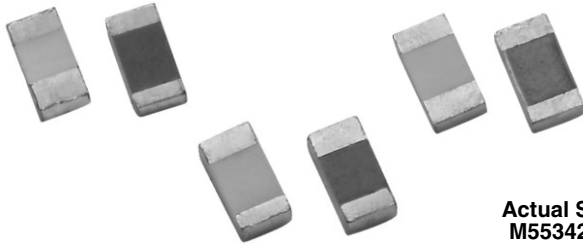


QPL MIL-PRF-55342 Qualified Thin Film Resistor Chips



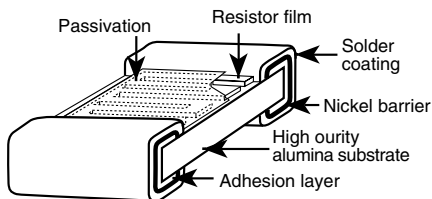
Actual Size
M55342/02

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 (100 ppm), C = 2
- High purity alumina substrate 99.6 % purity
- 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 (< - 25 dB, 0.5 ppm/V)
- Non-inductive
- Laser-trimmed tolerances ± 0.1 %
- Wraparound resistance less than 0.010Ω typical
- In-lot tracking less than 5 ppm/°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

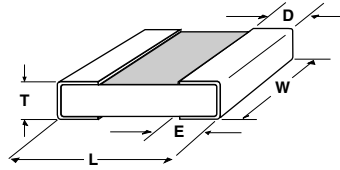
Test	SPECIFICATIONS	CONDITIONS
Material	Passivated Nichrome	
Absolute TCR	$\pm 25 \text{ ppm}/^\circ\text{C}$ to $\pm 100 \text{ ppm}/^\circ\text{C}$	- 55 °C to + 125 °C
Absolute Tolerance	± 0.1 %	+ 25 °C
Stability: ΔR Absolute	± 0.1 %	2000 h at + 70 °C
Voltage Coefficient	$\pm 0.5 \text{ ppm}/\text{V}$	
Operating Temperature Range	- 55 °C to + 125 °C	
Storage Temperature Range	- 55 °C to + 150 °C	
Noise	- 25 dB	
Shelf Life Stability	100 ppm	1 year at + 25 °C

DIMENSIONS

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



DIMENSIONS (continued)



CASE SIZE	MAX. WORKING VOLTAGE	POWER RATING (mW)	RES. RANGE (Ω) BY CHARACTERISTICS TOLERANCE		
			CHARACTERISTIC		
			E, H, K, M	E, H, K, M (0.1 %)	E (1 %, 2 %, 5 %, 10 %)
M55342/01	40	50	100 - 130K	59 - 130K	59 - 130K
M55342/02	40	125	100 - 301K	49.9 - 301K	20 - 301K
M55342/03	75	200	100 - 649K	49.9 - 649K	10 - 649K
M55342/04	125	150	100 - 1M	49.9 - 1M	10 - 1M
M55342/05	175	225	100 - 1.75M	49.9 - 1.75M	10 - 1.75M
M55342/06	50	150	100 - 475K	49.9 - 475K	10 - 475K
D55342/07	100	250	100 - 1M	49.9 - 1M	10 - 1M
M55342/08	150	800	100 - 2M	49.9 - 2M	10 - 2M
M55342/09	200	1000	100 - 3M	49.9 - 3M	10 - 3M
M55342/10	75	500	100 - 1M	49.9 - 1M	49.9 - 1M
M55342/11	30	50	100 - 71.5K	59 - 71.5K	59 - 71.5K
M55342/12	50	100	100 - 160K	49.9 - 160K	20 - 160K

ENVIRONMENTAL TESTS		
TEST	MIL-PRF-55342 LIMITS	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	± 25 ppm/ $^{\circ}$ C	< 15 ppm/ $^{\circ}$ C
Life (2000 h at + 70 $^{\circ}$ C)	0.5 %	0.0184 %
Life (10 000 h at + 70 $^{\circ}$ C)	2.0 %	0.04 %

MECHANICAL SPECIFICATIONS	
Resistive Element	Tamelox
Substrate Material	Alumina
Chip Terminations	Solder over Nickel
Fused Solder	SN 60/40

FSCM CAGE # - 57489

GLOBAL PART NUMBER INFORMATION							
New Global Part Numbering: M55342E06B1C00RTS V (preferred part number format)							
GLOBAL MODEL	TCR CHARACTERISTIC	CASE SIZE	TERMINATION	OHMIC VALUE	FAILURE RATE	PACKAGING	THIN FILM CODE (1)
M55342 or D55342 (/07 size only)	E = 25 ppm/ $^{\circ}$ C > 100 Ω H = 50 ppm/ $^{\circ}$ C K = 100 ppm/ $^{\circ}$ C M = 300 ppm/ $^{\circ}$ C	01 = 0502 02 = 0505 03 = 1005 04 = 1505 05 = 2208 06 = 0705 07 = 1206 08 = 2010 09 = 2512 10 = 1010 11 = 0402 12 = 0603	B = solderable	Three digits and a letter. Letter identifies tolerance, acts as multiplier and decimal locator. Tolerance Multiplier 0.1 % A B C 1 % D E F 2 % G H T 5 % J K L 10 % M N P	M = 1.0 % per 1000 h P = 0.1 % per 1000 h R = 0.01 % per 1000 h C = non ER version	BS = BULK 100 Min 1 Mult WS = WAFFLE 100 Min 1 Mult TAPE AND REEL T0 = 100 Min 100 Mult T1 = 1000 Min 1000 Mult T3 = 300 Min 300 Mult T5 = 500 Min 500 Mult TF = Full Reel TS = 100 Min 1 Mult	V for K and M TCR W/tolerance ≥ 1 %
Historical Part Number example:							
M55342	K	06	B	5E60	R		
SERIES	TCR CHARACTERISTIC	CASE SIZE	TERMINATION	VALUE AND TOLERANCE	FAILURE RATE		

Note

(1) Only add a V at the end of part number to specify Vishay Thin Film for K/M TCR and tolerance 1 % and higher

SURFACE MOUNT CHIPS



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