

High Precision Flip Chip, Patent Pending (Industrialized Countries)



Product may not be to scale

FEATURES

- Nominal TCR: 0.5ppm/°C (- 55°C to + 125°C)
- Resistance Range: 5Ω to 12kΩ
- Tolerance: to ± 0.01%
- Load Life Stability: ± 0.01% maximum ΔR under full rated power at + 70°C for 2000 hours
- Shelf Life Stability: 50ppm (0.005%) over several years
- Voltage Coefficient: < 0.00001%/volt (< 0.1ppm/V)
- Current Noise: < 0.010μV (rms)/volt of applied voltage
- Non Inductive: < 0.08μH

The VFC0805 is a surface mountable flip chip resistor that utilizes Ultra Precision Bulk Metal® “Z” Foil. This product differs from other Vishay Bulk Metal® Foil surface mount devices in as much as it is installed with the foil side facing the PCB providing better power handling capabilities. The Foil element is isolated from the PCB by a protective overcoating. This overcoating plus the overall product design isolates the resistor from handling and installation stresses.

The temperature coefficient of resistance (TCR) curve shown below compares the new revolutionary “Z” Foil with its TCR of < 0.5ppm/°C to the original Vishay “C” Foil. The Bulk Metal® Foil characteristics of excellent long term stability, low noise and availability of tight tolerance are maintained in this Flip Chip configuration. The VFC0805 is available in any value within the specified resistance range. The flip chip configuration is more economical for high volume, analog applications where high precision is required.

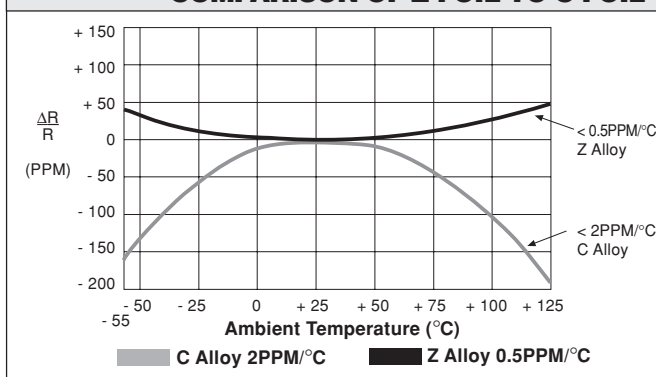
TABLE 1 - RESISTANCE VALUE VS TOLERANCE AND TCR

VALUE Ω	STANDARD TOLERANCE (%)*	MAXIMUM TCR**
250Ω to 12kΩ	± 0.01%	± 2.0ppm/°C
100Ω to < 250Ω	± 0.02%	± 2.0ppm/°C
50Ω to < 100Ω	± 0.05	± 3.0ppm/°C
25Ω to < 50Ω	± 0.1	± 4.0ppm/°C
10Ω to < 25Ω	± 0.25	± 5.0ppm/°C
5Ω to < 10Ω	± 0.50%	± 15.0ppm/°C

*Tighter tolerances are available. Please contact Application Engineering.

**Range: - 55°C to + 125°C, + 25°C reference

FIGURE 1 - NOMINAL TCR COMPARISON OF Z FOIL TO C FOIL



The TCR for values < 100Ω are influenced by the termination composition and result in a deviation from this curve.

TABLE 2 - TYPICAL PERFORMANCE SPECIFICATIONS

TEST	MIL-PRF-55342 CHARACTERISTIC E ΔR LIMITS*	VFC0805 MAXIMUM ΔR LIMITS**
Temperature Coefficient of Resistance	± 25ppm/°C	See Table 1
Thermal Shock	± 0.10%	± 0.02%
Low Temperature Operation	± 0.10%	± 0.02%
Short Time Overload	± 0.10%	± 0.02%
High Temperature Exposure	± 0.10%	± 0.03%
Resistance to Bonding	± 0.20%	± 0.02%
Moisture Resistance	± 0.20%	± 0.03%
Life 2000hrs at + 70°C	± 0.50%	± 0.01%

NOTES:

* As shown + 0.01Ω to allow for measurement error.

** As shown + 0.01Ω to allow for measurement error for values less than 100Ω.

FIGURE 2 - POWER DERATING CURVE

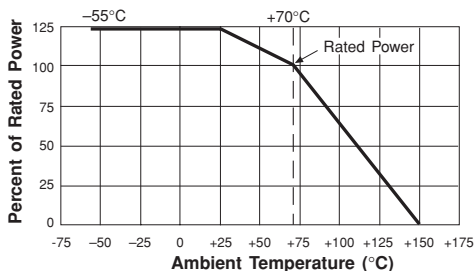


FIGURE 3 - CHIP CONFIGURATION

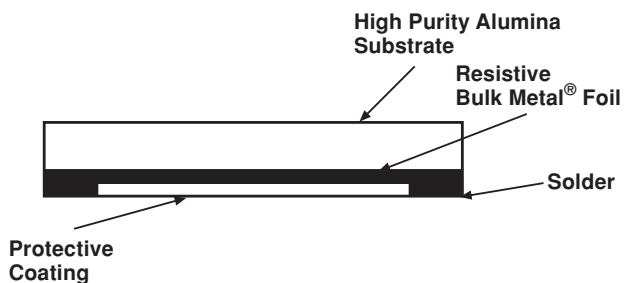
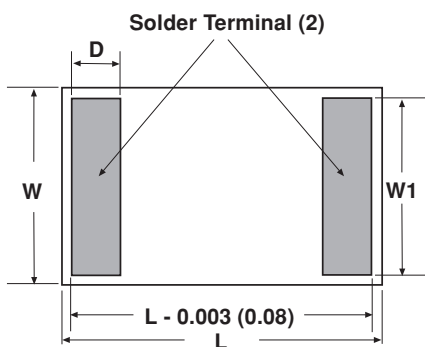
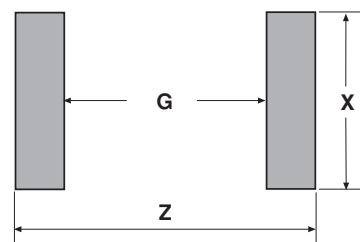


FIGURE 4 - DIMENSIONS AND LAND PATTERN in inches (millimeters)

Bottom View (Showing Terminals for Mounting):



Land Pattern



CHIP SIZE	L ±0.005 (0.13)	W ±0.005 (0.13)	THICKNESS MAXIMUM	D ±0.003 (0.08)	W1 ±0.003 (0.08)	Z ±0.003 (0.08)	G ±0.003 (0.08)	X ±0.003 (0.08)
0805	0.079 (2.01)	0.049 (1.25)	0.025 (0.64)	0.010 (0.25)	0.046 (1.17)	0.079 (2.01)	0.053 (1.35)	0.049 (1.25)

TABLE 3 - PROPERTIES

RESISTANCE RANGE (Ω)	POWER + 70°C (mW)	MAXIMUM VOLTAGE (V)	MAXIMUM WEIGHT (mg)
5Ω - 12K	50	22	5.15

TABLE 4 - ORDERING INFORMATION

MODEL	CHIP SIZE	RESISTANCE VALUE	TOLERANCE	TERMINATION	PACKAGING															
VFC	0805	<table border="1"> <thead> <tr> <th>RESISTANCE RANGE</th> <th>LETTER DESIGNATOR</th> <th>MULTIPLIER FACTOR</th> </tr> </thead> <tbody> <tr> <td>5Ω to <1KΩ</td> <td>R</td> <td>x 1.0</td> </tr> <tr> <td>Example: 249R00 = 249Ω</td> <td></td> <td></td> </tr> <tr> <td>1K to 12K</td> <td>K</td> <td>x 10³</td> </tr> <tr> <td>Example: 10K000 = 10.0KΩ</td> <td></td> <td></td> </tr> </tbody> </table>	RESISTANCE RANGE	LETTER DESIGNATOR	MULTIPLIER FACTOR	5Ω to <1KΩ	R	x 1.0	Example: 249R00 = 249Ω			1K to 12K	K	x 10 ³	Example: 10K000 = 10.0KΩ			T ± 0.01% Q ± 0.02% A ± 0.05% B ± 0.1% C ± 0.25% D ± 0.5% F ± 1.0%	B - solderable	T = Tape and Reel W = Waffle Pack
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VISHAY FOIL • FRANCE +33.4.93.37.28.24 FAX: +33.4.93.37.27.31 • ITALY + 39.2.300.11919 FAX: +39.2.300.11999 • SWEDEN +46.8.594.70590 FAX: +46.8.594.70581
 • GERMANY +49.9287.710 FAX: +49.9287.70435 • JAPAN +81.42.729.0661 FAX: +81.42.729.3400 • UK +44 191 514 8237 FAX: +44 1953 457 722
 • ISRAEL +972.3.557.0945 FAX: +972.3.558.9121 • SINGAPORE +65.788.6668 FAX: +65.788.0988 • USA +1 610 407-4800 FAX: +1 610 640-9081