# imall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



### Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832 Email & Skype: info@chipsmall.com Web: www.chipsmall.com Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## Stackpole Electronics, Inc. Resistive Product Solutions

#### Features:

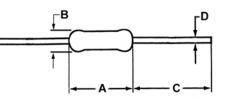
**FRN Series Fusing Resistor** 

- Coating meets UL 94V-0
- Designed for constant current to provide overload protection
- Consistent performance and reliability •
- Cut and formed product is available on select sizes, contact factory for details
- RoHS compliant / lead-free

Electrical Specifications								
Type / Code	Power Rating (Watts) @ 70ºC	Maximum Working Voltage (1)	Maximum Overload Voltage	Resistance Temperature	Ohmic Range (Ω) and Tolerance 5%			
				Coefficient				
FRN16	0.166W	150V	200V	±350 ppm/ºC	0.56 - 10K			
FRN14	0.25W	200V	300V	±350 ppm/ºC	0.22 - 10K			
FRN12	0.5W	250V	400V	±350 ppm/ºC	0.47 - 10K			
FRN1	1W	300V	600V	±350 ppm/ºC	0.47 - 10K			
FRN2	2W	300V	600V	±350 ppm/ºC	1 - 3K			

(1) Lesser of √PR or maximum working voltage

#### **Mechanical Specifications**



Type / Code	A Body Length	B Body Diameter	C Lead Length (Bulk)	D Lead Diameter	Unit
FRN16	0.126 + 0.008 / 0 3.20 + 0.20 / 0	$0.073 \pm 0.006$ 1.85 ± 0.15	1.102 ± 0.118 28.00 ± 3.00	$\begin{array}{r} 0.018 \pm 0.002 \\ 0.45 \pm 0.05 \end{array}$	inches mm
FRN14	$\begin{array}{r} 0.236 \pm 0.020 \\ 6.00 \pm 0.50 \end{array}$	$0.091 \pm 0.008$ 2.30 $\pm 0.20$	$1.102 \pm 0.118$ 28.00 ± 3.00	$\begin{array}{r} 0.022 \pm 0.002 \\ 0.55 \pm 0.05 \end{array}$	inches mm
FRN12	$\begin{array}{r} 0.354 \ \pm \ 0.039 \\ 9.00 \ \pm \ 1.00 \end{array}$	$\begin{array}{r} 0.118 \ \pm \ 0.020 \\ 3.00 \ \pm \ 0.50 \end{array}$	$1.102 \pm 0.118$ 28.00 ± 3.00	0.028 ± 0.002 0.70 ± 0.05	inches mm
FRN1	$0.433 \pm 0.039$ 11.00 ± 1.00	$\begin{array}{rrrr} 0.157 \ \pm \ 0.020 \\ 4.00 \ \pm \ 0.50 \end{array}$	$1.102 \pm 0.118$ 28.00 ± 3.00	$\begin{array}{r} 0.031 \pm 0.002 \\ 0.80 \pm 0.05 \end{array}$	inches mm
FRN2	$0.591 \pm 0.039$ 15.00 ± 1.00	$0.217 \pm 0.039$ 5.50 ± 1.00	1.378 ± 0.118 35.00 ± 3.00	$\begin{array}{r} 0.031 \pm 0.002 \\ 0.80 \pm 0.05 \end{array}$	inches mm

Performance Characteristics					
Test	Test Results				
Moisture Resistance	±5%				
Thermal Shock	±1%				
Load Life @ 70ºC - 1,000hrs	±5%				
Resistance to Soldering Heat	±1%				
Short Time Overload	±2%				

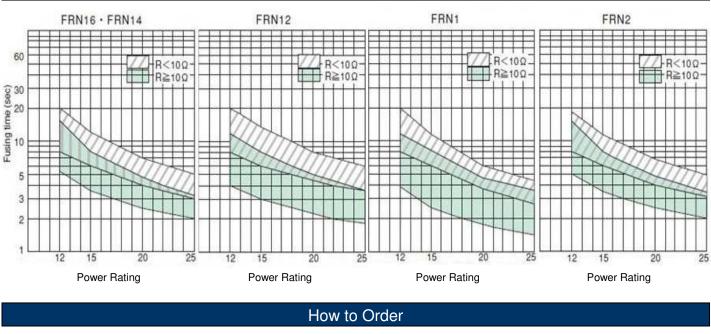
Operating Temperature Range: -40°C to +155°C

### Stackpole Electronics, Inc.

**Resistive Product Solutions** 

FRN Series Fusing Resistor

#### Fusing Curves



#### 1 2 3 4 5 6 7 8 9 10 11 2 Т 7 F R Ν 1 J 4 R 0 Resistance Value Power Rating Tolerance Packaging Product Series Size Fusing Metal Film Code FRN 16 0.166W Code Tol Value Description Size Quantity Four characters 0.25W FRN16, FRN14 14 J 5% E24 5,000 with the multiplier FRN12, FRN1 12 0.5W Т Tape and Reel 2,500 used as the 1 1W FRN2 1,000 decimal holder. 2 2W FRN16 5,000 FRN14, FRN12 0.47 ohm = R470 2,000 А Ammo FRN1 1,000 10 Kohm = 10K0 FRN2 500 FRN16 2,000 FRN14, FRN12 В Bulk 1,000 FRN1, FRN2

#### Legacy Part Number (before January 3, 2011):

SEI Type		Nominal Code Resistance		Tolerance		Packaging				
FRN		1/2	4.7	5%		R				
Description	Code	Wattage		Tolerance	Values	SEI Types	Pkg Qty	Description	Code	
Fusing Metal	1/6	0.166W		5%	E24	FRN16, FRN14	5,000			
Film	1/4	0.25W			-	FRN12, FRN1	2,500	tape and reel	R	
	1/2	0.5W				FRN2	1,000			
	1	1W				FRN16	5,000			
	2	2W				FRN14, FRN12	2,000	2000	т	
						FRN1	1,000	ammo		
						FRN2	500			
						FRN16	2,000			
						FRN14, FRN12 FRN1, FRN2	1,000	bulk	A	
	RN Description Fusing Metal	DescriptionCodeFusing Metal1/6Film1/41/21	Code Wattage   Description 1/6 0.166W   Fusing Metal 1/6 0.166W   Film 1/4 0.25W   1/2 0.5W 1	El TypeCodeResistanceFRN1/24.7DescriptionCodeWattageFusing Metal1/60.166WFilm1/40.25W1/20.5W11W	El TypeCodeResistanceToleraFRN1/24.75%DescriptionCodeWattage1/60.166WFusing Metal1/60.166W5%Film1/20.5W5%1/20.5W11W	El TypeCodeResistanceToleranceFRN1/24.75%DescriptionCodeWattageToleranceValuesFusing Metal1/60.166W5%E24T/20.5W11WKattageKattage	El TypeCodeResistanceToleranceFRN1/24.75%Description Fusing Metal FilmCodeWattage 1/60.166W 1/45%E241/20.5W 1/25%E24FRN16, FRN14 FRN1211W 22WFRN16 FRN16FRN16 FRN16FRN16 FRN16FRN16 FRN16FRN16 FRN16FRN16 	El Type Code Resistance Tolerance Packagin   FRN 1/2 4.7 5% R   Description Fusing Metal Film Code Wattage Tolerance Values SEI Types Pkg Qty   1/6 0.166W 5% E24 FRN16, FRN14 5,000 FRN12, FRN1 2,500   1/2 0.5W 1/2 0.5W FRN16 5,000 FRN12 1,000   2 2W FRN16 5,000 FRN11 1,000   FRN16 2,000 FRN16 5,000 FRN16 2,000   FRN16 2,000 FRN16 2,000 FRN16 2,000	El TypeCodeResistanceTolerancePackagingFRN1/24.75%RDescription Fusing Metal FilmCodeWattage 1/60.166W 1/45%E241/20.5W 1/25%E24FRN16, FRN145,000 FRN12, FRN12,500 	

This specification may be changed at any time without prior notice Please confirm technical specifications before you order and/or use.