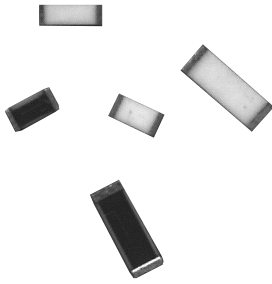


## QPL MIL-PRF-55342 Qualified Thin Film Resistor Chips

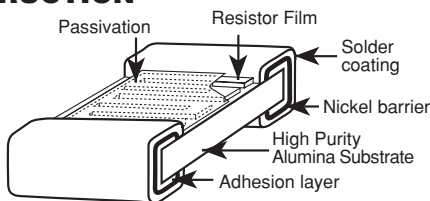


Actual Size  
M55342/02

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.

### CONSTRUCTION



### 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 5ppm/°C
- Complete MIL-testing available in-house
- Antistatic waffle pack or tape and reel packaging available

### TYPICAL PERFORMANCE

	ABS
TCR	25
TOL	0.1

### STANDARD ELECTRICAL SPECIFICATIONS

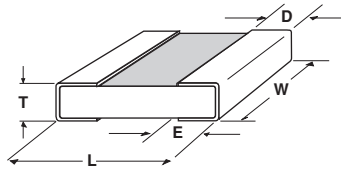
TEST	SPECIFICATIONS	CONDITIONS
MATERIAL	TAMELOX <sup>®</sup>	
Absolute TCR:	$\pm 25\text{ppm}/^\circ\text{C}$ to $\pm 100\text{ppm}/^\circ\text{C}$	- 55°C to + 125°C
Absolute Tolerance:	$\pm 0.1\%$	+ 25°C
Stability: $\Delta R$ Absolute	$\pm 0.1\%$	2000 hrs. @ + 70°C
Voltage Coefficient	$\pm 0.5\text{ppm}/\text{Volt}$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

### DIMENSIONS

CASE SIZE	TERM.	L	W	T	D	E
M55342/02	B	0.055 $\pm$ 0.006	0.050 $\pm$ 0.05	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
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
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
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
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



**DIMENSIONS** (Continued)



CASE SIZE	MAX. WORKING	POWER RATE (mW)	RESISTANCE RANGE (ohms)	
			(0.1%)	(1%, 2%, 5%, 10%)
M55342/02	40	25	100 – 301K	20 – 301K
M55342/03	40	50	100 – 649K	10 – 649K
M55342/04	40	100	100 – 1M	10 – 1M
M55342/05	150	200	100 – 1.75M	10 – 1.75M
M55342/06	50	50	100 – 475K	10 – 475K
D55342/07	100	125	100 – 1M	10 – 1M
M55342/08	175	400	100 – 2M	10 – 2M
M55342/09	200	500	100 – 3M	10 – 3M
M55342/10	100	250	100 – 1M	50 – 1M
M55342/12	50	70	100 – 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 @ +70 $^{\circ}$ C)	0.5%	0.0184%
Life (10,000 hrs @ +70 $^{\circ}$ C)	2.0%	0.04%

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

**FSCM CAGE # - 57489**

**How to Order**

Series	TCR Characteristic	Case Size	Termination	Value and Tolerance	Failure Rate
M55342 or D55342/07	E = $\pm 25$ ppm/ $^{\circ}$ C $\geq 100$ ohms H = $\pm 50$ ppm/ $^{\circ}$ C K = $\pm 100$ ppm/ $^{\circ}$ C	02 03 04 05 06 07 08 09 10 12	B = Solderable wraparound (nickel barrier)	Three digits and a letter. Letter identifies tolerance, acts as multiplier and decimal locator. per 1000 hrs. Tolerance 0.1% 1% 2% 5% 10% Multiplier (X1 $\Omega$ ) A D G J M (X1K $\Omega$ ) B E H K N (X1M $\Omega$ ) C F T L P	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 or 0.01% per 1,000 hours. Consult factory for other sizes.

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SURFACE MOUNT CHIPS