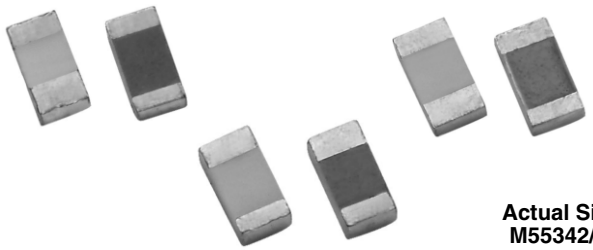
SURFACE MOUNT CHIPS

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.

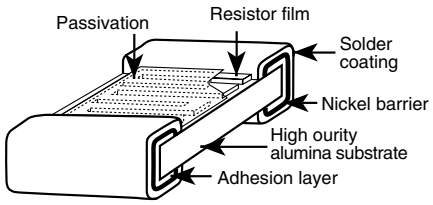
Note

- Specification changed by DSCC from MIL-R-55342 to MIL-PRF-55342

FEATURES

- Established reliability, "R" failure rate level (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 0.010 Ω typical
- In-lot tracking less than 5 ppm/°C
- Complete MIL-testing available in-house
- Antistatic waffle pack or tape and reel packaging available
- Military/aerospace/QPL

CONSTRUCTION



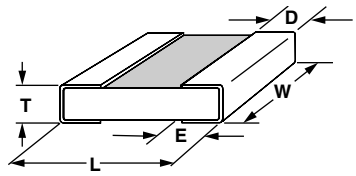
TYPICAL PERFORMANCE

■	ABS
TCR	25
TOL	0.1

STANDARD ELECTRICAL SPECIFICATIONS

Test	SPECIFICATIONS	CONDITIONS
Material	Passivated nichrome	
Absolute TCR	± 25 ppm/°C to ± 300 ppm/°C TCR	- 55 °C to + 125 °C
Absolute Tolerance	± 0.1 %	+ 25 °C
Stability: ΔR Absolute	± 0.1 %	2000 h at + 70 °C
Voltage Coefficient	± 0.5 ppm/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	0.055 ± 0.006	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/- 0.018	0.098 ± 0.005	0.015 to 0.033	0.020 ± 0.005	0.020 ± 0.005
M55342/09	B	0.259 + 0.009/- 0.015	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

CASE SIZE	MAX. WORKING VOLTAGE	POWER RATING (mW)	RESISTANCE RANGE (Ω) BY CHARACTERISTICS TOLERANCE			
			E (0.1 %)	E (1 %, 2 %, 5 %)	H, K, M (0.1 %)	H, K, M (1 %, 2 %, 5 %)
M55342/01	40	50	49.9 to 150K	49.9 to 150K	20 to 150K	20 to 150K
M55342/02	40	125	49.9 to 301K	49.9 to 301K	20 to 301K	20 to 301K
M55342/03	75	200	49.9 to 649K	49.9 to 649K	10 to 649K	10 to 649K
M55342/04	125	150	49.9 to 1.69M	49.9 to 1.69M	10 to 1.69M	10 to 1.69M
M55342/05	175	225	49.9 to 3.16M	49.9 to 3.16M	10 to 3.16M	10 to 3.16M
M55342/06	50	150	49.9 to 475K	49.9 to 475K	10 to 475K	10 to 475K
D55342/07	100	250	49.9 to 1.5M	49.9 to 1.5M	10 to 1.5M	10 to 1.5M
M55342/08	150	800	49.9 to 4.02M	49.9 to 4.02M	10 to 4.02M	10 to 4.02M
M55342/09	200	1000	49.9 to 6.19M	49.9 to 6.19M	10 to 6.19M	10 to 6.19M
M55342/10	75	500	49.9 to 1M	49.9 to 1M	49.9 to 1M	49.9 to 1M
M55342/11	30	50	49.9 to 100K	49.9 to 100K	20 to 100K	20 to 100K
M55342/12	50	100	49.9 to 258K	49.9 to 261K	10 to 258K	10 to 261K

Note

- Values listed are a guide, refer to mil spec for value/tolerance allowance

SURFACE MOUNT CHIPS

ENVIRONMENTAL TESTS

TEST	MIL-PRF-55342 LIMITS (ΔR ±)	VISHAY PERFORMANCE (ΔR ±)
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/°C	< 15 ppm/°C
Life (2000 h at + 70 °C)	0.5 %	0.0184 %
Life (10 000 h at + 70 °C)	2.0 %	0.04 %

MECHANICAL SPECIFICATIONS

Resistive Element	Passivated nichrome
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 (preferred part number format)

M	5	5	3	4	2	E	0	6	B	1	C	0	0	R	T	S	V

GLOBAL MODEL

M55342 or **D55342** (/07 size only)

TCR CHARACTERISTIC

E = 25 ppm/°C
H = 50 ppm/°C
K = 100 ppm/°C
M = 300 ppm/°C

CASE SIZE

01 = 0502
02 = 0505
03 = 1005
04 = 1505
05 = 2208
06 = 0705
07 = 1206
08 = 2010
09 = 2512
10 = 1010
11 = 0402
12 = 0603

TERMINATION

B = Solderable

OHMIC VALUE

Three digits and a letter. Letter identifies tolerance, acts as multiplier and decimal locator.

Tolerance	MULTIPLIER 1 Ω	1 kΩ	1 MΩ
0.1 %	A	B	C
1 %	D	E	F
2 %	G	H	T
5 %	J	K	L
10 %	M	N	P

FAILURE RATE

M = 1.0 % per 1000 h
P = 0.1 % per 1000 h
R = 0.01 % per 1000 h
C = Non ER version

PACKAGING

Standard Packaging:
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 4000
TS = 100 min. 1 mult

Special Packaging:
WAFFLE
WI = 100 min. 1 mult (item single lot date code)
WP =100 min. 1 mult (package unit single lot date code)
TAPE AND REEL
TI = 100 min. 1 mult (item single lot date code)
TP = 100 min. 1 mult (package unit single lot date code)

THIN FILM CODE (1)

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

Disclaimer

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