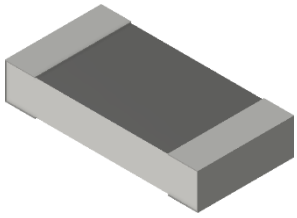
Features:

- YAG laser user-trimmable in circuit
- Available in a variety of pre-trim tolerance ranges
- TCR of ± 200 ppm/ºC
- RoHS compliant, REACH compliant, and halogen free

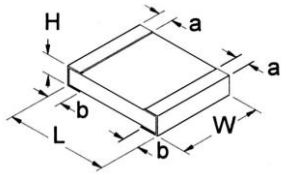


Electrical Specifications

Type/Code	Power Rating (W) @ 70ºC	Maximum Working Voltage (V)(1)	Maximum Overload Voltage (V)	TCR (ppm/ºC)	Ohmic Range (Ω)
FCR0402	0.063	50	100	± 200	10 - 1M
FCR0603	0.1	50	100	± 200	10 - 1M
FCR0805	0.125	100	200	± 200	10 - 1M
FCR1206	0.25	200	400	± 200	10 - 1M
FCR1210	0.33	200	400	± 200	10 - 1M
FCR2010	0.75	200	400	± 200	10 - 1M
FCR2512	1	200	400	± 200	10 - 1M

(1) Lesser of √(P*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 ± 0.002 1.00 ± 0.05	0.020 ± 0.002 0.50 ± 0.05	0.014 ± 0.002 0.35 ± 0.05	0.008 ± 0.004 0.20 ± 0.10	0.010 ± 0.004 0.25 ± 0.10	inches mm
FCR0603	0.063 ± 0.006 1.60 ± 0.15	0.031 ± 0.006 0.80 ± 0.15	0.018 ± 0.004 0.45 ± 0.10	0.012 ± 0.008 0.30 ± 0.20	0.012 ± 0.008 0.30 ± 0.20	inches mm
FCR0805	0.079 ± 0.008 2.00 ± 0.20	0.049 ± 0.004 1.25 ± 0.10	0.020 ± 0.004 0.50 ± 0.10	0.016 ± 0.008 0.40 ± 0.20	0.016 ± 0.008 0.40 ± 0.20	inches mm
FCR1206	0.126 ± 0.010 3.20 ± 0.20	0.063 ± 0.010 1.60 ± 0.15	0.024 ± 0.004 0.60 ± 0.10	0.020 ± 0.010 0.50 ± 0.25	0.020 ± 0.012 0.50 ± 0.30	inches mm
FCR1210	0.126 ± 0.008 3.20 ± 0.20	0.098 ± 0.008 2.50 ± 0.20	0.024 ± 0.004 0.60 ± 0.10	0.020 ± 0.010 0.50 ± 0.25	0.020 ± 0.008 0.50 ± 0.20	inches mm
FCR2010	0.197 ± 0.006 5.00 ± 0.15	0.098 ± 0.006 2.50 ± 0.15	0.024 ± 0.004 0.60 ± 0.10	0.024 ± 0.010 0.60 ± 0.25	0.024 ± 0.010 0.60 ± 0.25	inches mm
FCR2512	0.248 ± 0.008 6.30 ± 0.20	0.126 ± 0.008 3.20 ± 0.20	0.024 ± 0.004 0.60 ± 0.10	0.028 ± 0.008 0.70 ± 0.20	0.028 ± 0.008 0.70 ± 0.20	inches mm

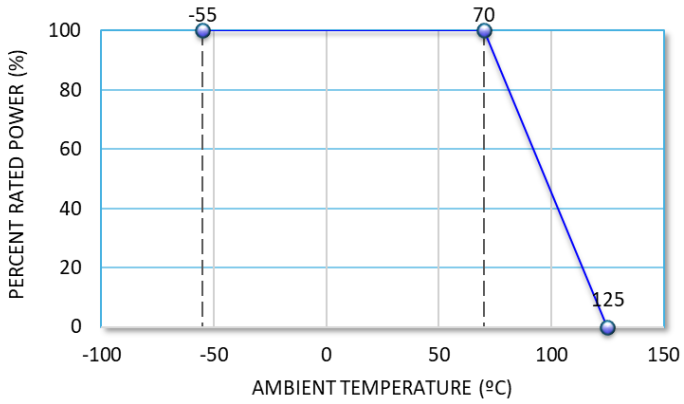
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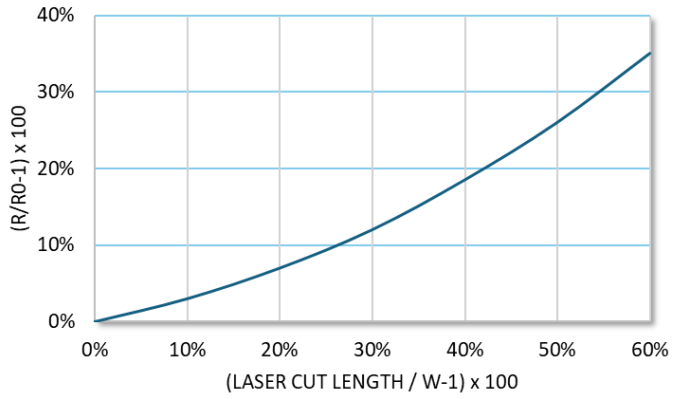
Performance Characteristics	
Test	Test Results (JIS-C-5202)
Load Life in Moisture	ΔR ± 3%
Temperature Cycle	ΔR ± 1%
Load Life	ΔR ± 3%
Resistance to Solder Heat	ΔR ± 1%
Terminal Adhesion	ΔR ± 1%
Short Time Overload	ΔR ± 2%

Operating Temperature Range: -55 to +125ºC

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 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.

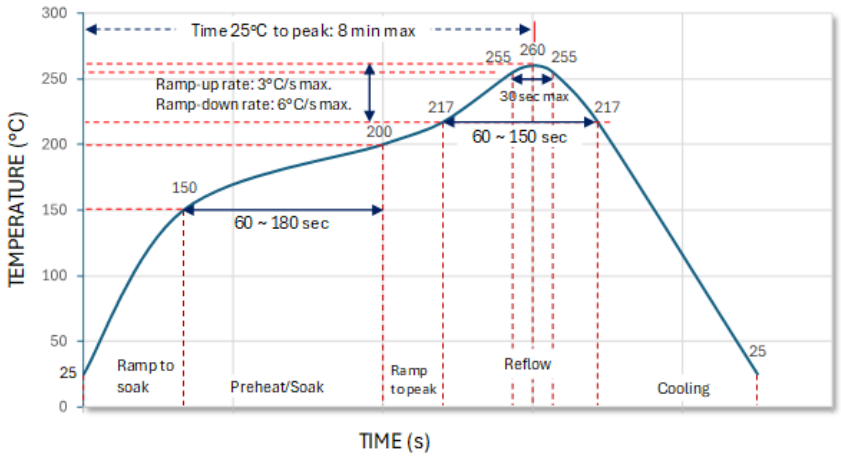
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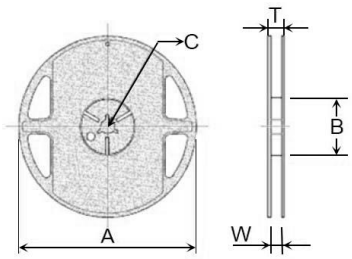
Convection IR Reflow

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	*

Recommended Resistor Reflow Profile



Reel Specifications



Type/Code	Packaging	Quantity	Tape Width	ØA	ØB	ØC	W	T	Unit
FCR0402	Paper Tape	10000	0.315 8.00	7.008 ± 0.059 178.00 ± 1.50	2.362 +0.039/-0 60.00 +1.00/-0	0.512 ± 0.008 13.00 ± 0.20	0.354 ± 0.020 9.00 ± 0.50	0.492 ± 0.020 12.50 ± 0.50	Inches mm
FCR0603	Paper Tape	5000	0.315 8.00	7.008 ± 0.059 178.00 ± 1.50	2.362 +0.039/-0 60.00 +1.00/-0	0.512 ± 0.008 13.00 ± 0.20	0.354 ± 0.020 9.00 ± 0.50	0.492 ± 0.020 12.50 ± 0.50	Inches mm
FCR0805	Paper Tape	5000	0.315 8.00	7.008 ± 0.059 178.00 ± 1.50	2.362 +0.039/-0 60.00 +1.00/-0	0.512 ± 0.008 13.00 ± 0.20	0.354 ± 0.020 9.00 ± 0.50	0.492 ± 0.020 12.50 ± 0.50	Inches mm
FCR1206	Paper Tape	5000	0.315 8.00	7.008 ± 0.059 178.00 ± 1.50	2.362 +0.039/-0 60.00 +1.00/-0	0.512 ± 0.008 13.00 ± 0.20	0.354 ± 0.020 9.00 ± 0.50	0.492 ± 0.020 12.50 ± 0.50	Inches mm

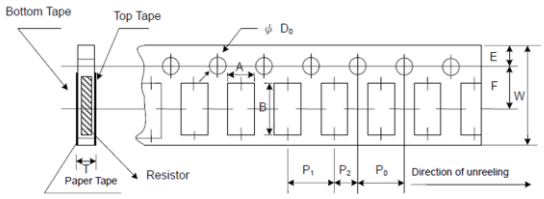
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Reel Specifications (cont.)

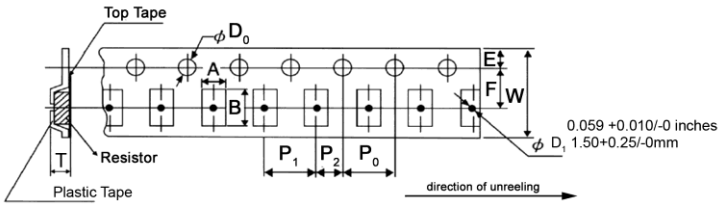
Type/Code	Packaging	Quantity	Tape Width	ØA	ØB	ØC	W	T	Unit
FCR1210	Paper Tape	5000	0.315 8.00	7.008 ± 0.059 178.00 ± 1.50	2.362 +0.039/-0 60.00 +1.00/-0	0.512 ± 0.008 13.00 ± 0.20	0.354 ± 0.020 9.00 ± 0.50	0.492 ± 0.020 12.50 ± 0.50	Inches mm
FCR2010	Plastic Tape	4000	0.472 12.00	7.008 ± 0.059 178.00 ± 1.50	2.362 +0.039/-0 60.00 +1.00/-0	0.512 ± 0.020 13.00 ± 0.50	0.512 ± 0.020 13.00 ± 0.50	0.610 ± 0.020 15.50 ± 0.50	Inches mm
FCR2512	Plastic Tape	4000	0.472 12.00	7.008 ± 0.059 178.00 ± 1.50	2.362 +0.039/-0 60.00 +1.00/-0	0.512 ± 0.020 13.00 ± 0.50	0.512 ± 0.020 13.00 ± 0.50	0.610 ± 0.020 15.50 ± 0.50	Inches mm

Taping Specifications - Paper Tape



Type/Code	A	B	W	E	F	P0	P1	P2	ØD0	T	Unit
FCR0402	0.026 ± 0.004 0.65 ± 0.10	0.045 ± 0.004 1.15 ± 0.10	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004/-0 1.50 +0.10/-0	0.018 ± 0.004 0.45 ± 0.10	inches mm
FCR0603	0.043 ± 0.004 1.10 ± 0.10	0.075 ± 0.004 1.90 ± 0.10	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.002 4.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004/-0 1.50 +0.10/-0	0.028 ± 0.004 0.70 ± 0.10	inches mm
FCR0805	0.063 ± 0.004 1.60 ± 0.10	0.094 ± 0.008 2.40 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.002 4.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004/-0 1.50 +0.10/-0	0.033 ± 0.004 0.85 ± 0.10	inches mm
FCR1206	0.075 ± 0.004 1.90 ± 0.10	0.138 ± 0.008 3.50 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.002 4.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004/-0 1.50 +0.10/-0	0.033 ± 0.004 0.85 ± 0.10	inches mm
FCR1210	0.114 ± 0.004 2.90 ± 0.10	0.138 ± 0.008 3.50 ± 0.20	0.315 ± 0.008 8.00 ± 0.20	0.069 ± 0.004 1.75 ± 0.10	0.138 ± 0.002 3.50 ± 0.05	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.002 4.00 ± 0.05	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004/-0 1.50 +0.10/-0	0.033 ± 0.004 0.85 ± 0.10	inches mm

Taping Specifications - Plastic Tape



Type/Code	A	B	W	E	F	P_0	P_1	P_2	$ØD_0$	T	Unit
FCR2010	0.110 ± 0.004 2.80 ± 0.10	0.213 ± 0.008 5.40 ± 0.20	0.472 ± 0.012 12.00 ± 0.30	0.069 ± 0.004 1.75 ± 0.10	0.217 ± 0.002 5.50 ± 0.05	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004/-0 1.50 +0.10/-0	0.047 +0 1.20 +0	inches mm
FCR2512	0.138 ± 0.004 3.50 ± 0.10	0.264 ± 0.004 6.70 ± 0.10	0.472 ± 0.012 12.00 ± 0.30	0.069 ± 0.004 1.75 ± 0.10	0.217 ± 0.002 5.50 ± 0.05	0.157 ± 0.004 4.00 ± 0.10	0.157 ± 0.004 4.00 ± 0.10	0.079 ± 0.002 2.00 ± 0.05	0.059 +0.004/-0 1.50 +0.10/-0	0.047 +0 1.20 +0	inches mm

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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

F	C	R	0	8	0	5	K	T	4	7	K	0

Product Series

FCR	Trimmable

Size

Code	W
0402	0.063
0603	0.1
0805	0.125
1206	0.25
1210	0.33
2010	0.75
2512	1

Tolerance

Code	Tol	Value
K	±10	E24
L	±15	
M	±20	
N	±30	
S	0 ~ -5%	
U	0 ~ -10%	
V	0 ~ -20%	
W	0 ~ -30%	

Packaging

Code	Description	Size	Quantity
T	7" Reel - Paper Tape	0402	10000
		0603, 0805 1206, 1210	5000
	7" Reel - Plastic Tape	2010, 2512	4000

Resistance Value

Four characters with the multiplier used as the decimal holder.

10 ohm = 10R0
10 Kohm = 10K0
1 Mohm = 1M00

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