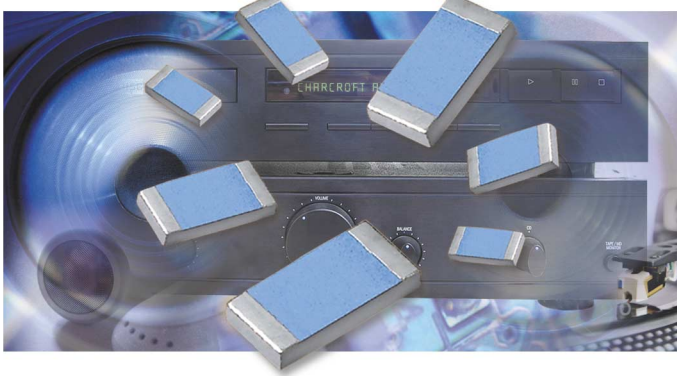


Ultra High Precision, High Resolution Z-Foil Wrap Around Surface Mount Audio Resistor, with TCR of $\pm 0.2 \text{ ppm}/^\circ\text{C}$, Tolerance to $\pm 0.01 \%$ and Noise $< -40 \text{ dB}$



Any value at any tolerance available within resistance range

INTRODUCTION

The SCAR, composed of Vishay's Bulk Metal® Z-Foil technology, offers all the features of the leaded CAR, but in a surface mount version with wrap around terminations.

Whilst the regular foil resistors are already widely acknowledged as the leading resistors for audio applications, the extremely low TCR, improved low load life stability and power coefficient of the Z-Foil technology makes it unrivalled for applications requiring low noise and distortion-free properties.

Please contact our application engineering department for any non-standard requirements.

FEATURES

- Temperature coefficient of resistance (TCR):
- 55°C to $+125^\circ\text{C}$, 25°C ref.
 $\pm 0.2 \text{ ppm}/^\circ\text{C}$ typical (see table 1)
- Rated power: to 0.75 W at $+70^\circ\text{C}$
- Tolerance: to $\pm 0.01 \%$
- Load life stability: to $\pm 0.01 \%$ at 70°C , 2000 h at rated power
- Resistance range: 10Ω to $125\text{k}\Omega$ (for higher or lower values please contact us)
- Electrostatic discharge (ESD) above 25000V
- Non inductive, non capacitive design
- Rise time: 1ns without ringing
- Current noise: $< -40 \text{ dB}$
- Thermal EMF: $0.05 \mu\text{V}/^\circ\text{C}$ typical
- Voltage coefficient: $< 0.1 \text{ ppm/V}$
- Low inductance: $< 0.08 \mu\text{H}$ typical
- Non hot spot design
- Terminal Finishes Available: RoHS Compliant Tin/Lead Alloy

APPLICATIONS

- High precision amplifiers
- High-end speaker system
- High-end audio circuit
- Transducer
- High fidelity audio amplifier

TABLE 1 - TOLERANCE AND TCR VS RESISTANCE VALUE
(-55°C to $+125^\circ\text{C}$, $+25^\circ\text{C}$ Ref.)

RESISTANCE VALUE (Ω)	TOLERANCE (%)	TYPICAL TCR & MAX. SPREAD ($\text{ppm}/^\circ\text{C}$)
250 to 125K	± 0.01	$\pm 0.2 \pm 1.8$
100 to < 250	± 0.02	$\pm 0.2 \pm 1.8$
50 to < 100	± 0.05	$\pm 0.2 \pm 2.8$
25 to < 50	± 0.1	$\pm 0.2 \pm 3.8$
10 to < 25	± 0.25	$\pm 0.2 \pm 3.8$

TABLE 2 - SPECIFICATIONS

CHIP SIZE	RATED POWER (mW) at $+70^\circ\text{C}$	MAXIMUM VOLTAGE RATING ($\leq \sqrt{P \times R}$)	RESISTANCE RANGE (Ω)
0805	200	49V	10 to 8K
1206	300	95V	10 to 25K
1506	300	110V	10 to 30K
2010	500	200V	10 to 70K
2512	750	220V	10 to 125K

FIGURE 1 - TYPICAL TCR CURVE Z-FOIL

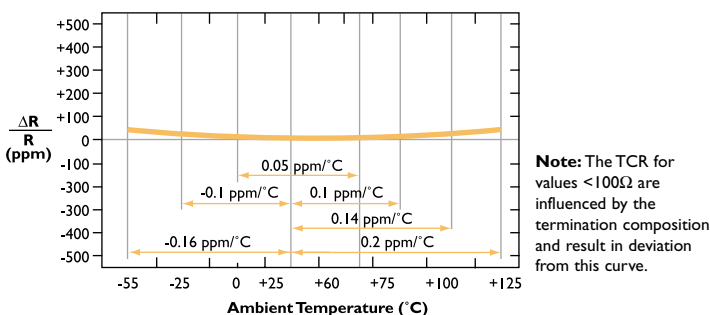
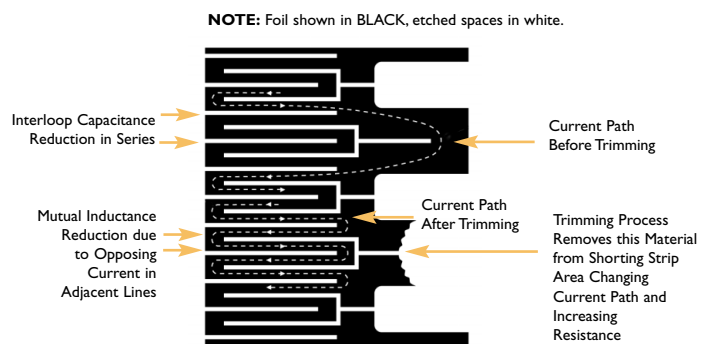
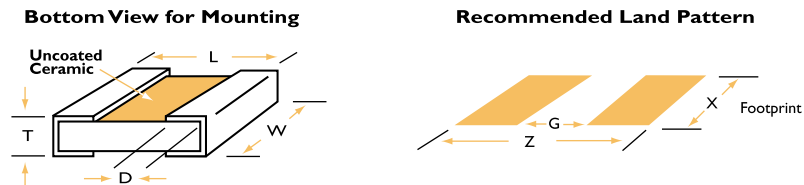


FIGURE 2 - TRIMMING TO VALUES (CONCEPTUAL ILLUSTRATION)



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TABLE 3 - DIMENSIONS AND LAND PATTERN in millimeters



CHIP SIZE	L ± 0.13	W ± 0.13	THICKNESS MAXIMUM	D ± 0.13	Z*** MAXIMUM	G*** MINIMUM	X*** MAXIMUM
0805	2.03	1.27	0.64	0.38	3.10	0.70	1.27
1206	3.20	1.57	0.64	0.50	4.40	1.50	1.80
1506	3.81	1.57	0.64	0.50	5.05	2.10	1.80
2010	5.03	2.46	0.64	0.64	6.27	2.92	2.63
2512	6.32	3.22	0.64	0.81	7.40	3.80	3.22

***Land Pattern Dimensions are per IPC-782

FIGURE 3 -POWER DERATING CURVE

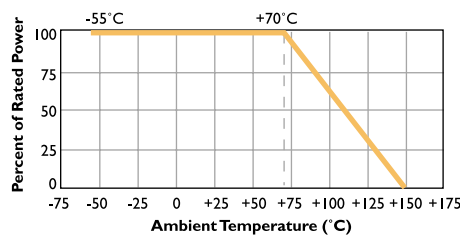
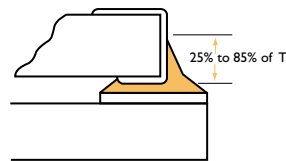


FIGURE 4 - RECOMMENDED MOUNTING



A low profile solder fillet is recommended to avoid unnecessary stresses along top edge of metallization. IR and vapor phase reflow are best. Avoid the use of cleaning agents which could attack epoxy resins, which form part of the resistor construction.

TABLE 4 - ORDERING INFORMATION

Specify SCAR (Charcroft audio resistors) as follows:

Example:

SCAR MODEL NO.	0805 CHIP SIZE	T = RoHS compliant None = Tin/Lead alloy TERMINATION	250R00 RESISTANCE VALUE	T = $\pm 0.01\%$ Q = $\pm 0.02\%$ A = $\pm 0.05\%$ B = $\pm 0.1\%$ C = $\pm 0.25\%$ D = $\pm 0.5\%$ F = $\pm 1.0\%$ TOLERANCE	TR = Tape & Reel None = Waffle Pack PACKAGING
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Resistance Value, in ohms, is expressed by a series of 6 characters, 5 of which represent significant digits while the 6th is a dual purpose letter that designates both the multiplier and the location of the comma or decimal.

RESISTANCE RANGE	LETTER DESIGNATOR	MULTIPLIER FACTOR	EXAMPLE
10 Ω to <1K Ω	R	x 1	100R01 = 100.01 Ω
1K Ω to 100K Ω	K	x 10 ³	5K2310 = 5,231 Ω

For example: SCAR 0805 T 250R00Q - Model: SCAR 0805 Version, Termination: RoHS compliant; Value: 250 Ω , Tolerance: 0.02 % Packaging: Waffle Pack