

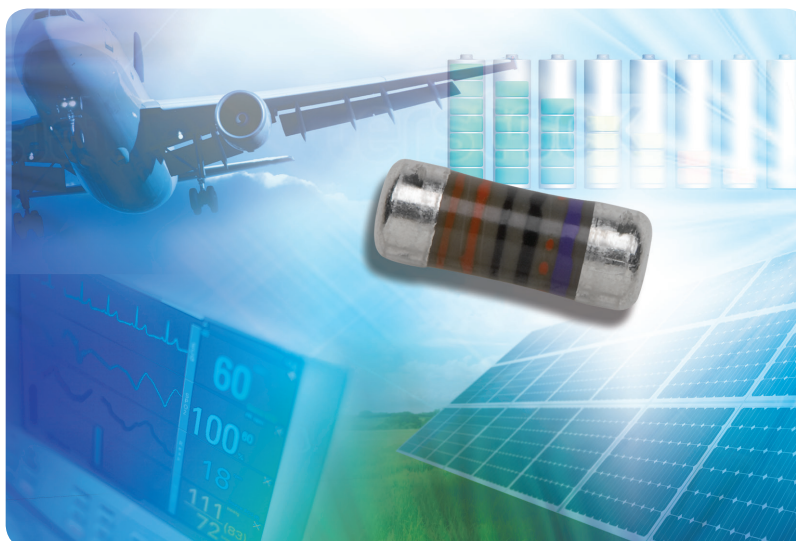


THIN FILM MELF RESISTORS

UMB 0207

Resistors - Precision for Analog and Measurement Circuits

High-Precision Thin Film MELF Resistors



KEY BENEFITS

- TCR down to ± 5 ppm/K
- Tolerance down ± 0.02 %
- High operating voltage of 350 V
- Rated dissipation $P_{70} = 400$ mW

APPLICATIONS

- Precision analog electronic circuits
- Precision measurement circuits
- Precision calibration circuits

RESOURCES

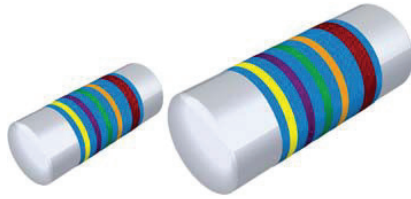
- Datasheet: UMB 0207 - www.vishay.com/doc?28715
- For technical questions contact melf@vishay.com
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



One of the World's Largest Manufacturers of
Discrete Semiconductors and Passive Components



High-Precision Thin Film MELF Resistors



UMA 0204 and UMB 0207 high precision thin film MELF resistors combine the proven reliability of professional MELF products with the most advanced level of precision and stability first achieved with axial thin film high precision resistors. This unique combination makes the product perfectly suited for all applications with outstanding requirements towards reliable precision and stability.

FEATURES

- Most advanced thin film technology
- Superior overall stability
- TCR down to ± 5 ppm/K
- High precision tolerance down to ± 0.02 %
- Matte Sn termination on Ni barrier layer
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS

- Measuring and calibration equipment
- Industrial process control systems
- Space and aircraft electronics
- Medical equipment

TECHNICAL SPECIFICATIONS				
DESCRIPTION	UMA 0204		UMB 0207	
Imperial size code	0204		0207	
Metric size code	RC 3715M		RC 6123M	
Resistance range	22 Ω to 332 k Ω		100 Ω to 390 k Ω	
Resistance tolerance	± 0.25 %; ± 0.1 %; ± 0.05 %; ± 0.02 %			
Temperature coefficient	± 15 ppm/K; ± 10 ppm/K; 5 ppm/K			
Operation mode	Precision	Standard	Precision	Standard
Rated dissipation P_{70} ⁽¹⁾	0.07 W	0.25 W	0.11 W	0.4 W
Operating voltage, U_{max} , AC/DC	200 V		350 V	
Permissible film temperature, ϑ_f max.	85 $^{\circ}$ C	125 $^{\circ}$ C	85 $^{\circ}$ C	125 $^{\circ}$ C
Operating temperature range	- 10 $^{\circ}$ C to 85 $^{\circ}$ C	- 55 $^{\circ}$ C to 125 $^{\circ}$ C	- 10 $^{\circ}$ C to 85 $^{\circ}$ C	- 55 $^{\circ}$ C to 125 $^{\circ}$ C
Max. resistance change at P_{70} for resistance range, $\Delta R/R$ after:	22 Ω to 332 k Ω		100 Ω to 390 k Ω	
	1000 h	≤ 0.02 %	≤ 0.05 %	≤ 0.02 %
	8000 h	≤ 0.05 %	≤ 0.1 %	≤ 0.05 %
	225 000 h	≤ 0.15 %	≤ 0.3 %	≤ 0.15 %
Permissible voltage against ambient (insulation):	300 V		500 V	
	1 min, U_{ins}	75 V	75 V	75 V
Failure rate: FIT _{observed}	$\leq 0.1 \times 10^{-9}/h$			

Notes

- These resistors do not feature a limited lifetime when operated within the permissible limits. However, resistance value drift increasing over operating time may result in exceeding a limit acceptable to the specific application, thereby establishing a functional lifetime.
- ⁽¹⁾ The power dissipation on the resistor generates a temperature rise against the local ambient, depending on the heatflow support of the printed-circuit board (thermal resistance). The rated dissipation applies only if the permitted film temperature is not exceeded. Furthermore, a high level of ambient temperature or of power dissipation may raise the temperature of the solder joint, hence special solder alloys or board materials may be required to maintain the reliability of the assembly.

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