

► **Selecting The Optimum Resistor Technology to Best Match The Performance Requirements**

Comparison of Axial Lead Resistor Characteristics Table								
Characteristics		Thin Film		Thick Film		Wire Wound		Alloy Strip
		Carbon Film	Metal Film	Metal Oxide Film	Metal Glaze Film	Standard	Non-Inductive	
Tolerance (%)	±0.01		✓			✓		
	±0.02		✓			✓		
	±0.05		✓			✓		
	±0.1		✓			✓		
	±0.25		✓			✓		
	±0.5		✓			✓		
	±1.0		✓		✓	✓	✓	✓
	±2.0	✓		✓	✓	✓	✓	✓
	±5.0	✓		✓	✓	✓	✓	✓
	±10	✓		✓	✓	✓	✓	✓
Temperature Coefficient (PPM/°C)	5		✓					
	10		✓					
	15		✓					
	25		✓			✓		✓
	50		✓			✓	✓	✓
	100		✓		✓	✓	✓	✓
	200	✓		✓	✓	✓	✓	
	400	✓		✓	✓	✓	✓	
	1,000	✓						
Operating Temperature Range (°C)	200			✓				✓
	165		✓	✓	✓	✓	✓	✓
	125	✓	✓	✓	✓	✓	✓	✓
	70	✓	✓	✓	✓	✓	✓	✓
	40	✓		✓	✓	✓	✓	✓
	10	✓		✓	✓	✓	✓	✓
Wattage (W)	1/16							
	1/8	✓	✓					
	1/4	✓	✓	✓	✓	✓		
	1/2	✓	✓	✓	✓	✓	✓	✓
	1	✓	✓	✓	✓	✓	✓	✓
	2	✓	✓	✓	✓	✓	✓	✓
	3	✓	✓	✓	✓	✓	✓	✓
	5			✓	✓	✓	✓	
10			✓	✓	✓			

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Characteristics		Thin Film		Thick Film		Wire Wound		Alloy Strip
		Carbon Film	Metal Film	Metal Oxide Film	Metal Glaze Film	Standard	Non-Inductive	
Resistance Range (Ω)	0.1							
	1		✓					
	10	✓	✓	✓	✓	✓	✓	
	100	✓	✓	✓	✓	✓	✓	
	1K	✓	✓	✓	✓	✓		
	10K	✓	✓	✓	✓	✓		
	100K	✓	✓		✓	✓		
	1M	✓	✓		✓	✓		
	10M	✓			✓	✓		
Volume Size	Standard	Standard	Standard	Standard	Standard	Bigger	Compact	
High Frequency	Available	Available	Available	Available	None	Available	Available	
Cost	Cheap	Fair	Fair	Fair	High	High	Fair	
Noise	Fair	Good	Fair	Fair	Fair	Good	Good	
Stability	Fair	Excellent	Good	Good	Excellent	Good	Excellent	

Class	Advantage	Disadvantage
Carbon Resistors	Cheap, General Purposes	High TCR,
Metal Film Resistors	Low TCR, Tight Tolerance, High Stability	Fair Withstanding Voltage
Metal Oxide Resistors	Replace high resistance wire wound resistor, Good withstanding voltage	Resistance Range Limitation, Fair Tolerance
Wirewound Resistors	High Pulse Load, Anti-Surge, High Stability	High Inductance, Resistance Range Limitation
Non-Inductive Resistors	High Pulse Load, Anti-Surge, High Stability	Resistance Range Limitation, High Cost
Ceramic Housed Cement Resistors	Rugged, excellent heat dissipation, withstanding high temperature	Heavy Weight, Big Volume
Metal Glaze Resistors	High Pulse Load, Anti-Surge, High Stability	High TCR, Fair Tolerance
Alloy Strip	Low TCR, Low Ohmic	Fair Tolerance