CONVERTERS

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

07CR-15T Series PRELIMINARY

- 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 07CR-15T Series are isolated DC/DC converters that operate from a nominal 48V source. These converters are intended to provide isolation and step down to generate an intermediate bus for the purpose of powering non-isolated Point-of-Load (POL) converters. These units will provide up to 130W of output power from a nominal 48V input. These units are designed to be highly efficient and very low cost and are thus unregulated. The downstream POL converters will provide the precise regulation required by the load. Features include remote on/off, over current protection and undervoltage 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
8V	36V-75V	15A	130W	95%	07CR-15T08H	07CR-15T08L

Note: Add “G” suffix at the end of the model number to indicate Tray Packaging.

Absolute Maximum Ratings

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

Input Specifications

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

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

Output Specifications

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

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

General Specifications

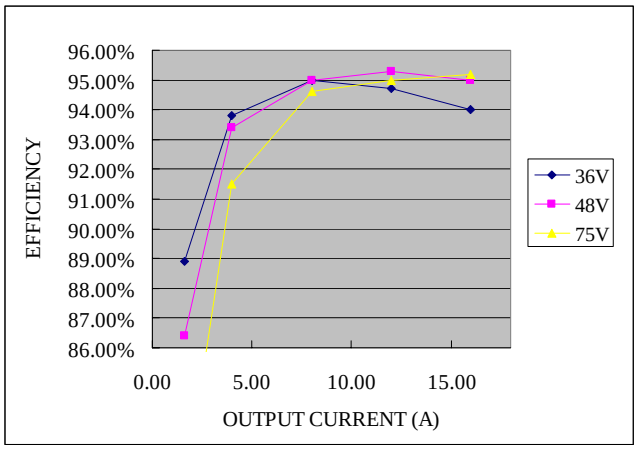
Parameter	Min	Typ	Max	Notes
Efficiency	93%	95%	-	Vin=48V, Io=Io,max
Switching Frequency	180KHz	200KHz	220KHz	
Over Temperature Protection	-	115°C	-	Average PCB temperature will not exceed 115°C.
MTBF	2,569,594 hours			Calculated Per Bell Core TR-332 (I_O = Nominal; T_a = 25°C)
Dimensions				
Inches (L × W × H)	2.30 x 0.9 x 0.41			
Millimeters (L × W × H)	58.4 x 22.8 x 10.41			
Weight	-	23g	-	

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

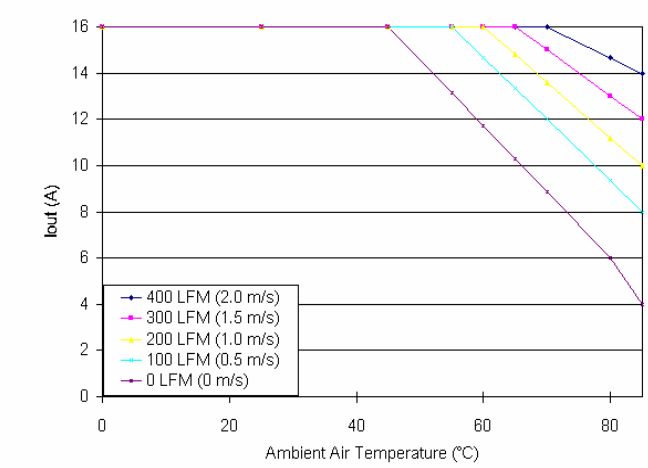
Control Specifications

Parameter		Min	Typ	Max	Notes
Remote On/Off					
Signal Low (Unit On)	Active Low	-0.3V	-	0.8V	07CR-15T08L. The remote on/off pin open, Unit on.
Signal High (Unit Off)		2.5V	-	100V	
Signal Low (Unit Off)	Optional Active High	-0.3V	-	0.8V	07CR-15T08H. The remote on/off pin open, Unit on.
Signal High (Unit On)		2.5V	-	100V	

Efficiency Data



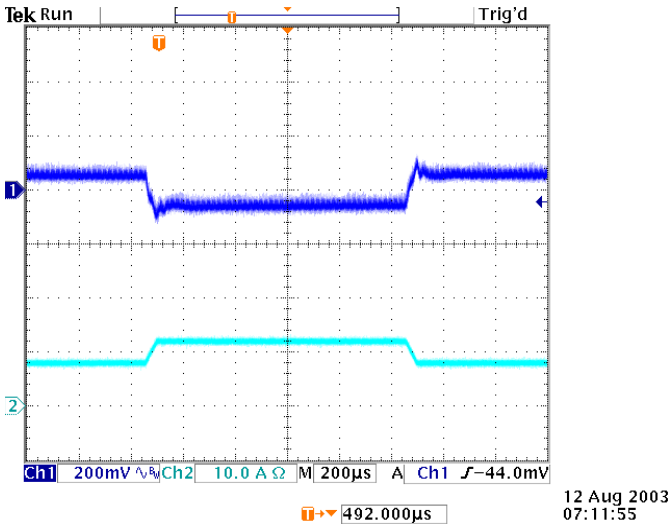
Thermal Derating Curve



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).

Turn-On (Enable)

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



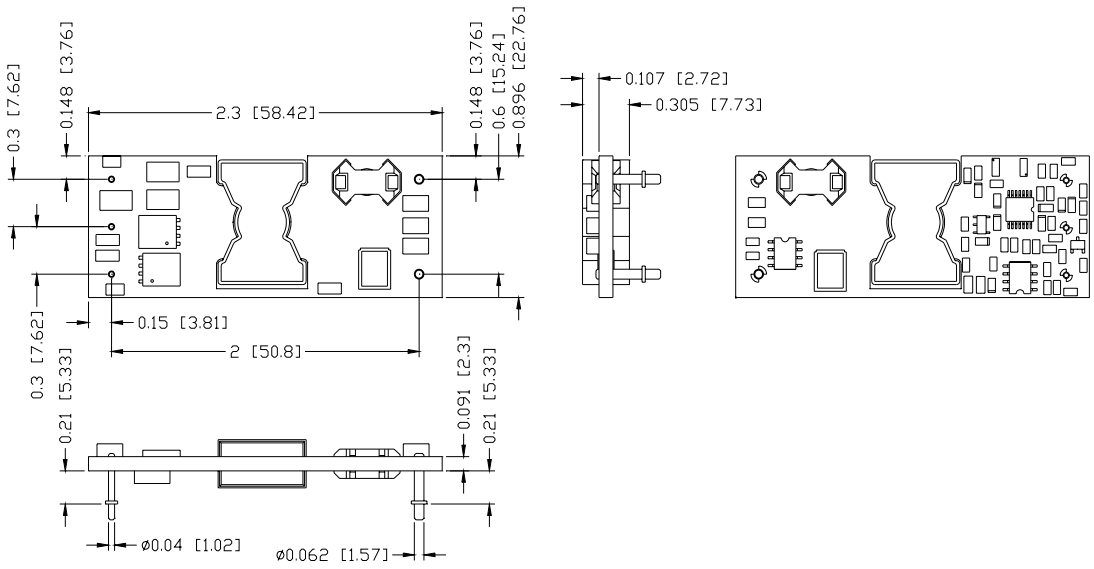
50% to 75% and 75% to 50% load Transient at 48Vdc input and Ta=25 deg C
External Load Capacitance: 15µF tantalum capacitor

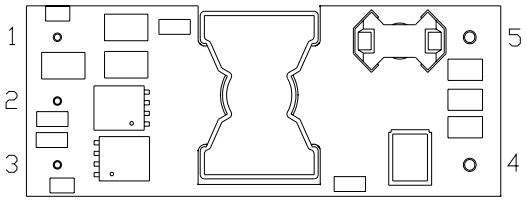
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48V Input 8V/15A Output, 1/8 Brick

Mechanical Drawing





Pin Connections

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

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