High Precision Bulk Metal® Foil Surface Mount Voltage Divider

TCR Tracking of <0.5 ppm/°C, Tolerance Match of 0.01% and Stability of ±0.005% (50 ppm)

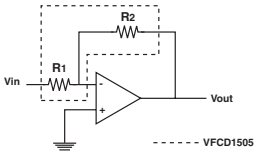
FEATURES

- Temperature coefficient of resistance (TCR):
  Absolute:
  ±0.05 ppm/°C (typical 0°C to +60°C)
  ±0.2 ppm/°C (typical –55°C to +125°C, +25°C ref.)
  Tracking:
  0.1 ppm/°C typical
- Resistance range: 1K to 10K
- Power coefficient tracking: "ΔR due to self heating" 5 ppm at rated power
- Short time overload: ±0.005%
- Tolerance: absolute and resistance ratio: to 0.01%
- Load life stability (0.1 W at 70°C, 2000 h)
  Absolute: 0.01%
  Ratio: 0.005%
- Power rating at 70°C:
  entire package: 0.1 W, divided between the two resistors proportionally to their value

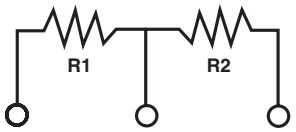
Bottom View

Pb-free Available

RoHS* COMPLIANT



SCHEMATIC

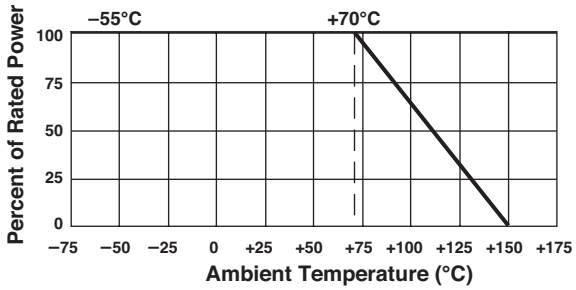


RESISTANCE VALUES/RATIO AND TCR CHARACTERISTICS

POPULAR VALUES	VCODES	ABSOLUTE TCR (–55°C TO +125°C, +25°C REF.)		TCR TRACKING		TOLERANCE MATCHING
		TYPICAL	MAXIMUM	TYPICAL	MAXIMUM	
10K/10K	V0001	±0.2 ppm/°C	±1 ppm/°C	0.1 ppm/°C	0.5 ppm/°C	0.01%
5K/5K	V0002					
1K/1K	V0004					
2K/2K	V0059					
5K/10K	V0005	±0.2 ppm/°C	±1 ppm/°C	0.4 ppm/°C	1.0 ppm/°C	0.01%
2.5K/10K	V0060					
1K/9K	V0056	±0.2 ppm/°C	±1 ppm/°C	0.4 ppm/°C	1.0 ppm/°C	0.02%
1K/10K	V0064					

Note
- Additional ratios are available.

POWER DERATING CURVE

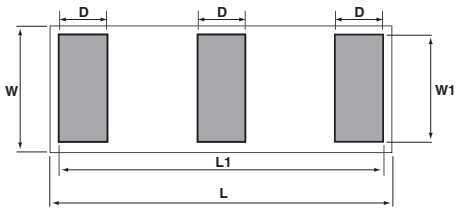


TYPICAL PERFORMANCE SPECIFICATIONS		
TEST	**MIL-PRF-55342H CHARACTERISTIC E ΔR LIMITS(1)**	**VFCD1505 ΔRATIO**
Thermal shock	0.10%	0.005% (50 ppm)
Low temperature operation	0.10%	0.005% (50 ppm)
Short time overload	0.10%	0.005% (50 ppm)
High temperature exposure	0.10%	0.01% (100 ppm)
Resistance to soldering heat	0.20%	0.01% (100 ppm)
Moisture resistance	0.20%	0.005% (50 ppm)
Load life (ratio stability)	–	0.005% (50 ppm)
Maximum working voltage for each element	22 V	
Weight	10 mg	
Packaging	Waffle pack standard, tape and reel available	

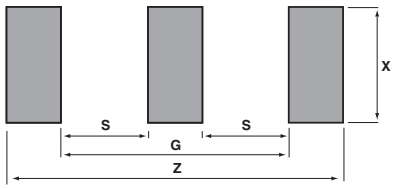
Note
(1) ΔR's plus additional 0.01 Ω for measurement error

MODEL VFCD1505 DIMENSIONS AND LAND PATTERN in inches (millimeters)

CHIP (BOTTOM VIEW)



RECOMMENDED LAND PATTERN



Note: Recommended stencil thickness 0.2 mm/0.00787 inch minimum

L ±0.005 (0.13)	W ±0.005 (0.13)	D ±0.003 (0.08)	L1 ±0.003 (0.08)	W1 ±0.005 (0.13)	THICKNESS MAXIMUM	Z ±0.003 (0.08)	G ±0.003 (0.08)	S ±0.003 (0.08)	X ±0.003 (0.08)
0.150 (3.81)	0.050 (1.27)	0.015 (0.38)	0.144 (3.66)	0.043 (1.09)	0.025 (0.64)	0.147 (3.73)	0.111 (2.82)	0.046 (1.17)	0.046 (1.17)

Notes
- Avoid the use of cleaning agents which could attack epoxy resins, which form part of the resistor construction
- Vacuum pick up is recommended for handling
- Soldering iron is not applicable

GLOBAL PART NUMBER INFORMATION[1]

NEW GLOBAL PART NUMBER: Y1685V0001QQ9R (preferred part number format)

DENOTES PRECISION	VCODE [2]	TOLERANCE MATCH	PACKAGING
Y	RESISTANCE VALUE CODE	**T** = 0.01% **Q** = 0.02% **A** = 0.05%	**R** = tape and reel **W** = waffle pack

Y	1	6	8	5	V	0	0	0	1	Q	Q	9	R

PRODUCT CODE	ABSOLUTE TOLERANCE	CHARACTERISTICS
1685 = VFCD1505	**T** = ±0.01% **Q** = ±0.02% **A** = ±0.05% **B** = ±0.1% **C** = ±0.25% **D** = ±0.5% **F** = ±1.0%	**0** = standard product, tin/lead terminations **9** = standard product, lead (Pb)-free terminations **Other** = custom

FOR EXAMPLE: ABOVE GLOBAL ORDER Y1685 V0001 Q Q 9 R:

TYPE: VFCD1505
VALUES: 10K/10K
ABSOLUTE TOLERANCE: ±0.02%
TOLERANCE MATCH: 0.02%
TERMINATION: lead (Pb)-free
PACKAGING: tape and reel

HISTORICAL PART NUMBER: VFCD1505 10K/10K TCR0.2 Q Q S T (will continue to be used)

VFCD1505	10K/10K	TCR0.2	Q	Q	S	T
MODEL	OHMIC VALUE	TCR CHARACTERISTIC	ABSOLUTE TOLERANCE	TOLERANCE MATCH	TERMINATION	PACKAGING
VFCD1505	R_1 = 10 kΩ R_2 = 10 kΩ		**T** = ±0.01% **Q** = ±0.02% **A** = ±0.05% **B** = ±0.1% **C** = ±0.25% **D** = ±0.5% **F** = ±1.0%	**T** = 0.01% **Q** = 0.02% **A** = 0.05%	**S** = lead (Pb)-free **B** = tin/lead alloy	**T** = tape and reel **W** = waffle pack

Note
[1] For non-standard requests, please contact application engineering
[2] For examples of VCODES see Resistance Values/Ratio and TCR Characteristics table