



# Precision Power Foil Shunt Resistors



Dim. in mm

**Features:** • Low TCR • High pulse ratings and absorption features which make for high performance in surge and high frequency applications, long term stability • Superior load stability compared to thick film down to 0.1% • Customs available as a special order  
**Material Specifications:** • Resistor Material: Copper Nickel Manganese-Foil (CuNiMn-Foil) • Substrate: (FPR2-T220 and FPS2-T220 Series) Al<sub>2</sub>O<sub>3</sub> or anodized aluminum; (FPR2-T218 Series) anodized aluminum • Connector Material: Tinned Copper  
**Electrical Specifications:** • Temperature Coefficient: R>0.2Ω ±15ppm/K (20°C - 60°C) R≤0.2Ω (See chart for TCR) • Operating Temperature Range: -40°C - 130°C **Power Rating Notes:** For the full power rating resistors must be attached to a suitable heat sink. The maximum internal resistor temperature is 130°C. **Applications:** • Current Sense • High frequency • Power Supplies • Telecom • Instrumentation • Test Equipment

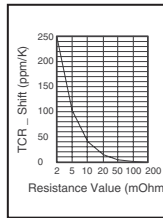


Fig. 1 — FPS2-T220 (Surface Mount)

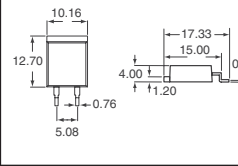


Fig. 2 — FPR2-T220

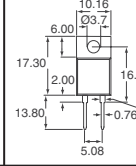
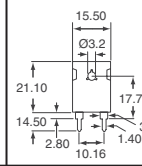


Fig. 3 — FPR2-T218



**Resistance Values — FPS2-T220 Series**

0.005	0.015	0.050	0.150	0.300	0.750	10.000
0.0075	0.020	0.075	0.200	0.360	1.000	25.000
0.010	0.025	0.100	0.250	0.500	5.000	50.000

**Resistance Values — FPR2-T220 Series**

0.002	0.020	0.075	0.200	0.360	1.000	25.000
0.010	0.025	0.100	0.250	0.500	5.000	50.000
0.015	0.050	0.150	0.300	0.750	10.000	

**Resistance Values — FPR2-T218 Series**

0.002	0.015	0.050	0.150	0.300	0.750	10.000
0.005	0.020	0.075	0.200	0.360	1.000	25.000
0.010	0.025	0.100	0.250	0.500	5.000	50.000

Fig.	Power Rating	Resistance Range (Ω)	Tolerance %	Digi-Key Part No.†	Price Each	Digi-Key Part No.	Tape and Reel Pricing	Riedon Part No.
					1 10 50		500 1,000 2,500	
1	15W	0.005 - 50.000	1	FPS2-T220(Value)CT-ND‡	8.52 6.39 5.68	FPS2-T220(Value)TR-ND	2775.00 4704.00 4526.00/M	FPS2-T220 xxxxxx Ohm 1%
2	15W	0.002 - 50.000	1	FPR2-T220(Value)-ND	8.28 6.90 6.04	—	—	FPR2-T220 xxxxxx Ohm 1%
3	30W	0.002 - 50.000	1	FPR2-T218(Value)-ND	7.38 5.46 4.81	—	—	FPR2-T218 xxxxxx Ohm 1%

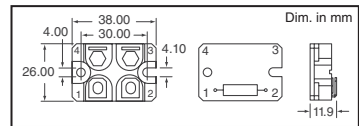
† For complete Digi-Key part number, substitute value from Resistance Values chart for (Value). ‡ Cut Tape

## Precision Power Foil Shunt Resistors



Resistance Values

0.010	0.150	3
0.015	0.200	5
0.020	0.250	10
0.025	0.300	33
0.050	0.360	50
0.075	0.500	75
0.100	1	100



**Features:** • Industry standard T227 housing • Low TCR • High power rating (80 Watts) with exceptional pulse and absorption features – ideal for surge and high frequency applications • Superior performance compared to Thick Film, down to 0.1%  
**Material Specifications:** • Copper Nickel Manganese-Foil (CuNiMn-Foil) • Al<sub>2</sub>O<sub>3</sub> or Anodized Aluminum Substrate • Tinned Copper or Nickel Plated Connectors  
**Electrical Specifications:** • Temperature Coefficient: R>0.2Ω ±15ppm/K (20°C - 60°C) • Power Rating Notes: For the full power rating resistors must be attached to a suitable heatsink. • The maximum internal resistor temperature is 130°C • Operating Temperature: -40°C - 130°C • 2.5kV Voltage Rating  
**Applications:** • Current Sense • High Frequency • Power Supplies • Telecom • Instrumentation • Test equipment

Power Rating	Resistance Range (Ω)	Tolerance %	Digi-Key Part No.†	Price Each	Riedon Part No.
				1 10 50	
80W	0.010 - 0.075	1	FNR2-T227-(Value)F-ND	32.83 31.00 19.84	FNR 2-T227 xxxxx Ohm 1% xxPPM
80W	0.100 - 5	1	FNR2-T227-(Value)F-ND	32.57 30.00 19.68	FNR 2-T227 xxxxx Ohm 1% xxPPM
80W	10 - 100	1	FNR2-T227-(Value)F-ND	36.78 32.00 22.79	FNR 2-T227 xxx Ohm 1% xxPPM

† For complete Digi-Key part number, substitute value from Resistance Values chart for (Value).

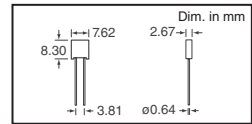
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## Ultra-Precision Foil Resistors



Resistance Values

100	500	5K	15K
120	1K	10K	20K
250	2K	12K	25K
350	2.5K	14K	30K



**Features:** • NiCr foil • Low TCR 1ppm • Tight 0.01% Tolerance • 0.6 Watt Power Rating • 0808 Package  
**Material Specifications:** • NiCr on Al<sub>2</sub>O<sub>3</sub> Substrate • PBTB / Epoxy Housing • Tinned Copper Leads  
**Electrical Specifications:** • Temperature Coefficient: 1ppm (0°C - 60°C) • Operating Temperature: -55°C - 155°C • 2kV Voltage Rating • Load life 50ppm/Year  
**Applications:** • Audio • Medical • Military • Test Equipment • Down-hole • Instrumentation

Power Rating @ 70°C	Resistance Range (Ω)	Tolerance %	Digi-Key Part No.†	Price Each	Riedon Part No.
				1 10 50	
0.6W	100 - 500	0.01	USR2-0808-(Value)T-ND	18.38 14.88 13.13	USR 2-0808 xxx Ohm 0.01% 1PPM
0.6W	1K - 15K	0.01	USR2-0808-(Value)T-ND	18.38 14.88 13.13	USR 2-0808 xxx Ohm 0.01% 1PPM
0.6W	20K - 30K	0.01	USR2-0808-(Value)T-ND	19.95 15.68 14.25	USR 2-0808 xxx Ohm 0.01% 1PPM

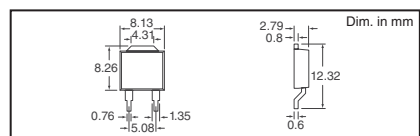
† For complete Digi-Key part number, substitute value from Resistance Values chart for (Value).

## SMD Power Thick Film Resistors



Resistance Values

.025	.30	25	1.5K
.050	.36	50	2.0K
.075	.50	100	2.5K
.10	.75	250	5.0K
.15	1	500	7.5K
.20	5	750	10.0K
.25	10	1.0K	

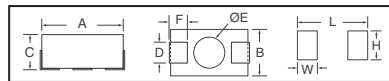


**Features:** • Convenient TO126 SMD housing (D-PAK) • 25 Watt Power Rating • Solder reflow safe (260°C / 20s) • Non Inductive Design  
**Material Specification:** • Thick film on Al<sub>2</sub>O<sub>3</sub>  
**Electrical Specifications:** • Temperature Coefficient: to 100ppm • Operating Temperature: -40°C - 175°C • 2kV Voltage Rating  
**Power Rating Notes:** For the full power rating resistors must be attached to a suitable heatsink. **Applications:** • Power Supplies • Medical Devices • Telecom • Automotive

Power Rating	Resistance Range (Ω)	Tolerance %	Digi-Key Part No.†	Cut Tape Price Each	Digi-Key Part No.†	Tape and Reel Pricing	Riedon Part No.
				1 10 50		500 1,000 2,500	
25W	.025 - .075	5	NPS2-T126-(Value)JCT-ND	7.68 5.53 4.92	NPS2-T126-(Value)JTR-ND	2149.00 3914.00 3914.00/M	NPS 2-T126 xxxxx Ohm 5%
25W	.10 - .75	5	NPS2-T126-(Value)JCT-ND	6.33 4.69 4.13	NPS2-T126-(Value)JTR-ND	1771.00 3416.00 3289.00/M	NPS 2-T126 xxxxx Ohm 5%
25W	1 - 10.0K	1	NPS2-T126-(Value)FCT-ND	6.33 4.69 4.13	NPS2-T126-(Value)FTR-ND	1771.00 3416.00 3289.00/M	NPS 2-T126 xxxxxxxx Ohm 1%

† For complete Digi-Key part number, substitute value from Resistance Values chart for (Value).

## NEW! SMD Wirewound Resistors – S Series



Digi-Reel®



**Features:** • Resistance: 0.010 - 47kΩ • High Power: 0.5 - 4 Watts • Low Temperature Coefficient: to ±20 ppm/K • Superior surge handling capability • Reel packaging • Non-inductive windings are available (Type SN) • Lead Thickness: 0.006" (0.15mm) • Stand-Off Height: 0.005" (0.13mm)

S-1 Resistance Values				S-2 Resistance Values				S-3 Resistance Values				S-5 Resistance Values				Stand-Off (mm)	Footprint (mm)
Type	A	B	C	Type	A	B	C	Type	A	B	C	Type	A	B	C		
0.010	0.100	1.000	150	0.010	0.150	10	220	0.010	0.150	15	470	0.010	68	6800			
0.015	0.150	10	220	0.015	0.200	15	470	0.015	0.200	22	680	0.050	100	10000			
0.020	0.200	15		0.020	0.300	22	680	0.020	0.300	47	1500	0.100	220	15000			
0.030	0.300	22		0.030	0.500	47	1500	0.030	0.500	68	2200	1.000	470	22000			
0.036	0.360	47		0.050	0.680	68	2200	0.050	0.750	100	4700	10	680	47000			
0.050	0.470	68		0.075	0.750	100	3000	0.075	1.000	150	6800	22	2200				
0.075	0.750	100		0.100	1.000	150	10000	0.100	10	220	10000	47	4700				

Type	Power Rating @ 70°C	Working Voltage (Max.)	Resistance Range Ω	Tolerance %	Digi-Key Part No.†	Cut Tape Price Each	Digi-Key Part No.†	Tape and Reel Pricing	Riedon Part No.
						1 10 50		Qty. Pricing	
S-1	0.5W	33	0.010 - 220	1	S-1-(Value)FCT-ND	1.69 1.09 .90	S-1-(Value)FTR-ND	3,000 658.00/M	S-1 xxxxx Ohm 1%
S-2	1W	58	0.010 - 3000	1	S-2-(Value)FCT-ND	1.73 1.11 .92	S-2-(Value)FTR-ND	2,000 684.00/M	S-2 xxxxx Ohm 1%
S-4	2W	127	0.010 - 15000	1	S-4-(Value)FCT-ND	1.73 1.11 .92	S-4-(Value)FTR-ND	1,000 720.00	S-4 xxxxx Ohm 1%
S-3	3W	150	0.010 - 22000	1	S-3-(Value)FCT-ND	2.24 1.44 1.19	S-3-(Value)FTR-ND	500 467.50	S-3 xxxxx Ohm 1%
S-5	4W	212	0.010 - 47000	1	S-5-(Value)FCT-ND	2.24 1.44 1.19	S-5-(Value)FTR-ND	500 467.50	S-5 xxxxx Ohm 1%

† For complete Digi-Key part number, substitute the value from Resistance Values chart for (Value).

Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

More Product Available Online: [www.digikey.com](http://www.digikey.com)

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