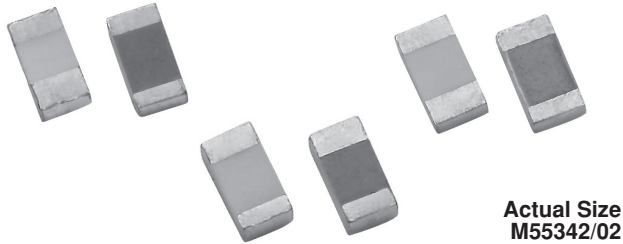


## QPL MIL-PRF-55342 Qualified Thin Film Resistor Chips



Actual Size  
M55342/02

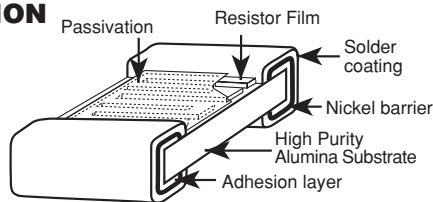
Thin Film Mil chip resistors feature all sputtered wraparound termination for excellent adhesion and dimensional uniformity. They are ideal in applications requiring stringent performance requirements. Established reliability is assured through 100 % screening and extensive environmental lot testing. Wafer is sawed producing exact dimensions and clean, straight edges.

**NOTE:** Specification changed by DSCC from MIL-R-55342 to MIL-PRF-55342.

### FEATURES

- Established reliability, "R" failure rate level
- High purity alumina substrate for high power
- Wraparound termination featuring a tenacious adhesion layer covered with an electroplated nickel barrier layer for + 150 °C operating conditions
- Very low noise and voltage coefficient
- Non-inductive
- Laser-trimmed tolerances to  $\pm 0.1\%$
- Wraparound resistance less than 0.010 ohms typical
- In-lot tracking less than 5 ppm/°C
- Complete MIL-testing available in-house
- Antistatic waffle pack or tape and reel packaging available

### CONSTRUCTION



### TYPICAL PERFORMANCE

	ABS
TCR	25
TOL	0.1

### STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS	CONDITIONS
<b>MATERIAL</b>	<b>TAMELOX®</b>	
<b>Absolute TCR:</b>	$\pm 25 \text{ ppm/}^\circ\text{C}$ to $\pm 100 \text{ ppm/}^\circ\text{C}$	- 55 °C to + 125 °C
<b>Absolute Tolerance:</b>	$\pm 0.1\%$	+ 25 °C
<b>Stability: <math>\Delta R</math> Absolute</b>	$\pm 0.1\%$	2000 hrs. at + 70 °C
<b>Voltage Coefficient</b>	$\pm 0.5 \text{ ppm/Volt}$	
<b>Operating Temperature Range</b>	- 55 °C to + 125 °C	
<b>Storage Temperature Range</b>	- 55 °C to + 150 °C	
<b>Noise</b>	- 25 dB	
<b>Shelf Life Stability</b>	100 ppm	1 year at + 25 °C

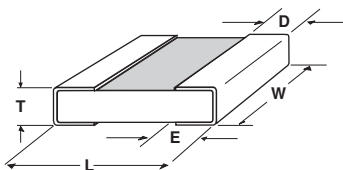
### DIMENSIONS

CASE SIZE	TERM.	L	W	T	D	E
M55342/01	B	0.050 $\pm$ 0.005	0.025 $\pm$ 0.005	0.010 to 0.030	0.010 $\pm$ 0.005	0.015 $\pm$ 0.005
M55342/02	B	0.055 $\pm$ 0.006	0.050 $\pm$ 0.005	0.012 to 0.033	0.010 $\pm$ 0.005	0.015 $\pm$ 0.005
M55342/03	B	0.105 $\pm$ 0.007	0.050 $\pm$ 0.005	0.015 to 0.033	0.015 $\pm$ 0.005	0.015 $\pm$ 0.005
M55342/04	B	0.155 $\pm$ 0.007	0.050 $\pm$ 0.005	0.015 to 0.033	0.015 $\pm$ 0.005	0.015 $\pm$ 0.005
M55342/05	B	0.230 $\pm$ 0.007	0.075 $\pm$ 0.005	0.015 to 0.033	0.020 $\pm$ 0.005	0.020 $\pm$ 0.005
M55342/06	B	0.080 $\pm$ 0.006	0.050 $\pm$ 0.005	0.015 to 0.033	0.016 $\pm$ 0.008	0.015 $\pm$ 0.005
D55342/07	B	0.126 $\pm$ 0.008	0.063 $\pm$ 0.005	0.015 to 0.033	0.020 + 0.005, - 0.010	0.020 + 0.005, - 0.010
M55342/08	B	0.209 $\pm$ 0.009	0.098 $\pm$ 0.005	0.015 to 0.033	0.020 $\pm$ 0.005	0.020 $\pm$ 0.005
M55342/09	B	0.259 $\pm$ 0.009	0.124 $\pm$ 0.005	0.015 to 0.033	0.020 $\pm$ 0.005	0.020 $\pm$ 0.005
M55342/10	B	0.105 $\pm$ 0.007	0.100 $\pm$ 0.005	0.015 to 0.033	0.015 $\pm$ 0.005	0.015 $\pm$ 0.005
M55342/11	B	0.040 $\pm$ 0.005	0.025 $\pm$ 0.005	0.010 to 0.030	0.010 $\pm$ 0.005	0.015 $\pm$ 0.005
M55342/12	B	0.064 $\pm$ 0.006	0.032 $\pm$ 0.005	0.010 to 0.033	0.012 $\pm$ 0.005	0.015 $\pm$ 0.005

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**DIMENSIONS** (Continued)



CASE SIZE	MAX. WORKING VOLTAGE	POWER RATING (mW)		RES. RANGE (ohms) BY CHARACTERISTICS TOLERANCE		
		CHARACTERISTIC		CHARACTERISTIC		
		E & H	K	E, H, K (0.1 %)	E (1 %, 2 %, 5 %, 10 %)	H, K (1 %, 2 %, 5 %, 10 %)
M55342/01	40	10	20	100 - 130K	59 - 130K	59 - 130K
M55342/02	40	25	50	100 - 301K	49.9 - 301K	20 - 301K
M55342/03	40	50	100	100 - 649K	49.9 - 649K	10 - 649K
M55342/04	40	100	150	100 - 1M	49.9 - 1M	10 - 1M
M55342/05	40	200	225	100 - 1.75M	49.9 - 1.75M	10 - 1.75M
M55342/06	50	50	100	100 - 475K	49.9 - 475K	10 - 475K
D55342/07	100	125	250	100 - 1M	49.9 - 1M	10 - 1M
M55342/08	150	400	800	100 - 2M	49.9 - 2M	10 - 2M
M55342/09	200	500	1000	100 - 3M	49.9 - 3M	10 - 3M
M55342/10	75	250	500	100 - 1M	49.9 - 1M	49.9 - 1M
M55342/11	25	40	40	100 - 71.5K	59 - 71.5K	59 - 71.5K
M55342/12	50	70	70	100 - 160K	49.9 - 160K	20 - 160K

ENVIRONMENTAL TESTS		
TEST	MIL-PRF-55342 LIMITS ( $\Delta R \pm$ )	VISHAY PERFORMANCE ( $\Delta R \pm$ )
Thermal Shock	0.1 %	0.020 %
Low Temperature Operation	0.1 %	0.025 %
Short Time Overload	0.1 %	0.050 %
High Temperature Exposure	0.1 %	0.009 %
Resistance to Bonding	0.2 %	0.006 %
Moisture Resistance	0.2 %	0.004 %
TCR	$\pm 25$ ppm/ $^{\circ}$ C	$< 15$ ppm/ $^{\circ}$ C
Life (2000 hrs at +70 $^{\circ}$ C)	0.5 %	0.0184 %
Life (10000 hrs at +70 $^{\circ}$ C)	2.0 %	0.04 %

MECHANICAL SPECIFICATIONS	
Resistive Element	Tamelox <sup>®</sup>
Substrate Material	Alumina
Chip Terminations	Gold Over Nickel
Plating	SN 60/40

**FSCM CAGE # - 57489**

**How to Order**

Series	TCR Characteristics	Case Size	Termination	Value and Tolerance	Failure Rate
M55342 or D55342/07	E = $\pm 25$ ppm/ $^{\circ}$ C $\geq 49.9$ ohms  H = $\pm 50$ ppm/ $^{\circ}$ C  K = $\pm 100$ ppm/ $^{\circ}$ C	01 02 03 04 05 06 07 08 09 10 11 12	B = Solderable wraparound (nickel barrier)	Three digits and a letter. Letter identifies tolerance, acts as multiplier and decimal locator.  Tolerance 0.1 %, 1 %, 2 %, 5 %, 10 %, Multiplier (X1 $\Omega$ ) <b>A D G J M</b> (X1K $\Omega$ ) <b>B E H K N</b> (X1M $\Omega$ ) <b>C F T L P</b>	M = 1.0 % per 1000 hrs.  P = 0.1 % per 1000 hrs.  R = 0.01 % per 1000 hrs.  C = Non ER

**Example:**

**M55342K06B5E60R** calls out QPL nickel barrier solderable wraparound termination chip resistor, 0705 size, 5600 ohms  $\pm 1.0$  %,  $\pm 100$  ppm/ $^{\circ}$ C TCR and "R" failure rate of 0.01 % per 1000 hours. Consult factory for other sizes.

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**SURFACE MOUNT CHIPS**



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