POWER THICK FILM RESISTORS

1 W to 1100 W

KEY BENEFITS

- Thick film technology
- Custom designs available
- Standard packages available (TO-220, TO-247, SOT-227, TO-263, and TO-252) for easy design
- Compact, with high power dissipation to volume ratio
- Wide resistance range from 0.01 Ω to 100 GΩ
- Low inductivity down to 0.1 µH
- AEC-Q200 and automotive qualifications

APPLICATIONS

- Power conversion
- High speed switching
- RF applications
- Current sensing
- Industrial and medical power supplies
- Test equipment
- Railroad electrical traction
- Variable speed drives
- Snubbers
- Damping for e-compressor
- EV / HEV battery management
- Precharge or discharge resistors for inverters
- Converters
- On-board charger for electric vehicles
- Hybrid electric vehicles
- Plugged hybrid vehicles
- General industrial and military power conversion applications

RESOURCES

- For technical questions contact sferfixedresistors@vishay.com

A WORLD OF SOLUTIONS™

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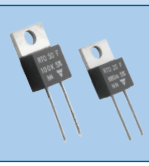
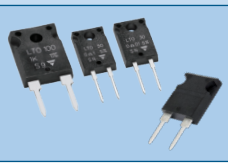
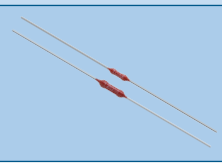
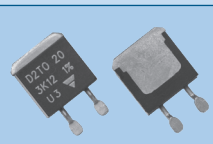
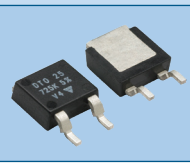
1 W to 1100 W

Models	RCH	RPH	RPS	LPS / LPSA	RTOP
					
Resistance Range	0.010 Ω to 1 MΩ	0.092 Ω to 1 MΩ	0.24 Ω to 1 MΩ	0.3 Ω to 900 kΩ	0.046 Ω to 1 MΩ
Power Rating Mounted (PR)	20 W and 50 W	100 W	250 W and 500 W	300 W, 600 W, 800 W, and 1100 W	50 W to 200 W
Nominal Voltage	250 V_{RMS} to 300 V_{RMS}	1900 V_{RMS}	5000 V_{RMS}	5000 V_{RMS}	500 V_{RMS} to 1500 V_{RMS}
Temperature Range	–55 °C to +155 °C	–55 °C to +125 °C	–55 °C to +125 °C	–55 °C to +200 °C	–55 °C to +125 °C
TC	± 150 ppm/°C > 0.5 Ω	± 150 ppm/°C > 1 Ω	± 150 ppm/°C > 1 Ω	± 300 ppm/°C ≤ 10 Ω, ± 150 ppm/°C > 10 Ω	± 150 ppm/°C > 1 Ω
Thermal Resistance	RTO20 = 6.5 °C/W RTO50 = 2.6 °C/W	0.55 °C/W	RPS250 = 0.22 °C/W RPS500 = 0.11 °C/W	0.039 °C/W to 0.112 °C/W	0.5 °C/W to 1 °C/W
Inductance	< 0.1 µH	≤ –0.1 µH	< 50 nH	≤ 0.1 µH	≤ –0.1 µH
Overload Capacity, Short Duration	2 PR/5 s < 2 Ω 1.6 PR/5 s ≥ 2 Ω	4 PR/5 s	RPS250 = 4 PR/10 s RPS500 = 2 PR/10 s	LPS300 / LPSA300 = 4 PR/10 s, LPS600 / LPSA600 = 2 PR/10 s, LPS800 / LPSA800 = 1.5 PR/10 s, LPS1100 = 1.6 PR/10 s	2.5 PR/5 s
Dielectric Strength	2000 V	5000 V	L: 7000 V H: 12 000 V	12 000 V	2500 V
Package	TO220	n/a	n/a	n/a	SOT227B
Standard Tolerance (Additional Tolerance)	± 5 % (1 % to 10 %)	± 5 % (1 % to 10 %)	± 5 % (1 % to 10 %)	± 5 % (1 % to 10 %)	± 5 % (1 % to 10 %)
Features	• Two models within range • Custom designs available • Through-hole and SMD • Lead (Pb)-free and RoHS available	• Custom designs available • Connections: M4 screw • Lead (Pb)-free and RoHS available	• Two models within range • Custom designs available • Connections: M4 screw • Lead (Pb)-free and RoHS available	• Seven models within range • Connections: M4 screw • RoHS-compliant • Weight: 79 g to 83 g • LPSA AEC-Q200 qualified	• Four models within range • Custom designs available • Connections: screw or shunt • Lead (Pb)-free and RoHS available

POWER THICK FILM RESISTORS

1 W to 1100 W

Models	RTO	LTO	HTS	D2TO	DTO
					
Resistance Range	0.010 Ω to 1 MΩ	0.010 Ω to 1.3 MΩ	1 kΩ to 100 GΩ	0.010 Ω to 500 kΩ	0.016 Ω to 700 kΩ
Power Rating Mounted (PR)	20 W and 50 W	30 W to 150 W	0.25 W to 5 W	20 W and 35 W	25 W and 35 W
Nominal Voltage	250 V_{RMS} to 300 V_{RMS}	250 V_{RMS} to 500 V_{RMS}	0.5 kV_{RMS} to 50 kV_{RMS}	500 V_{RMS}	500 V_{RMS}
Temperature Range	–55 °C to +155 °C	LTO 30-50: –55 °C to +150 °C LTO 100-150: –55 °C to +175 °C	–55 °C to +155 °C	D2TO20: –55 °C to +155 °C D2TO35: –55 °C to +175 °C	DTO25: -55 °C to +150 °C DTO35: -55 °C to +175 °C
TC	± 150 ppm/°C > 0.5 Ω	± 150 ppm/°C > 0.5 Ω	± 100 ppm/°C	± 150 ppm/°C > 0.5 Ω	± 150 ppm/°C > 0.5 Ω
Thermal Resistance	RTO20 = 6.5 °C/W RTO50 = 2.6 °C/W	4.2 °C/W up to 3000 V	n/a	D2TO20: 6.5 °C/W D2TO35: 4.2 °C/W	DTO25: 5 °C/W DTO35: 4.28 °C/W
Inductance	< 0.1 µH	≤ 0.1 µH	n/a	≤ 0.1 µH	≤ 0.1 µH
Overload Capacity, Short Duration	2 PR/5 s < 2 Ω 1.6 PR/5 s ≥ 2 Ω	1.5 PR/5 s	n/a	D2TO20: 2 PR/5 s < 2 Ω 1.6 PR/5 s ≥ 2 Ω D2TO35: 1.7 PR/5 s < 2 Ω 1.4 PR/5 s ≥ 2 Ω	1.6 PR/5 s
Dielectric Strength	2000 V	3000 V	n/a	2000 V	1500 V
Package	TO220	TO220 and TO247	n/a	TO263 Style (D^2PAK)	TO252 Style (DPAK)
Standard Tolerance (Additional Tolerance)	± 5 % (1 % to 10 %)	± 5 % (1 % to 10 %)	± 1 % (0.5 % to 10 %)	± 5 % (1 % to 10 %)	± 5 % (1 % to 10 %)
Features	• Two models within range • Custom designs available • Through-hole and SMD • Lead (Pb)-free and RoHS available	• Four models within the range • Direct mounting ceramic on heatsink • Lead (Pb)-free and RoHS-compliant • Custom designs available • AEC-Q200 qualified	• 12 models within range • Special matching tolerance of 0.25 % • Special tracking in TCR: 25 ppm/°C	• Two models within range • Standard package for SMD • Lead (Pb)-free and RoHS-compliant • Solder reflow secure at 270 °C/10 s • AEC-Q200 qualified	• Standard package for SMD • Lead (Pb)-free and RoHS-compliant • Solder reflow secure at 270 °C/10 s • AEC-Q200 qualified • Two models within range