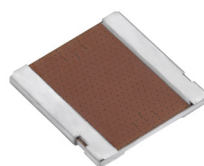


Bulk Metal® Foil Technology High Precision, Current Sensing, Power Surface Mount Resistor

with Rated Power up to 3 W and TCR ± 10 ppm/°C

FEATURES

- Temperature coefficient of resistance (TCR): 10 ppm/°C max. (–55°C to +125°C, +25°C ref.)
- Power rating: 3 W
- Resistance tolerance: to $\pm 0.1\%$
- Resistance range: 20 mΩ to 200 mΩ
- Load-life stability: to $\pm 0.05\%$ typical (70°C, 2000 h at rated power)
- Short-time overload: 0.02% typical
- Solderable terminations
- Terminal finish available: lead (Pb)-free, tin/lead alloy



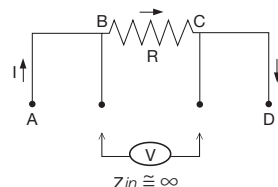
Top View



Bottom View



RoHS*
COMPLIANT



Four terminal (Kelvin) design:
allows for precise and accurate measurements.

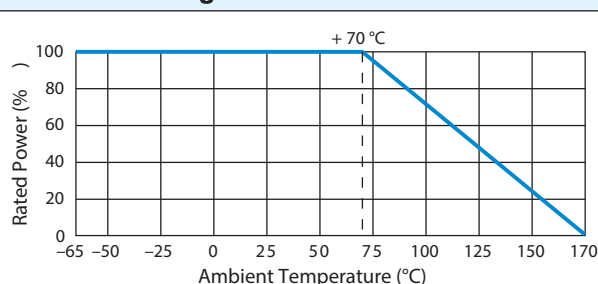
Specifications

Parameter	Value
Resistance range	20 mΩ to 200 mΩ ⁽¹⁾
Power rating at 70°C	2 W: 20 mΩ to <50 mΩ; 3 W: 50 mΩ to 200 mΩ
Maximum current ⁽²⁾	10 A
Tolerance	± 0.1
Temperature coefficient maximum (–55°C to +125°C, +25°C Ref.)	± 15 ppm/°C, $R < 100$ mΩ; ± 10 ppm/°C ⁽³⁾ $R \geq 100$ mΩ
Operating temperature range	–65°C to +170°C
Maximum working voltage	$(P \times R)^{1/2}$
Weight (maximum)	0.29 g

Notes

- ⁽¹⁾ Contact application engineering for values outside this range.
⁽²⁾ Maximum current for a given resistance value is calculated using $I = \sqrt{P/R}$.
⁽³⁾ For tighter TCR, please contact application engineering: foil@vpgsensors.com.

Power Derating Curve



Note

- * This datasheet provides information about parts that are RoHS-compliant and/or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS compliant.

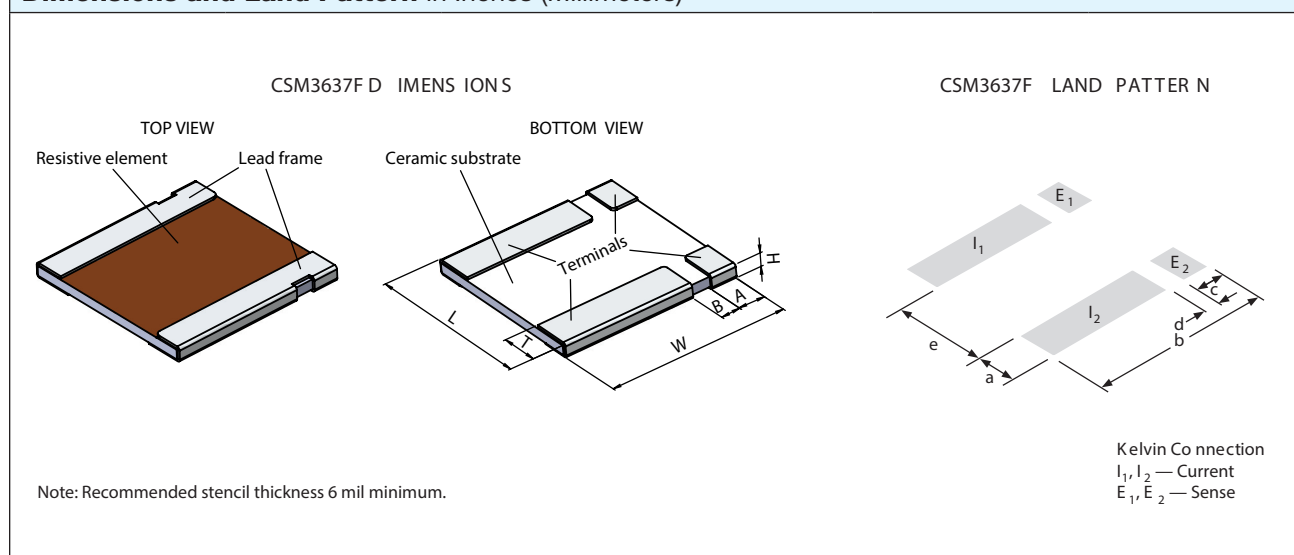
Performance Specifications

Test/Condition	MIL-PRF-32773 ΔR LIMITS	Resistance Value	Typical ΔR Limits ⁽¹⁾	Max ΔR Limits ⁽¹⁾
Thermal shock -65°C to +150°C, 5 cycles, 15 min at each extreme	$\pm(0.5\% + 0.0005R)$	50 mΩ to 200 mΩ	0.03%	0.05%
		20 mΩ to <50 mΩ	0.05%	0.1%
		≥ 100 mΩ	0.05%	0.1%
Load-life stability 2000 h, +70°C at rated power	$\pm(1.0\% + 0.0005R)$	50 mΩ to <100 mΩ	0.2%	0.5%
		20 mΩ to <50 mΩ	0.5%	1%
		≥ 100 mΩ	0.05%	0.1%
Short-time overload 5 x rated power, 5 s	$\pm(0.5\% + 0.0005R)$	20 mΩ to 200 mΩ	0.02%	0.03%
High temperature exposure 1000 h, 170°C	$\pm(1.0\% + 0.0005R)$	20 mΩ to 200 mΩ	0.2%	0.3%
Moisture resistance MIL-STD-202, method 106, 0 power, 7a and 7b not required	$\pm(0.5\% + 0.0005R)$	20 mΩ to 200 mΩ	0.005%	0.01%
Shock 100 g, 6 ms, 5 pulses	$\pm(0.1\% + 0.0005R)$	20 mΩ to 200 mΩ	0.02%	0.05%
Resistance to soldering heat 10 s to 12 s at +260°C	$\pm(0.25\% + 0.0005R)$	20 mΩ to 200 mΩ	0.03%	0.05%

Note

⁽¹⁾ Measurement error allowed for ΔR limits: 0.0005 Ω.

Dimensions and Land Pattern in Inches (Millimeters)

Dimensions — Tolerances ± 0.010 (± 0.254)

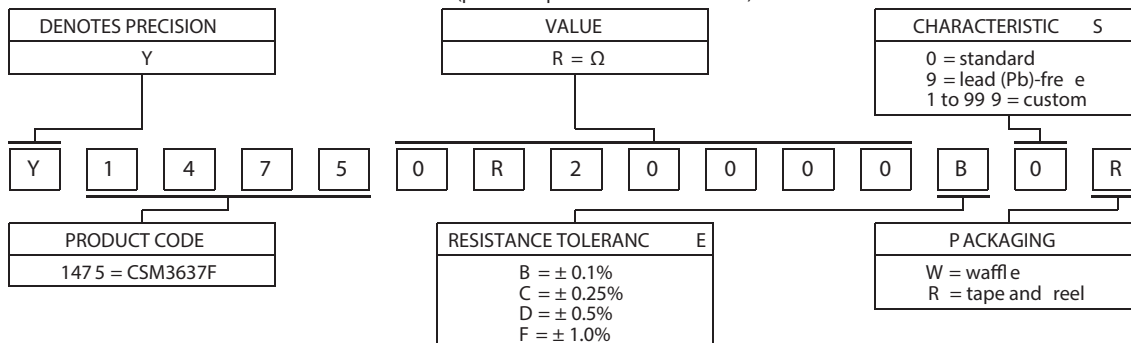
L	W	H	T	A	B
0.365 (9.271)	0.375 (9.525)	0.040 (1.016)	0.091 (2.311)	0.058 (1.473)	0.040 (1.016)

Land Pattern Dimensions — Tolerances ± 0.003 (± 0.076)

a	b	c	d	e
0.116 (2.95)	0.390 (9.91)	0.066 (1.68)	0.024 (0.610)	0.178 (4.52)

Global Part Number Information⁽¹⁾

NEW GLOBAL PART NUMBER: Y1 4750R20000B0R (preferred part number format)



FOR EXAMPLE: ABOVE GLOBAL ORDER Y1487 0R20000 B 0 R:

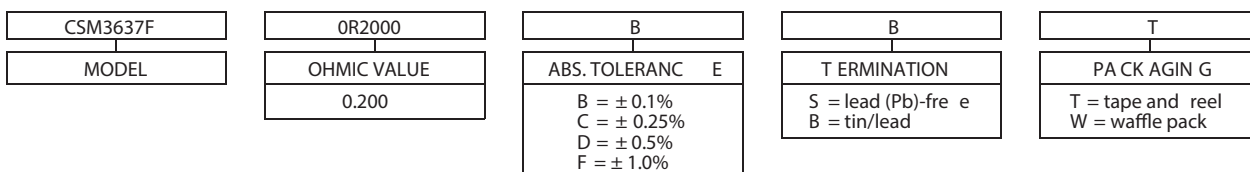
TYPE: CSM3637F

VALUE: 200.0 m Ω ABSOLUTE TOLERANCE: $\pm 0.1\%$

TERMINATION: standard tin/lead

PACKAGING: tape and reel

HISTORICAL PART NUMBER STYLE: CS M3637F 0R2000 B B T (will continue to be used)



Note

⁽¹⁾ For non-standard requests, please contact application engineering