



Thin Film Technology Corp.

Product Family: General Purpose Thick Film Chip Resistor

Part Number Series: TFG Series



	Construction: <ul style="list-style-type: none"> High Purity Alumina Substrate Thick Film resistive element Wrap around electrodes RoHS 2011/65/EU compliant RoHS 2016 ready (RoHS compliant and Pb Free, with no exemptions—100% matte tin over Ni terminations) 	Features: <ul style="list-style-type: none"> 01005, 0201, 0402, 0603, 0805, 1206, 1210, 1218, 2010, 2512 sizes Tolerances of $\pm 1.0\%$ and $\pm 5.0\%$ Resistances from 1Ω to $10M\Omega$ available High volume production suitable for commercial and special applications
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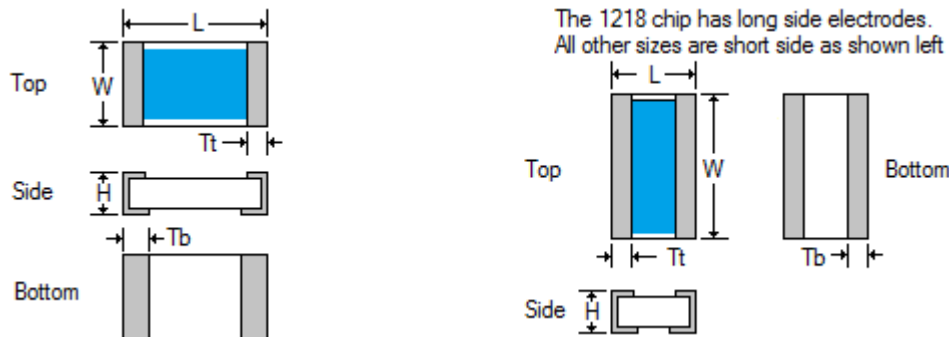
Description:

These general purpose thick film chip resistors are constructed on a high grade ceramic body for extreme durability. Utilizing a proprietary thick film resistive element to deliver a wide range of size, power handling and resistive values to make this series suitable for most applications. Very competitive pricing for all volume levels.

Product Dimensions:

Dimension (Metric)	TFG0100 (0402)	TFG0201 (0603)	TFG0402 (1005)	TFG0603 (1608)	TFG0805 (2012)	TFG1206 (3216)	TFG1210 (3226)	TFG1218 (3248)	TFG2010 (5025)	TFG2512 (6432)
L	0.016 ± 0.001	0.024 ± 0.001	0.039 ± 0.002	0.063 ± 0.004	0.079 ± 0.004	0.122 ± 0.004	0.122 ± 0.004	0.120 ± 0.006	0.197 ± 0.008	0.252 ± 0.008
W	0.008 ± 0.001	0.012 ± 0.001	0.020 ± 0.002	0.031 ± 0.004	0.049 ± 0.004	0.063 ± 0.004	0.102 ± 0.004	0.181 ± 0.008	0.098 ± 0.008	0.126 ± 0.008
H	0.005 ± 0.001	0.009 ± 0.001	0.014 ± 0.002	0.018 ± 0.006	0.020 ± 0.006	0.024 ± 0.006	0.022 ± 0.004	0.022 ± 0.004	0.022 ± 0.004	0.024 ± 0.004
Tb	0.004 ± 0.001	0.006 ± 0.002	0.010 ± 0.004	0.012 ± 0.006	0.016 ± 0.008	0.018 ± 0.008	0.020 ± 0.008	0.020 ± 0.010	0.024 ± 0.010	0.035 ± 0.010
Tt	0.003 ± 0.001	0.004 ± 0.002	0.008 ± 0.004	0.012 ± 0.004	0.016 ± 0.008	0.020 ± 0.008	0.020 ± 0.008	0.018 ± 0.010	0.026 ± 0.010	0.026 ± 0.010

All dimensions are shown in inches. Metric case sizes are shown in parenthesis.



Part Numbering: Ex: TFG0603R1002J-T5

Product Designator	English Size W x L	Temp. Coefficient of Resistance (TCR)	Resistance Value	Resistance Tolerance	T&R Packaging Quantity
TFG	01005 (use 0100), 0201, 0402 0603, 0805 1206, 1210 1218, 2010 2512	R = 100 ppm/°C S = 200 ppm/°C W = See Charts (TCR value is determined by resistance value. See electrical tables)	4 digits with the first 3 being significant. The last digit specifies the number of zeros. "R" denotes decimal position as necessary. Jumper = JUMP	F = $\pm 1.0\%$ * J = $\pm 5.0\%$ (see electrical tables)	-T5 = 5,000 -T10 = 10,000 -T15 = 15,000 -T20 = 20,000 See electrical tables for available options versus case size

- *Note: Use "F" resistance tolerance code for all Jumper products indicating max resistance of 50mΩ.

Electrical Specifications:

Type	TFG01005	TFG0201	TFG0402	TFG0603	TFG0805
English Size	01005	0201	0402	0603	0805
Power	1/32 Watt	1/20 Watt	1/16 Watt	1/10 Watt	1/8 Watt
Resistance Range (Ω)	4.7 Ω ~ 1M Ω , + Jumper (0 Ω)	1 Ω ~ 1M Ω (1%), 1 Ω ~ 10M Ω (5%), + Jumper (0 Ω)	1 Ω ~ 10M Ω , + Jumper (0 Ω)		
Resistance Tolerance (code)	E-24 Values = $\pm 1.0\%$ (F) or $\pm 5.0\%$ (J) E-96 Values + Jumper = $\pm 1.0\%$ (F)				
TCR ppm/ $^{\circ}$ C (code)	4.7 Ω -9.1 Ω = -200/+600 (W) 10 Ω -91 Ω = ± 300 (W) 100 Ω -1M Ω = ± 200 (S)	1 Ω -9.76 Ω = -100/+800 (W) 10 Ω -97.6 Ω = 0/+600 (W) 100 Ω -10M Ω = ± 200 (S)	1 Ω -10 Ω = -300/+500 (W) 10.2 Ω to 976k Ω = ± 100 (R) for 1% tol. parts ± 200 (S) for 5% tol. parts 1M Ω or greater = ± 300 (W)	1 Ω -10 Ω = -300/+500 (W) 10.2 Ω to 976k Ω = ± 100 (R) for 1% tol. parts, ± 200 (S) for 5% tol. parts 1M Ω or greater = ± 200 (S)	
Max Voltage DC or RMS	Operating 15 V Overload 30 V	Operating 25 V Overload 50 V	Operating 50 V Overload 100 V		Operating 150 V Overload 300 V
Operating Temp. Range	-55 $^{\circ}$ C ~ 125 $^{\circ}$ C (derating from 100% at 70 $^{\circ}$ C to 0% at 125 $^{\circ}$ C)		-55 $^{\circ}$ C ~ 155 $^{\circ}$ C (derating from 100% at 70 $^{\circ}$ C to 0% at 155 $^{\circ}$ C)		
Packaging	20,000 pcs/reel	15,000 pcs/reel	10,000 pcs/reel	5,000 pcs/reel	5,000 pcs/reel

Type	TFG1206	TFG1210	TFG1218	TFG2010	TFG2512
English Size	1206	1210	1218	2010	2512
Max Power @ 70 $^{\circ}$ C	1/4 Watt	1/3 Watt	1 Watt	0.5 Watt	1 Watt
Resistance Range (Ω)	1 Ω ~ 10M Ω , + Jumper (0 Ω)				
Resistance Tolerance (code)	E-24 Values = $\pm 1.0\%$ (F) or $\pm 5.0\%$ (J) E-96 Values + Jumper = $\pm 1.0\%$ (F)				
TCR ppm/ $^{\circ}$ C (code)	1 Ω -10 Ω = -300/+500 (W) 10.2 Ω to 976k Ω = ± 100 (R) for 1% tol. parts, ± 200 (S) for 5% tol. parts 1M Ω or greater = ± 200 (S)		1 Ω -10 Ω = ± 200 (S) 10.2 Ω or greater = ± 100 (R)		
Max Voltage: DC or RMS	Operating 200 V Overload 400 V			Operating 250 V Overload 500 V	
Operating Temp. Range	-55 $^{\circ}$ C ~ 155 $^{\circ}$ C (derating from 100% at 70 $^{\circ}$ C to 0% at 155 $^{\circ}$ C)				
Packaging	5,000 pcs/reel				

Reliability Specifications:

Test	Test Method	Specification
Short Time Overload	Applied voltage: 2.5X rated voltage or 2X maximum operating voltage, whichever is less. Test duration: 5 seconds	1% Tol: $\pm(1\%+0.1\Omega)$ 5% Tol: $\pm(2\%+0.1\Omega)$
Resistance to Soldering Heat	Dip into 260 $^{\circ}$ C solder bath until fully immersed 10 \pm 1 seconds	1% Tol: $\pm(0.5\%+0.01\Omega)$ 5% Tol: $\pm(1\%+0.01\Omega)$
Load Life	Test Temperature: 70 $^{\circ}$ C Applied voltage: rated voltage Test period: 1000 hours with power cycling as follows: 90 min. power ON/30 min. power OFF,	1% Tol: $\pm(1\%+0.1\Omega)$ 5% Tol: $\pm(3\%+0.1\Omega)$
Moisture Load Life	Test Condition: 40 $^{\circ}$ C/95% RH Applied voltage: rated voltage Test period: 1000 hours with power cycling as follows: 90 min. power ON/30 min. power OFF	1% Tol: $\pm(1\%+0.1\Omega)$ 5% Tol: $\pm(3\%+0.1\Omega)$
Temperature Cycle	Repeat 5 cycles as follows: -55 $^{\circ}$ C(30 min.) / Room temp (2 min) / +155 $^{\circ}$ C(30 min.) / Room temp (2 min)	1% Tol: $\pm(0.5\%+0.01\Omega)$ 5% Tol: $\pm(1\%+0.01\Omega)$
Solderability	Dip into 235 $^{\circ}$ C solder bath until fully immersed (SAC solder) 2 \pm 0.5 seconds	Minimum 95% coverage of new solder