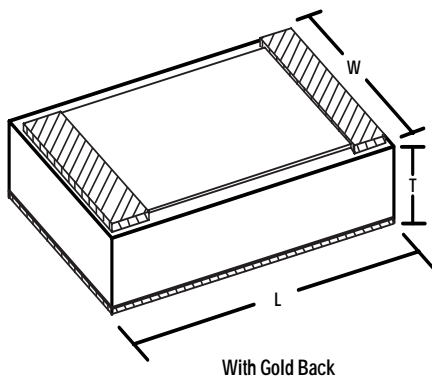
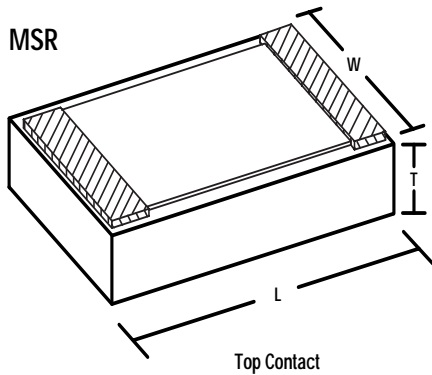


MSR SERIES RESISTORS

DESCRIPTION

Wire bondable or flip chip thick film resistors, printed and fired on 96% alumina with oversized top bonding pads, are offered in a variety of styles to fit a wide range of hybrid microelectronic applications. Advanced processing techniques, and HI-Rel construction assure optimum performance where TCR, VCR and operating power are critical factors. MSR styles have proven QPL reliability.



STYLE & TYPE	CASE SIZE	LENGTH		WIDTH		THICKNESS Max		VOLTAGE RATING	POWER RATING
		(in)	(mm)	(in)	(mm)	(in)	(mm)		
MSR 10	0303	0.035	0.889	0.035	0.889	0.013	0.330	44V	0.050W
MSR 20	0402	0.040	1.020	0.020	0.508	0.013	0.330	40V	0.040W
MSR 56	0403	0.045	1.140	0.030	0.762	0.017	0.432	80V	0.125W
MSR 81	0502	0.055	1.400	0.025	0.635	0.017	0.432	50V	0.100W
MSR 19	0504	0.050	1.270	0.040	1.020	0.017	0.432	68V	0.100W
MSR 82	0505	0.055	1.400	0.050	1.270	0.017	0.432	80V	0.125W
MSR 61	0604	0.060	1.520	0.040	1.020	0.022	0.559	65V	0.125W
MSR 86	0805	0.080	2.030	0.050	1.270	0.022	0.559	122V	0.200W
MSR 62	0805	0.085	2.160	0.050	1.270	0.022	0.559	122V	0.200W
MSR 5	1002	0.100	2.540	0.025	0.635	0.017	0.432	172V	0.100W
MSR 83	1005	0.105	2.670	0.050	1.270	0.022	0.559	177V	0.250W
MSR 90	1010	0.105	2.670	0.100	2.540	0.022	0.559	156V	0.500W
MSR 57	1206	0.120	3.050	0.060	1.520	0.022	0.559	200V	0.375W
MSR 87	1206	0.126	3.200	0.063	1.600	0.022	0.559	188V	0.250W
MSR 80	1505	0.155	3.940	0.050	1.270	0.022	0.559	302V	0.300W
MSR 88	2009	0.209	5.310	0.098	2.490	0.022	0.559	352V	0.800W
MSR 85	2307	0.230	5.840	0.072	1.830	0.022	0.559	380V	0.500W
MSR 17	2412	0.243	6.170	0.125	3.180	0.035	0.889	380V	2W
MSR 89	2512	0.259	6.580	0.124	3.150	0.035	0.889	476V	2W
MSR 30	4924	0.494	12.550	0.243	6.170	0.035	0.889	998V	4W
MSR 28	6632	0.666	16.920	0.326	8.280	0.035	0.889	1440V	8W
MSR 26	6645	0.666	16.920	0.495	12.570	0.035	0.889	1440V	8W

Power rating at 70°C derated linearly to 150°C. (P = E²/R)

Operating temperature range from -55°C to +150°C

ELECTRICAL PERFORMANCE CHARACTERISTICS

MIL-PRF-55342 TEST

MIL-PRF-55342 REQUIREMENT

MSI TYPICAL

Short Term Overload	±0.25%	±0.03%
High Temperature Exposure	±0.50%	±0.05%
Thermal Shock	±0.50%	±0.07%
Low Temperature Operation	±0.25%	±0.05%
Resistance to Bonding Exposure	±0.25%	±0.09%
Moisture Resistance	±0.50%	±0.06%
Stability (Life 70°C 1,000Hrs)	±0.50%	±0.04%
Stability (Life 70°C 10,000Hrs)	±2.00%	±0.07%



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MSR SERIES RESISTORS

AVAILABLE TCR'S* LISTED BY STYLE AND VALUE

STYLE & TYPE	RESISTANCE RANGE IN OHMS													
	0.1 to <1	1 to <5	5 to <10	10 to <25	25 to <50	50 to <50K	50K to <100K	100K to <1M	1M to <10M	10M to <100M	100M to <250M	250M to <500M	500M to <750M	750M to <1G
MSR 10	800	400	200	200	150	100	150	200	200	250	350	350	500	800
MSR 20	700	300	200	200	200	150	150	150	200	250	350	350	500	800
MSR 56	700	350	150	150	150	150	100	200	100	200	300	400	500	800
MSR 81	500	350	300	200	150	100	100	100	100	200	300	300	400	600
MSR 19	700	300	150	150	150	100	200	200	300	300	350	400	600	800
MSR 82	400	300	150	100	100	100	100	100	100	150	350	600	800	1000
MSR 61	800	400	200	200	200	100	100	200	200	300	300	400	500	800
MSR 86	400	200	200	150	150	100	100	100	100	100	300	300	400	600
MSR 62	800	200	200	200	150	150	150	150	200	200	300	300	400	700
MSR 5	1000	500	300	300	300	150	150	150	150	150	150	200	200	200
MSR 83	600	300	250	200	150	100	100	100	100	200	200	300	400	600
MSR 90	400	200	200	100	100	100	100	100	150	200	350	500	800	1000
MSR 57	600	250	250	250	200	150	150	150	150	200	250	300	300	400
MSR 87	400	200	100	100	100	100	100	100	100	150	200	300	500	600
MSR 80	600	400	300	200	150	100	100	100	100	100	200	300	400	500
MSR 88	400	200	100	100	100	100	100	100	100	150	300	300	500	600
MSR 85	600	400	350	350	200	100	100	100	100	100	200	300	400	500
MSR 17	600	200	200	200	200	150	100	100	150	200	250	300	500	600
MSR 89	400	200	100	100	100	100	100	100	100	150	300	300	500	600
MSR 30	800	400	300	200	200	200	200	200	200	300	300	300	400	500
MSR 28	1000	600	400	300	200	150	150	150	200	200	300	300	500	800
MSR 26	800	600	400	300	200	150	150	150	200	200	300	300	500	800

*Table indicates optimum TCR values, add 200 for standard values. Units in (±ppm/°C)

STANDARD TERMINATION MATERIALS

Untinned: Palladium Silver, Platinum Gold, Gold.
Solder Tinned: Palladium Silver, Platinum Gold, Gold.

PART NUMBER DESIGNATION

EXAMPLE: MSR81G-1001F-BUTR: Wire Bondable (0.055 x 0.025 x 0.017), Gold Term., 1KΩ, 1% Tol., Back Metal, Tape & Reel, Std. TCR

MSR	81	G	1001	F	B	U	TR
MSI STYLE	TYPE NUMBER	BASE METAL	Value	TOLERANCE	METAL OPTIONS	SOLDER	SPECIFY OPTION
MSR	See Above Table	PG = Platinum Gold PS = Palladium Silver G = Gold For Wire Bonding	**See Note	E = 0.5% F = 1% G = 2% J = 5% K = 10% M = 20% N = 30% Z = >30%	B = Back Metal Leave Blank for no metal	S60 = Sn60 S62 = Sn62 S63 = Sn63 S96 = Sn96 I50 = In50 I75 = In75 U = No Solder	X = Special Requirements Code Available from Sales Agent. TL10 = Trimless to 10% TL20 = Trimless to 20% TLXX = Trimless Special TR = Tape and Reel. P = Optimum TCR otherwise Std.

** RESISTANCE VALUE IDENTIFIER

Four digits (xxxx) with provisions for five digits (xxxxx) if necessary. The first three digits represent significant figures. The last digit represents the number of zeros to follow. When fractional values of an ohm are required, the letter "R" is used as a decimal point.



THICK FILM DIVISION

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