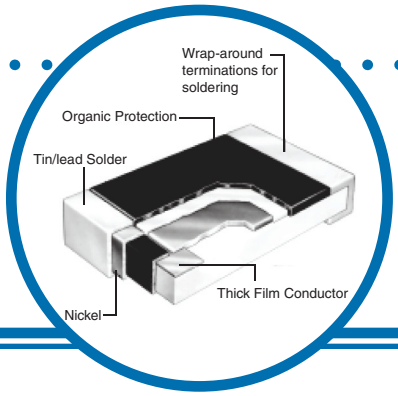
High Value Surface Mount Resistor



HR Series

- 100M ohms to 50G ohms
- Low voltage coefficient of resistance

Electrical Data

IRC Type	Resistance Range (ohms) (measured at 10 volts)	Limiting Element Voltage (volts)	Operating Temp. Range (°C)	TCR (ppm/°C) (measured at 10 volts)	Resistance Tolerance (%)
0805	100M to 50G	100	-55 to +125	0 to -2000	100M to 1G: 5, 10 >1G to 50G: 25, 50
1005	100M to 50G	150	-55 to +125	0 to -1500	
1206	100M to 50G	200	-55 to +125	0 to -1000	

Power Rating:
The high resistance value of these devices is such that power dissipation is always small. The rating is therefore determined by voltage considerations only, as shown in the table above.

Contruction:
The resistor material is screen printed onto a 96% alumina substrate and covered with a protection comprising of a glaze followed by an organic coating. This construction gives an insulated device.

Terminations:
Wrap-around terminations on HR resistors have good 'leach' resistance properties. They will withstand immersion in solder at 260°C for 30 seconds.

Marking:
All relevant information is recorded on the primary package or reel.

Thickness:
The thickness of these devices depend on the size of the chip. The table below shows the standard substrate thickness used (mm).

STYLE	0805	1005	1206
Planar	0.4	0.63	0.5
Wrap-around	0.4	N/A	0.5

F = Wrap-around; G = Planar Gold.

Environmental Data

		Actual	
		Maximum	**Typical**
Load at rated power: 1000 hours at 70°C	**ΔR%**	2	1
Shelf life: 12 months at room temperature	**ΔR%**	2	1
Dry heat: 1000 hrs at 125°C	**ΔR%**	2	0.5
Temperature rapid change	**ΔR%**	1	0.3
Change on Wave Soldering	**ΔR%**	1	0.5
Voltage proof	**volts**	100	200
Voltage coefficient of resistance	**%volts**		
(10V - 25V)	**0805**	1.0	0.4
	1005	0.8	0.5
	1206	0.2	0.05

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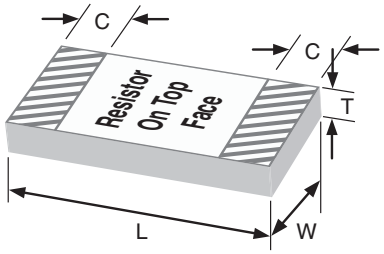
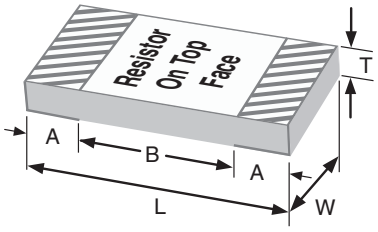
Physical Data

Planar Terminations



Wrap Around Terminations (3 Faces)



Dimensions (Inches and (mm))

Style	L	W	T	Wrap-around		Planar	Weight (g)
				A	B*	C	
0805	.079 ± .012 (2.0 ± 0.3)	.049 ± .008 (1.25 ± 0.2)	.027 (.07)	.012 ± .006 (0.3 ± 0.15)	.035 (0.9min)	.012 ± .004 (0.3 ± 0.1)	0.009
1005	.098 ± .012 (2.5 ± 0.3)	.049 ± .008 (1.25 ± 0.2)	.027 (.07)	not available		.016 ± .006 (0.4 ± 0.15)	0.015
1206	.126 ± .016 (3.2 ± 0.4)	.063 ± .008 (1.6 ± 0.2)	.027 (.07)	.016 ± .008 (0.4 ± 0.2)	.067 (1.7min)	.016 ± .006 (0.4 ± 0.15)	0.020

* This dimension determines the number of conductors which may pass under the surface mounted device.

APPLICATION NOTES:

Mounting

This chip resistor is ideally suited for handling by automatic methods due to its rectangular shape and the small dimensional tolerances. Electrical connection to a ceramic substrate or to a printed circuit board can be made by reflow soldering of wrap-around terminations. The 'F' terminations provide good leach properties and ensure reliable contact. Due to the robust construction, the resistor chip can be immersed completely in the solder bath for 30 seconds at 260°C. This enables the resistor to be mounted on one side of a printed circuit board and other wire-leaded components on the other side. The presence of moisture will not damage the resistor in any way.

Ordering Data

Specify type, reference, etc. as indicated in this example of a HR0805F 100M ohms K resistor with wrap-around terminations and packed in a waffle pack. 1005 is available in Waffle Pack only.

Sample Part No. HR | 0805 | F | 100M | J | W

IRC Type
CR

Style
0805, 1005, 1206

Termination
F = Wrap Around, P = Planar Gold

Resistance Value (EIA 4-digit code)
(100Ω and greater - First 3 significant digits plus 4th digit multiplier)
Example: 100Ω = 1000; 1000Ω = 1001, 150,000Ω = 1503
(Less than 100Ω - "R" is used to designate decimal)
Example: 51Ω = 51R0; 1Ω = 1R00; 0.25Ω = R250

Tolerance
K = 10%; S = 25%; Y = 50%

Packaging
T = Tape Pack (3K per Reel), W = Waffle Pack

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