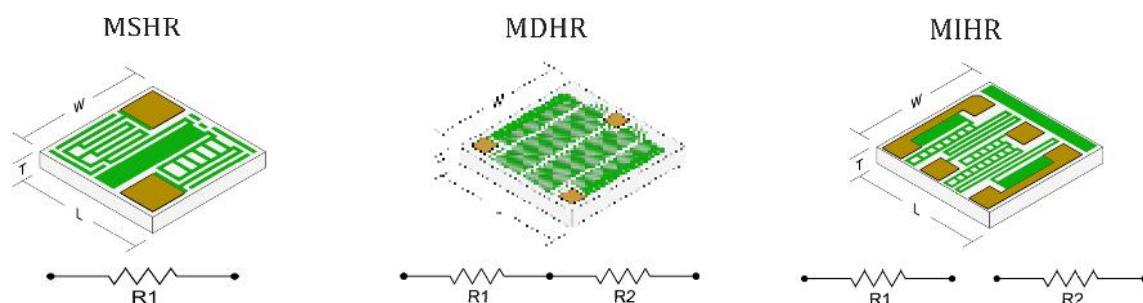


HIGH VALUE WIRE BONDABLE RESISTORS



Mini-Systems Inc. **High Value Wire Bondable Chip Resistor** series offers the design engineer a wide variety of styles with the **high stability** of Thin Film materials to meet the demands of cutting edge design requirements. Electrical connection to associated circuitry is accomplished through wire bonding to terminations located on the top side of the chip. Suitable die attachment methods are epoxy or eutectic attach.

GENERAL CHARACTERISTICS

Resistance Range	301kΩ to 100MΩ ¹
Resistance Tolerance	±0.1% to ±10%
Termination Material	Gold (Standard) Aluminum (Optional)
Termination Size	0.0035" Square Min. - Value Dependent
Backing Material	Bare Substrate (Standard) Gold (Optional)
Operating Temperature	-55°C to +150°C
Storage Temperature	-65°C to +150°C
Voltage Rating	100VDC Max

¹Consult Engineering if higher valued resistors are required

SUBSTRATE CHARACTERISTICS

SUBSTRATE MATERIAL	Available Thickness	Dielectric Constant @ 1MHz	Thermal Conductivity W/m•K
Silicon (Si) (with 12kA SiO ₂)	0.005" - 0.015"	N/A (SiO ₂ 3.9)	149 (SiO ₂ 1.38)
Quartz	0.005" - 0.010"	3.75	1.3

RESISTOR CHARACTERISTICS

RESISTOR FILM	Passivation	Standard TCR	TCR Optional To	TCR Tracking
SiChrome	SiO ₂	±150 ppm/°C	±100 ppm/°C	±5ppm/°C

PART NUMBER DESIGNATION

MIHR	3	S	S	30003 ¹ 30003/40003 ²	F	RN	GB
STYLE	TYPE	SUBSTRATE	RESISTOR FILM	OHMIC VALUE R1/R2	TOLERANCE	RATIO ³	OPTION
MSHR	See Table	S = Silicon	S = SiChrome	5-Digit Number: 1st 4 digits are significant with "R" as decimal point when required. 5th digit represents number of zeros.	B = ±0.1% D = ±0.5% F = ±1% G = ±2% J = ±5% K = ±10%	RB = ±0.05% RC = ±0.10% RE = ±0.25% RD = ±0.50% RN = No Ratio	F = ±100ppm/°C E = Aluminum Pads G = Gold Bond Pads GB = Gold Back TR = Tape & Reel

EXAMPLE: MIHR-3-SS-30003/40003F-RN-GB

MIHR-3 Series, Silicon, SiChrome, 3MΩ/4MΩ, ±1% Tol., No Ratio, Gold Backside

¹ Use for single resistors

^{2,3} Use for dual resistors



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8041 Rev. A

HIGH VALUE WIRE BONDABLE RESISTORS

HIGH VALUE WIRE BONDABLE CHIP RESISTORS

CASE SIZE	TYPE	DIMENSIONS			RESISTANCE RANGE ²	POWER RATING ¹	
		L (±0.003") [±0.076mm]	W (±0.003") [±0.076mm]	T (±0.003") [±0.076mm]		Quartz	Si
0101	101	0.012" [0.305]	0.009" [0.229]	0.006" [0.152]	301kΩ - 2MΩ	10mW	50mW
0201	21	0.020" [0.508]	0.010" [0.254]	0.006" [0.152]	451kΩ - 1.8MΩ	10mW	50mW
0202	1	0.015" [0.381]	0.015" [0.381]	0.010" [0.254]	1.1MΩ - 7MΩ	10mW	50mW
0202	122	0.020" [0.508]	0.016" [0.406]	0.010" [0.254]	1.1MΩ - 2MΩ	25mW	125mW
0202	2	0.020" [0.508]	0.020" [0.508]	0.010" [0.254]	1.7MΩ - 12MΩ	50mW	250mW
0302	32	0.030" [0.762]	0.020" [0.508]	0.010" [0.254]	2.1MΩ - 15MΩ	50mW	250mW
0303	33	0.030" [0.762]	0.030" [0.762]	0.010" [0.254]	4.1MΩ - 25MΩ	50mW	250mW
0402	110	0.037" [0.940]	0.017" [0.432]	0.010" [0.254]	3.1MΩ - 20MΩ	25mW	125mW
0404	35	0.035" [0.889]	0.035" [0.889]	0.010" [0.254]	6.6MΩ - 45MΩ	50mW	250mW
0404	4	0.040" [1.016]	0.040" [1.016]	0.010" [0.254]	11.1MΩ - 50MΩ	70mW	350mW
0502	53	0.045" [1.143]	0.030" [0.762]	0.010" [0.254]	6.6MΩ - 45MΩ	100mW	500mW
0502	115	0.050" [1.270]	0.025" [0.635]	0.010" [0.254]	6.6MΩ - 45MΩ	50mW	250mW
0505	112	0.050" [1.270]	0.050" [1.270]	0.010" [0.254]	14.1MΩ - 75MΩ	100mW	500mW
0603	63	0.060" [1.524]	0.030" [0.762]	0.010" [0.254]	11.1MΩ - 50MΩ	100mW	500mW
0606	6	0.060" [1.524]	0.060" [1.524]	0.010" [0.254]	40.1MΩ - 100MΩ	100mW	500mW
0805	85	0.075" [1.905]	0.050" [1.270]	0.010" [0.254]	40.1MΩ - 100MΩ	100mW	500mW

¹ Power Rating at 70°C derated linearly to 0% at 150°C

² Consult Engineering if higher valued resistors are required

DUAL HIGH VALUE WIRE BONDABLE CHIP RESISTORS

CASE SIZE	STYLE	LAYOUT	VALUES	DIMENSIONS			RESISTANCE RANGE ²	POWER RATING ¹ Per Resistor	
				L (±0.003") [±0.076mm]	W (±0.003") [±0.076mm]	T (±0.003") [±0.076mm]		Quartz	Si
0303	MDHR 3	Center Tapped	R1 ≤ R2	0.030" [0.762]	0.030" [0.762]	0.010" [0.254]	1.3MΩ - 15MΩ Per Res	25mW	125mW
0303	MIHR 3	Isolated	R1 ≤ R2	0.030" [0.762]	0.030" [0.762]	0.010" [0.254]	1.3MΩ - 15MΩ Per Res	25mW	125mW
0404	MDHR 4	Center Tapped	R1 ≤ R2	0.040" [1.016]	0.040" [1.016]	0.010" [0.254]	6.1MΩ - 25MΩ Per Res	25mW	125mW
0404	MIHR 4	Isolated	R1 ≤ R2	0.040" [1.016]	0.040" [1.016]	0.010" [0.254]	6.1MΩ - 25MΩ Per Res	25mW	125mW

¹ Power Rating at 70°C derated linearly to 0% at 150°C

² Consult Engineering if higher valued resistors are required

All MSHR, MSDR, MIHR Series parts are produced on the same manufacturing line using the same materials and processes as parts manufactured to MIL-PRF-55342