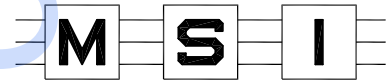


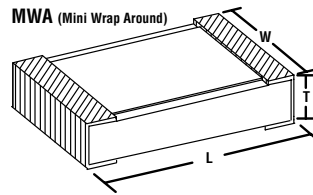
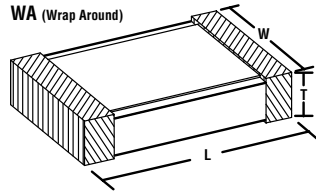
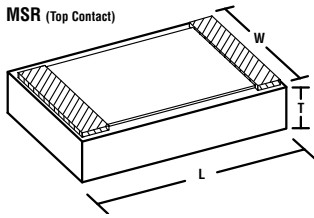
NOTES:

- 1. Power Rating 0.250 Watts
- 2. Voltage Rating 177 Volts

PDF Support

ALL DIMENSIONS ARE IN				MINI-SYSTEMS, INC.	
				North Attleboro, Ma	
INCHES	DWG. TITLE		Chip Resistor Style 83		
	SHEET TITLE		MSR Final Dimensions		
TOLERANCE +/-	CUSTOMER REF.				
0.0005	DRAWN R. CHARBONNEAU	DATE 3/6/98	DWG. NO. 5083	REV.	
UNLESS OTHERWISE NOTED	APPD. SHD	DATE 3/12/98	SHEET 3 OF 11	C	

# QPL Precision Resistors



## QPL PART NUMBER DESIGNATION

**EXAMPLE: M55342M01W10E0S**

*Per MIL-PRF-55342, TCR  $\pm 300$ ppm, 0502 case size, Top Contact, Gold base metal, 10K $\Omega$ , 1% tol., "S" Life Failure Rate*

### MIL-PRF-55342: M55342

D = For /07 series only  
 M = all other series  
 Military Spec. Indicating  
 MIL-PRF-55342

### Characteristic: M

K =  $\pm 100$ ppm  
 M =  $\pm 300$ ppm  
*70°C Max. ambient temperature  
 at rated wattage*

### QPL Size: 01

See Tables on pages 16 & 17

### Termination: W Material *Base Metal*

W = Gold *Top Contact*  
 T = Platinum Gold *Top Contact*  
 D = Palladium Silver *Top Contact*  
 B = Nickel Barrier,  
 Solder Coated *Wrap Around*  
 G = Nickel Barrier,  
 Gold Plated *Wrap Around*  
 C = Palladium Silver *Wrap Around*  
 U = Platinum Gold *Wrap Around*

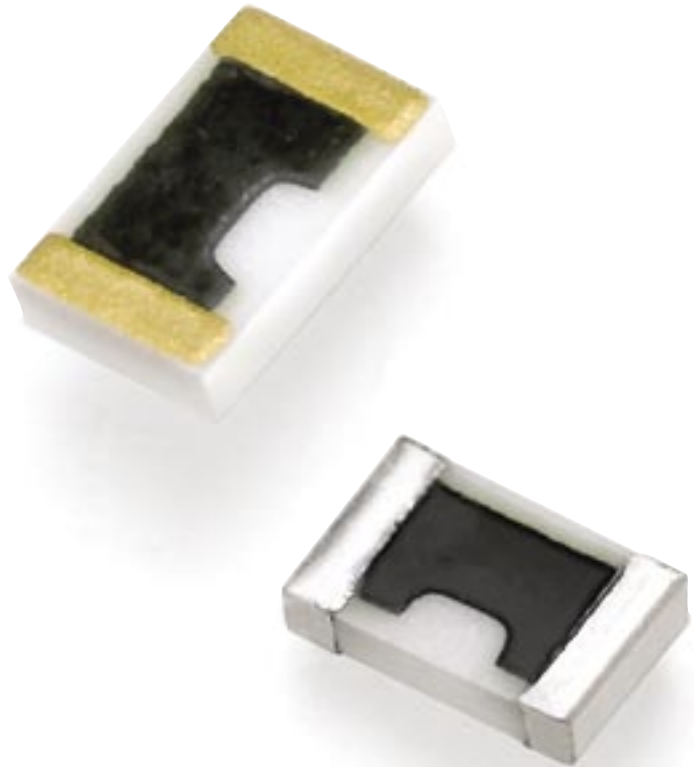
### Value and: 10E0 Tolerance

10K $\Omega$ , 1%  
*See pgs. 14 & 15 for tables III & IV  
 of MIL-PRF-55342*

### Life Failure: S Rate *Product Level*

C = Non-ER  
 M = 1.0% / 1000 Hrs.  
 P = 0.1% / 1000 Hrs.  
 R = 0.01% / 1000 Hrs.  
 S = 0.001% / 1000 Hrs.  
 T = Space Level

QPL thick film resistors are printed and fired on 96% Alumina. All case sizes are offered to fit a variety of Hi-Rel hybrid microelectronic applications. Advanced processing techniques and, Hi-Rel Construction assure optimum performance where TCR, VCR and operating power are critical factors. All styles meet and exceed the qualification requirements of MIL-PRF-55342



*Packaged in chip trays if not specified*

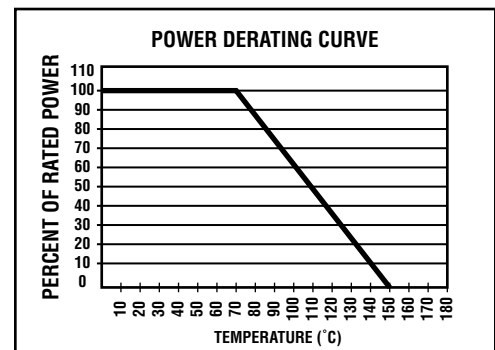
QPL SIZE	QPL STYLE Case Size	TERMINATION	CHAR.	RESISTANCE		TOLERANCE %	POWER (WATTS)	VOLTAGE (VOLTS DC)	MSI SIMILAR STYLE/TYPE
				MIN.	MAX.				
01	RM0502	W, T, D B, G, C, U	K, M	5.60 Ω	1 MΩ	1, 2, 5, 10	0.020	40	MSR81 WA81
02	RM0505	W, T, D B, G, C, U	K, M	5.60 Ω	1 MΩ	1, 2, 5, 10	0.050	40	MSR82 WA82
03	RM1005	W, T, D B, G, C, U	K, M	5.60 Ω	1 MΩ	1, 2, 5, 10	0.100	40	MSR83 WA83
04	RM1505	W, T, D B, G, C, U	K, M	5.60 Ω	4.75 MΩ	1, 2, 5, 10	0.150	40	MSR80 WA80
05	RM2208	W, T, D B, G, C, U	K, M	5.60 Ω	15 MΩ	1, 2, 5, 10	0.225	40	MSR85 WA85
06	RM0705	W, T, D B, G, C, U	K, M	5.60 Ω	1 MΩ	1, 2, 5, 10	0.100	50	MSR86 WA86
07	RM1206	W, T, D B, G, C, U	K, M	5.60 Ω	5.62 MΩ	1, 2, 5, 10	0.250	100	MSR92 WA87
08	RM2010	W, T, D B, C, U	K, M	5.60 Ω	15 MΩ	1, 2, 5, 10	0.800 <sup>1</sup>	150	MSR88 WA88
09	RM2512	W, T, D B, C, U	K, M	5.60 Ω	15 MΩ	1, 2, 5, 10	1.000 <sup>1</sup>	200	MSR89 WA89
10	RM1010	W, T, D B, G, C, U	K, M	5.60 Ω	5.62 MΩ	1, 2, 5, 10	0.500 <sup>1</sup>	75	MSR90 WA90
11	RM0402	W, D B, G, C, U	K, M	5.60 Ω	1 MΩ	1, 2, 5, 10	0.040	25	MSR20 WA20
12	RM0603	W, D B, G, C, U	K, M	5.60 Ω	1 MΩ	1, 2, 5, 10	0.070	50	MSR93 WA93
13	RM0302	W, D B, G, C, U	K, M	5.60 Ω	1 MΩ	1, 2, 5, 10	0.040	15	MSR98 MWA98

1. Mounted to a ceramic board.

## 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 / Soldering Heat	±0.25%	±0.09%
Moisture Resistance	±0.50%	±0.06%
Stability (Life 70°C 2,000Hrs)	±0.50%	±0.04%
Stability (Life 70°C 10,000Hrs)	±2.00%	±0.07%

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



Power rating at 70°C derated linearly to 0% power at 150°C.  
( $P = E^2/R$ )

MIL-PRF-55342

**TABLE III. Designator or resistance values for resistance tolerances**

Designator for 1 percent tolerance		Resistance Ohms		
Ohms	1D00 to 9D76 inclusive	1.00	to	9.76 inclusive
	10D0 to 97D6 inclusive	10.0	to	97.6 inclusive
	100D to 976D inclusive	100	to	976 inclusive
Kohms	1E00 to 9E76 inclusive	1,000	to	9,760 inclusive
	10E0 to 97E6 inclusive	10,000	to	97,600 inclusive
	100E to 976E inclusive	100,000	to	976,000 inclusive
Mohms	1F00 to 9F76 inclusive 10F0	1,000,000	to	9,760,000 inclusive 10,000,000
Designator for 2 percent tolerance		Resistance Ohms		
Ohms	1G00 to 9G10 inclusive	1.00	to	9.10 inclusive
	10G0 to 91G0 inclusive	10.0	to	91.0 inclusive
	100G to 910G inclusive	100	to	910 inclusive
Kohms	1H00 to 9H10 inclusive	1,000	to	9,100 inclusive
	10H0 to 91H0 inclusive	10,000	to	91,000 inclusive
	100H to 910H inclusive	100,000	to	910,000 inclusive
Mohms	1T00 to 9T10 inclusive 10T0	1,000,000	to	9,100,000 inclusive 10,000,000
Designator for 5 percent tolerance		Resistance Ohms		
Ohms	1J00 to 9J10 inclusive	1.00	to	9.10 inclusive
	10J0 to 91J0 inclusive	10.0	to	91.0 inclusive
	100J to 910J inclusive	100	to	910 inclusive
Kohms	1K00 to 9K10 inclusive	1,000	to	9,100 inclusive
	10K0 to 91K0 inclusive	10,000	to	91,000 inclusive
	100K to 910K inclusive	100,000	to	910,000 inclusive
Mohms	1L00 to 9L10 inclusive 10L0	1,000,000	to	9,100,000 inclusive 10,000,000
Designator for 10 percent tolerance		Resistance Ohms		
Ohms	1M00 to 8M20 inclusive	1.00	to	8.20 inclusive
	10M0 to 82M0 inclusive	10.0	to	82.0 inclusive
	100M to 820M inclusive	100	to	820 inclusive
Kohms	1N00 to 8N20 inclusive	1,000	to	8,200 inclusive
	10N0 to 82N0 inclusive	10,000	to	82,000 inclusive
	100N to 820N inclusive	100,000	to	820,000 inclusive
Mohms	1P00 to 8P20 inclusive 10P0	1,000,000	to	8,200,000 inclusive 10,000,000

## MIL-PRF-55342

**TABLE IV. Standard resistance values for the 10 to 100 decade**

1%	2% & 5%	10%	1%	2% & 5%	10%	1%	2% & 5%	10%
10.00	10.00	10.00	21.50			46.40		
10.20			22.10	22.00	22.00	47.50	47.00	47.00
10.50			22.60			48.70		
10.70			23.20			49.90		
11.00	11.00		23.70			51.10	51.00	51.00
11.30			24.30	24.00		52.30		
11.50			24.90			53.60		
11.80			25.50			54.90		
12.10	12.00	12.00	26.10			56.20	56.00	56.00
12.40			26.70			57.60		
12.70			27.40	27.00	27.00	59.00		
13.00	13.00		28.00			60.40		
13.30			28.70			61.90		
13.70			29.40			63.40	62.00	
14.00			30.10	30.00		64.90		
14.30			30.90			66.50		
14.70			31.60			68.10		
15.00	15.00	15.00	32.40			69.80	68.00	68.00
15.40			33.20	33.00	33.00	71.50		
15.80			34.00			73.20		
16.20	16.00		34.80			75.00	75.00	75.00
16.50			35.70			76.80		
16.90			36.50	36.00		78.70		
17.40			37.40			80.60		
17.80			38.30			82.50	82.00	82.00
18.20	18.00	18.00	39.20	39.00	39.00	84.50		
18.70			40.20			86.60		
19.10			41.20			88.70		
19.60			42.20			90.90		
20.00	20.00		43.20	43.00		93.10	91.00	
20.50			44.20			95.30		
21.00			45.30			97.60		