


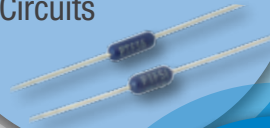


Vishay Intertechnology, Inc.


# Leaded Film Resistors



**MBA/SMA 0204**  
**MBB/SMA 0207**  
**MBE/SMA 0414**  
Advanced Thin Film  
Technology



**PTF**  
High-Precision and  
Stability Resistor to  
Precisely Balance  
Circuits



**RNX**  
High-Voltage Resistor,  
Customizable to Customer  
Specific Requirements




**TD**  
High-Voltage Planar  
Divider Up to 30 kV



**RN**  
Widely Recognized  
Resistor in Military /  
Industrial / Custom  
Applications



**FHV AXIAL**  
High-Voltage Planar  
Resistor Up to 15 kV



**PR01 / PR02 / PR03**  
High Power in Small  
Packages, AEC-Q200-  
Qualified (PR01 and PR02)



**VR25 / VR37 / VR68**  
High-Voltage Metal  
Glaze Resistor



# LEADED FILM RESISTORS



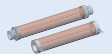

## Focus Products






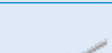
Metal Film								
Series	Resistance min. (Ω)	Resistance max. (Ω)	Tolerance min. (± %)	Tolerance max. (± %)	TCR min. (ppm/°C)	TCR max. (ppm/°C)	Size	Power
 <a href="#">CMF Military</a>	10	2.49 M	0.1	5	± 25	± 200	50 to 70	to 0.75 W
	Military-qualified resistor to MIL-R-10509 (RN) and MIL-PRF-22684 (RL)							
 <a href="#">CMF Industrial</a>	0.1	50 M	0.1	5	± 25	± 200	50 to 70	to 1.75 W
	Low noise to 0.1 μV/V; flame retardant coating; customizable to customer requirements							
 <a href="#">CMF Non-magnetic</a>	0.1	50 M	0.1	5	± 25	± 200	50 to 70	to 1.75 W
	Manufactured using non-magnetic materials							
 <a href="#">CMF Fusible</a>	4	30 K	1	1	± 100	± 100	55 to 70	to 1.5 W
	Established fusing characteristics; flameproof coating meets EIA RS-325							
 <a href="#">CPF</a>	0.1	150 K	0.1	5	± 25	± 200	1 to 3	to 3 W
	High power rating in a small package; high-temperature; flameproof							
 <a href="#">PTF</a>	15	1 M	0.01	1	± 5	± 15	51 to 65	to 0.25 W
	High precision and high stability							
 <a href="#">ERC Military</a>	10	3.01 M	0.1	1	± 25	± 100	50 to 70	to 0.75 W
	Military-qualified established reliability resistor to MIL-PRF-55182 (RNC / RNR); M, P, R, and S level failure rates							
 <a href="#">ERL Military</a>	1	10 M	1	2	± 100	± 100	05 to 32	to 1 W
	Military-qualified established reliability resistor to MIL-PRF-39017 (RLR); M, P, R, and S level failure rates; DSCC drawings to 22 MΩ							
 <a href="#">HDN Military</a>	10	4.99 M	0.1	1	± 25	± 50	55 to 75	to 2 W
	Military-qualified established reliability resistor to MIL-PRF-55182 (RNR / RNN); M, P, R, and S level failure rates; hermetic enclosure impervious to harmful environments							
 <a href="#">SFR16S/SFR25/SFR25H</a>	0.22	10 M	1	5	± 100	± 250	DIN 0204; DIN 0207	up to 0.5 W
	Low-cost standard metal film resistor							
 <a href="#">MRS16/MRS25</a>	4.99	10 M	1	-	± 50	-	DIN 0204; DIN 0207	up to 0.6 W
	Professional thin film leaded resistor							
 <a href="#">MB /SMA Professional</a>	0.22	22M	0.5	5	± 25	± 50	DIN 0204; DIN 0207; DIN 0414	up to 1.0 W
	Advanced thin film technology; power dissipation rating up to 1 W; available in CECC version (IECQ-CECC-approved according to EN 140101-806)							
 <a href="#">MB /SMA Precision</a>	10	1.5 M	0.1	0.25	± 15	± 25	DIN 0204; DIN 0207; DIN 0414	up to 0.65 W
	Advanced thin film technology; IECQ-CECC-approved according to EN 140101-806; superior overall stability: class 0.05							
 <a href="#">MPR24</a>	10	1 M	0.01	0.5	± 05	± 25	DIN 0207	up to 0.25 W
	High-precision thin film leaded resistors; high stability 0.05 %							
 <a href="#">UX High Precision</a>	10	1 M	0.01	0.25	± 02	± 10	DIN 0204; DIN 0207; DIN 0414	up to 0.5 W
	Superior thin film technology; exceptional low TCR: ± 2 ppm/K to ± 10 ppm/K; exceptional overall stability: class 0.02							
 <a href="#">MB_VG06</a>	1.0	21.5 M	0.1	1	± 15	± 50	DIN 0204; DIN 0207; DIN 0414	up to 1.0 W
	Advanced thin film technology; IECQ-CECC-approved to EN 140101-806, version E; established reliability, failure rate level E7; single lot date code							
 <a href="#">NFR25/NFR25H</a>	0.22	15 K	5	-	± 100	± 200	DIN 0207	up to 0.5 W
	Fusible leaded metal film resistor							
 <a href="#">HVR25/HVR37</a>	100 K	10 M	1	5	± 200	-	DIN 0207; DIN 0309	up to 0.5 W
	High-voltage metal film resistor (up to 3.5 kV)							
 <a href="#">PR01/PR02/PR03</a>	0.22	1 M	1	5	± 250	-	DIN 0207; DIN 0411; DIN 0617	up to 3.0 W
	High power in small packages (1 W / 0207 size to 3 W / 0617 size); AEC-Q200-qualified (PR01 and PR02)							
 <a href="#">PR02L/PR2.5L/PR2.5LS</a>	2 K	70 K	5	-	± 250	-	DIN 0207; DIN 0414	up to 2.5 W
	High power in small packages (2 W / 0309, 2.5 W / 0414); suitable for high-temperature operations							

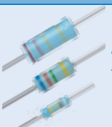




# LEADED FILM RESISTORS

## Focus Products

Metal Oxide									
Series	Resistance min. (Ω)	Resistance max. (Ω)	Tolerance min. (± %)	Tolerance max. (± %)	TCR min. (ppm/°C)	TCR max. (ppm/°C)	Size	Power	Voltage
 <a href="#">RNX</a>	100	2 G	0.5	10	± 50	± 200	025 to 200	to 5 W	to 8 kV
High-voltage resistor; non-inductive construction available									
 <a href="#">ROX</a>	100	3 G	1	10	± 50	± 200	050 to 600	to 20 W	to 45 kV
High-voltage resistor; non-inductive and optional constructions available									
 <a href="#">RJU</a>	1 K	1 G	1	10	± 100	± 200	040 to 400	to 400 W	to 125 kV
High-voltage; tab terminals or ferrule terminals available									
 <a href="#">WKWR</a>	0.22	1 M	1	5	± 50	± 200	DIN 0207; DIN 0414; DIN 0617; DIN 0922	up to 4 W	up to 750 V
High-power metal oxide leaded resistor up to 4 W									

Carbon Film									
Series	Resistance min. (Ω)	Resistance max. (Ω)	Tolerance min. (± %)	Tolerance max. (± %)	TCR min. (ppm/°C)	TCR max. (ppm/°C)	Size	Power	Voltage
 <a href="#">MVW, HVW, HVX</a>	1 K	50 M	5	20	-	-	1/2, 3/4	to 1.5 W	to 7.5 kV
High-voltage; coated or uncoated									
 <a href="#">B</a>	50 K	500 M	5	20	-	-	-	to 10 W	to 40 kV
High-voltage; radial lugs or axial leads									
 <a href="#">D, G</a>	50 K	500 M	5	20	-	-	-	to 100 W	to 125 kV
High-voltage; radial bands or ferrule terminals									
 <a href="#">SPW</a>	50	50	2	5	-	-	-	to 120 W	
High-frequency load tubes; custom and water-cooled versions available									
 <a href="#">LCA</a>	0.22	1 M	2	5	-200	Refer to LCA datasheet	DIN 0207; DIN 0414	up to 0.6 W	500 V
Standard carbon film resistor									
 <a href="#">CBB 0207</a>	10	1.5 M	2	-	-250	Refer to CBB datasheet	DIN 0207	up to 0.6 W	350 V
Speciality product for EMC-sensitive applications; special carbon film technology for maximum heat stress capability; up to 6 kV or 140 W pulse load capability									

Metal Glaze									
Series	Resistance min. (Ω)	Resistance max. (Ω)	Tolerance min. (± %)	Tolerance max. (± %)	TCR min. (ppm/°C)	TCR max. (ppm/°C)	Size	Power	Voltage
 <a href="#">VR25/VR37/VR68</a>	100 K	68 M	1	10	± 200	-	DIN 0207; DIN 0309; DIN 0718	up to 1 W	up to 10 kV
High-voltage metal glaze resistor with high pulse load capability up to 10 kV; VR25 is AEC-Q200-qualified; VR37 and VR68 meet safety requirements of UL1676 (510 kΩ to 11 MΩ); DIN EN 60065, IEC 60065 clause 14.1.a); VDE 0860, clause 14.1.a), CQC									
 <a href="#">FHV Axial</a>	10 K	10 G	1	10	± 100	± 200	026 to 501	4 W	up to 15 kV
Non-inductive design; matched sets available									
 <a href="#">TD</a>	300 K	3 T	0.5	20	± 100	± 500		up to 3 W	up to 30 kV
Thick film planar voltage divider (up to 30 kV) with TCR tracking (down to ± 25 ppm/°C) and tolerance matching (down to ± 0.5%)									

# RESISTORS OFFER ROBUST, STABLE, AND PREDICTABLE PERFORMANCE IN MANY APPLICATIONS

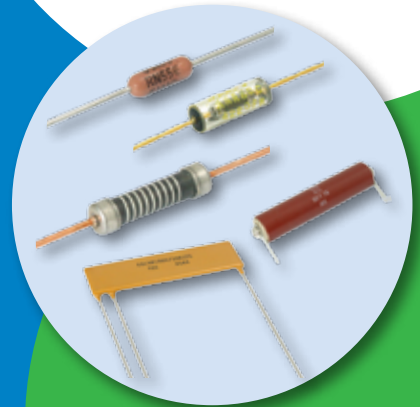


## Advantages of Vishay Leaded Film Resistors

- Broad range of styles, values, tolerances, TC, power, and voltages
- Custom options available
- Products for every end use market

## For the Following Applications

- Avionics, military, and space (AMS)
- High-end audio, medical, industrial, white goods
- Harsh environments and long-life operations
- Power and high-voltage applications



Using Vishay resistors is the smart choice for long-life applications



Choose non-magnetic resistors for your medical applications



## Useful Links

- Carbon composition cross reference guide  
[www.vishay.com/doc?31049](http://www.vishay.com/doc?31049)
- Overview of Vishay metal film resistors  
[www.vishay.com/doc?49311](http://www.vishay.com/doc?49311)
- Ohm's law calculator  
[www.vishay.com/resistors/ohms-law-calculator/](http://www.vishay.com/resistors/ohms-law-calculator/)



Approved to  
EN 140101-806

**AEC-Q200  
Qualified**



A **WORLD OF**  
**SOLUTIONS**