

### Features:

- YAG laser user-trimmable in circuit
- Available in a variety of pre-trim tolerance ranges
- TCR of  $\pm 200$  ppm/ $^{\circ}$ C
- RoHS compliant and halogen free
- REACH compliant



Electrical Specifications					
Type/Code	Power Rating (W) @ 70 $^{\circ}$ C	Maximum Working Voltage (V) <sup>(1)</sup>	Maximum Overload Voltage (V)	TCR (ppm/ $^{\circ}$ C)	Ohmic Range ( $\Omega$ )
FCR0402	0.063	50	100	$\pm 200$	10 - 1M
FCR0603	0.1	50	100		
FCR0805	0.125	100	200		
FCR1206	0.25	200	400		
FCR1210	0.33	200	400		
FCR2010	0.75	200	400		
FCR2512	1	200	400		

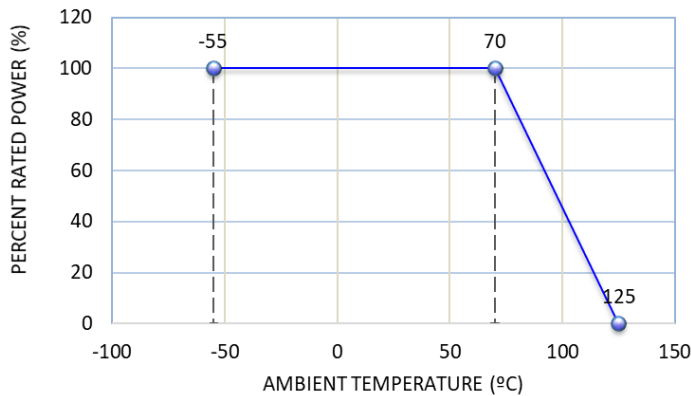
(1) Lesser of  $\sqrt{P \cdot R}$  or maximum working voltage.

Mechanical Specifications						
Type/Code	L Body Length	W Body Width	H Body Height	a Top Termination	b Bottom Termination	Unit
FCR0402	0.039 $\pm$ 0.002	0.020 $\pm$ 0.002	0.014 $\pm$ 0.002	0.008 $\pm$ 0.004	0.010 $\pm$ 0.004	inches
	1.00 $\pm$ 0.05	0.50 $\pm$ 0.05	0.35 $\pm$ 0.05	0.20 $\pm$ 0.10	0.25 $\pm$ 0.10	mm
FCR0603	0.063 $\pm$ 0.006	0.031 $\pm$ 0.006	0.018 $\pm$ 0.004	0.012 $\pm$ 0.008	0.012 $\pm$ 0.008	inches
	1.60 $\pm$ 0.15	0.80 $\pm$ 0.15	0.45 $\pm$ 0.10	0.30 $\pm$ 0.20	0.30 $\pm$ 0.20	mm
FCR0805	0.079 $\pm$ 0.008	0.049 $\pm$ 0.004	0.020 $\pm$ 0.004	0.016 $\pm$ 0.008	0.016 $\pm$ 0.008	inches
	2.00 $\pm$ 0.20	1.25 $\pm$ 0.10	0.50 $\pm$ 0.10	0.40 $\pm$ 0.20	0.40 $\pm$ 0.20	mm
FCR1206	0.126 $\pm$ 0.010	0.063 $\pm$ 0.010	0.024 $\pm$ 0.004	0.020 $\pm$ 0.010	0.020 $\pm$ 0.012	inches
	3.20 $\pm$ 0.20	1.60 $\pm$ 0.15	0.60 $\pm$ 0.10	0.50 $\pm$ 0.25	0.50 $\pm$ 0.30	mm
FCR1210	0.126 $\pm$ 0.008	0.098 $\pm$ 0.008	0.024 $\pm$ 0.004	0.020 $\pm$ 0.010	0.020 $\pm$ 0.008	inches
	3.20 $\pm$ 0.20	2.50 $\pm$ 0.20	0.60 $\pm$ 0.10	0.50 $\pm$ 0.25	0.50 $\pm$ 0.20	mm
FCR2010	0.197 $\pm$ 0.006	0.098 $\pm$ 0.006	0.024 $\pm$ 0.004	0.024 $\pm$ 0.010	0.024 $\pm$ 0.010	inches
	5.00 $\pm$ 0.15	2.50 $\pm$ 0.15	0.60 $\pm$ 0.10	0.60 $\pm$ 0.25	0.60 $\pm$ 0.25	mm
FCR2512	0.248 $\pm$ 0.008	0.126 $\pm$ 0.008	0.024 $\pm$ 0.004	0.028 $\pm$ 0.008	0.028 $\pm$ 0.008	inches
	6.30 $\pm$ 0.20	3.20 $\pm$ 0.20	0.60 $\pm$ 0.10	0.70 $\pm$ 0.20	0.70 $\pm$ 0.20	mm

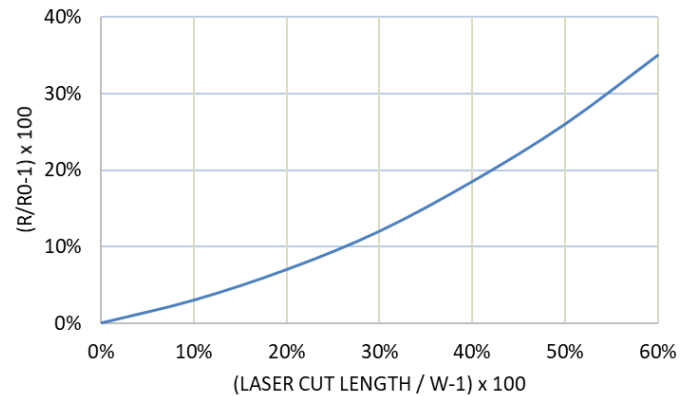
Performance Characteristics	
Test	Test Results (JIS C 5202)
Load Life in Moisture	$\pm 3\%$
Temperature Cycle	$\pm 1\%$
Load Life	$\pm 3\%$
Resistance to Solder Heat	$\pm 1\%$
Terminal Adhesion	$\pm 1\%$
Short Time Overload	$\pm 2\%$

Operating Temperature Range: -55 $^{\circ}$ C to +125 $^{\circ}$ C

Power Derating Curve:



Trimming Ration Curve:



### Recommended Solder Profile

This information is intended as a reference for solder profiles for Stackpole resistive components. These profiles should be compatible with most soldering processes. These are only recommendations. Actual numbers will depend on board density, geometry, packages used, etc., especially those cells labeled with “\*”.

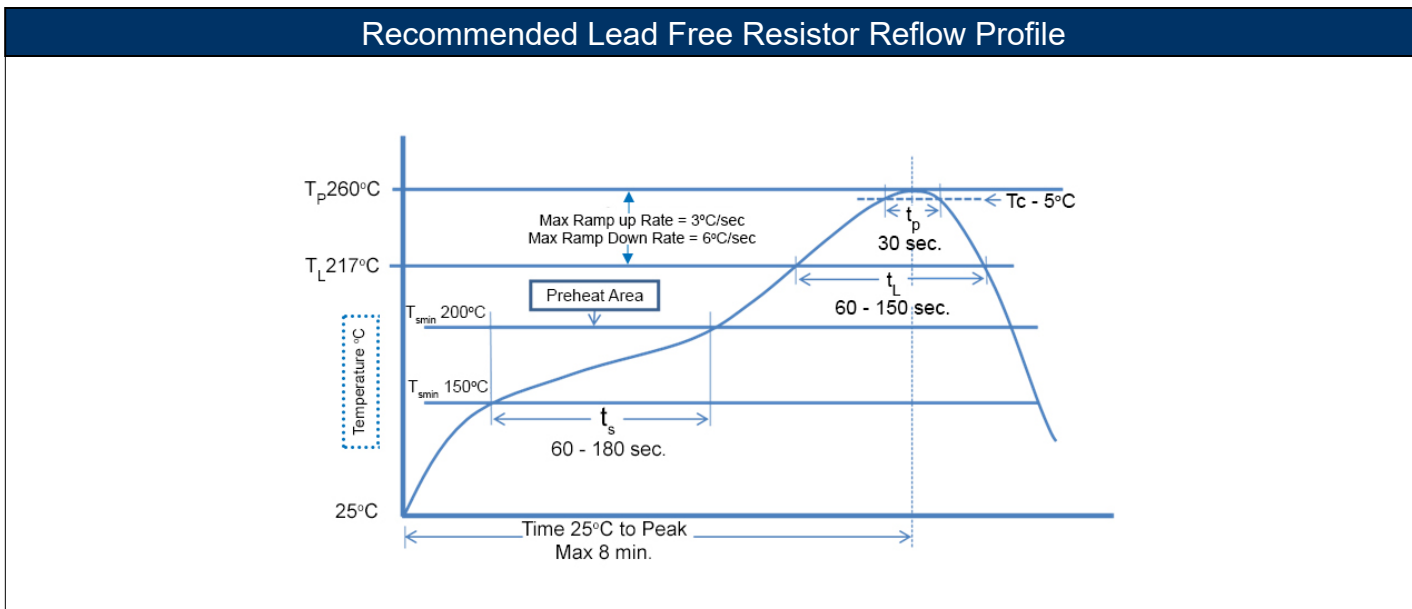
### 100% Matte Tin / RoHS Compliant Terminations

Soldering iron recommended temperatures: 330°C to 350°C with minimum duration.  
Maximum number of reflow cycles: 3.

Wave Soldering			
Description	Maximum	Recommended	Minimum
Preheat Time	80 seconds	70 seconds	60 seconds
Temperature Diff.	140°C	120°C	100°C
Solder Temp.	260°C	250°C	240°C
Dwell Time at Max.	10 seconds	5 seconds	*
Ramp DN (°C/sec)	N/A	N/A	N/A

Temperature Diff. = Difference between final preheat stage and soldering stage.

Convection IR Reflow			
Description	Maximum	Recommended	Minimum
Ramp Up (°C/sec)	3°C/sec	2°C/sec	*
Dwell Time > 217°C	150 seconds	90 seconds	60 seconds
Solder Temp.	260°C	245°C	*
Dwell Time at Max.	30 seconds	15 seconds	10 seconds
Ramp DN (°C/sec)	6°C/sec	3°C/sec	*



**RoHS Compliance**

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union’s directive regarding “Restrictions on Hazardous Substances” (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

RoHS Compliance Status						
Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition	Lead-Free Mfg. Effective Date (Std Product Series)	Lead-Free Effective Date Code (YY/WW)
FCR	Trimmable Thick Film Surface Mount Chip Resistor	SMD	YES(1)	100% Matte Sn over Ni	Jan-04	04/01

Note (1): RoHS Compliant by means of exemption 7c-I.

**“Conflict Metals” Commitment**

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the “conflict region” of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

**Compliance to “REACH”**

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, “The Registration, Evaluation, Authorization and Restriction of Chemicals”, otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

**Environmental Policy**

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

**How to Order**

1	2	3	4	5	6	7	8	9	10	11	12	13
<b>F</b>	<b>C</b>	<b>R</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>5</b>	<b>K</b>	<b>T</b>	<b>4</b>	<b>7</b>	<b>K</b>	<b>0</b>

Product Series	Size		Tolerance			Packaging				Resistance Value
FCR   Trimmable	Code	W	Code	Tol	Value	Code	Description	Size	Quantity	Four characters with the multiplier used as the decimal holder.
	0402	0.063	K	±10	E24	T	7" Reel - Paper Tape	0402	10000	
	0603	0.1	L	±15				0603, 0805 1206, 1210	5000	
	0805	0.125	M	±20		2010, 2512	4000			
	1206	0.25	N	±30						
	1210	0.33	S	0 ~ -5%						
	2010	0.75	U	0 ~ -10%						
	2512	1	V	0 ~ -20%						
			W	0 ~ -30%						
									10 ohm = 10R0 10 Kohm = 10K0 1 Mohm = 1M00	