OARS XP

Open Air Sense Resistors
Metal Alloy Strip



OARS-XP Series

- Zero ohm jumper available
- Resistance values 1mΩ to 25mΩ
- ±1% or ±5% tolerance
- Open air design provides cooler operation
- Lead Free RoHS compliant construction available
- Extended power surface mount current sense resistor
- Unique form factor provides TCE compliant termination

Electrical Data

Resistance Value (Ω)	Available Tolerances (%)	Absolute TCR (ppm/°C)	Rated Power (W)
0.001 0.002	±1, ±5 ±1, ±5	±240 ±40	5 5
0.005 0.010	±1, ±5 ±1, ±5	±40 ±40	5 5
0.020 0.025	±1, ±5 ±1, ±5	±40 ±40	5 5

Features:

- Superior thermal expansion cycling
- Inductance less than 10 nanohenries
- Flameproof
- Lead flexible for thermal expansion

Applications:

- Current sensing
- Feedback
- Low inductance
- Surge and pulse
- AC applications (please contact factory)

Electrical Data

Test Spec: AEC Q200	1mΩ	2mΩ - 7mΩ	>7mΩ
TCR +125 to -55°C	240ppm	40ppm	40ppm
Thermal Shock	<0.75%	<0.75%	<0.75%
High Temperature Exposure 125°C	<1.75%	<0.5%	<1.0%
Temperature Cycling: -40 to +125°C	<1.0%	<1.0%	<0.75%
Operational Life	<2.0%	<1.0%	<1.0%
Biased Humidity	<0.75%	<0.5%	<0.5%
Mechanical Shock	<1.5%	<1.0%	<1.0%
Vibration	<1.0%	<1.0%	<1.0%
Moisture Resistance	<1.0	<2.5%	<2.0
Terminal Strength	Meets JIS-C-6429		
Solvent Resistance	Meets MIL-STD-202 Method 215		
Solderability	Meets J-STD-002 Method B		

General Note
IRC reserves the right to make changes in product specification without notice or liability.
All information is subject to IRC's own data and is considered accurate at time of going to print.

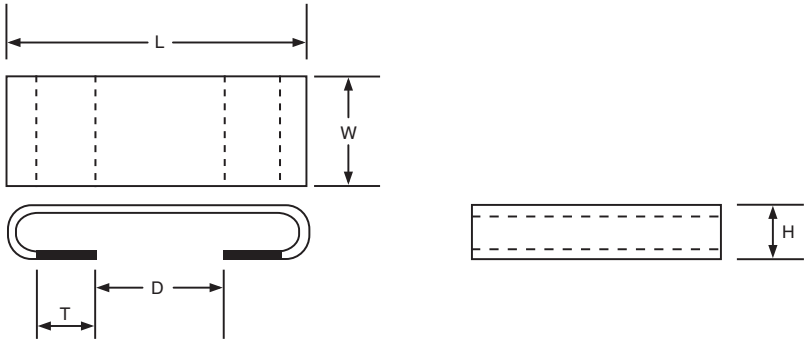
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OARS XP

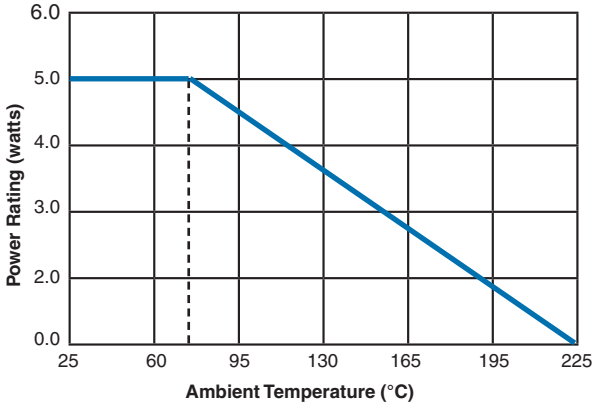
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Physical Data

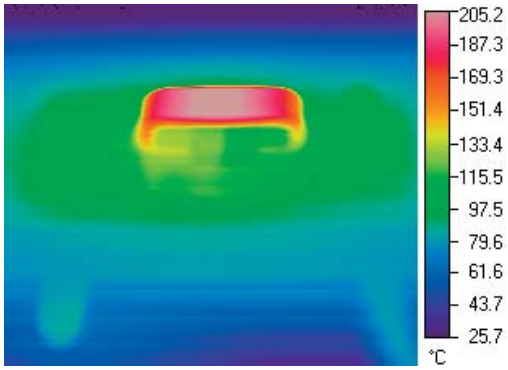


Dimensions (Inches and (mm))					
IRC Type	**L (Resistance Dependant)**	**H (Resistance Dependant)**	**T**	**D**	**W**
OARS-XP	0.425 - 0.470 (10.7 - 12.0)	0.090 - 0.180 (2.28 - 4.57)	0.093 ± 0.010 (2.36 ± 4.57)	0.190 ± 0.030 (4.83 ± 0.76)	0.250 ± 0.015 (6.35 ± 0.38)

Power Derating Curve



Note:
The power derating curve is a guidance based on a conservative design model. The OARS XP is a solid metal alloy construction that can withstand significantly greater operating temperatures than conservative design models permit. The resistive alloys can withstand temperatures in exess of 350°C. Therefore, the system thermal design is a more significant design parameter due to the heat limitations of solder joints and/or circuit board substrate materials. Refer to additional information below.



OARS XP R0025 Thermal Image @ 5 Watts
Ambient conditions, No forced air.

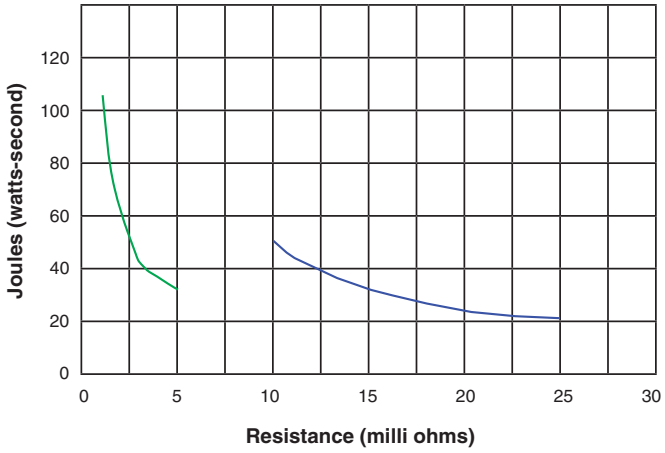
The thermal image (not a simulation) to the left is of an OARS XP 2.5 mΩ running at 5 Watts. Notice the hotpsot is nearly 205°C, but the solder joint is approximately 115°C (FR4 is rated for 130°C). The unique construction of the OARS XP isolates the hotspot from the circuit board material preventing damage. Additionally, the thermal energy is dissipated to the air instead of being conducted into the circuit board potentially causing a nearby power component to exceed its rating.

The standard test circuit board consists of a four layer FR4 material with 2 ounce outer layers and 1 ounce inner layers, which is typical of many industry designs. Contact IRC for more details or for other thermal image test data for specific resistance values and power levels.

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Pulse/Surge Chart

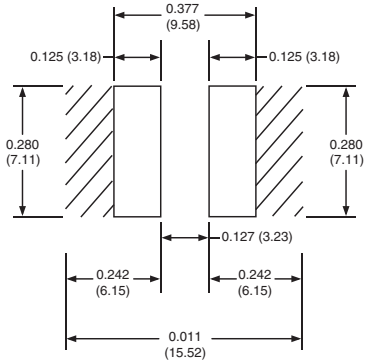


Note:
The high pulse surge capability of the OARS parts is attributed to the solid metal alloy construction. In many applications the cross-section of the OARS is greater than the cross-section of the board traces connecting the parts to the circuit board.

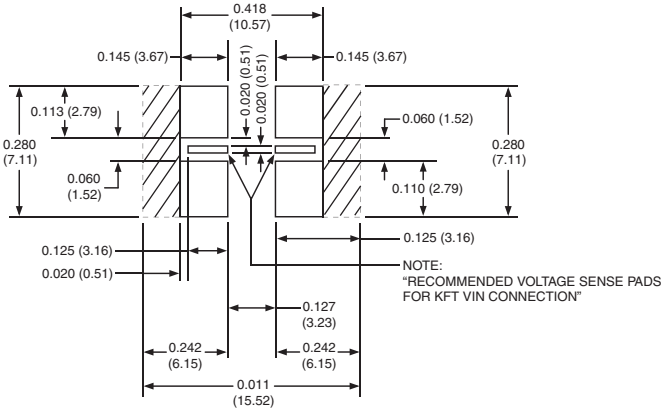
Cross-Sectional area ranges from approximately 1375 mils to 7250 mils.

Recommended Pad Layout

OARS XP PAD (2 TERMINAL)



OARS XP PAD (4 TERMINAL)



Ordering Data

