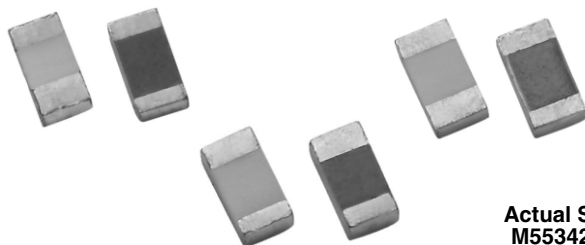


## QPL MIL-PRF-55342 Qualified Thin Film Resistor Chips

SURFACE MOUNT CHIPS

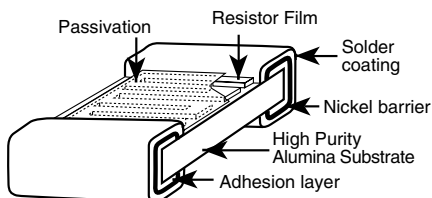


Actual Size  
M55342/02

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 ( $\pm 25$  ppm/ $^{\circ}$ C, 0.1 ppm/ $^{\circ}$ C)
- Wraparound termination featuring a tenacious adhesion layer covered with an electroplated nickel barrier layer for + 150  $^{\circ}$ C operating conditions
- Very low noise and voltage coefficient ( $\pm 25$  ppm/ $^{\circ}$ C, 0.1 ppm/ $^{\circ}$ C)
- Non-inductive
- Laser-trimmed tolerances  $\pm 0.1$  %
- Wraparound resistance less than 0.010 ohms typical
- In-lot tracking less than 5 ppm/ $^{\circ}$ 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                              |
|--------------------------------|---|---|
| <b>MATERIAL</b>                | <b>TAMELOX</b>  |   |
| Absolute TCR                   | $\pm 25$ ppm/ $^{\circ}$ C to $\pm 100$ ppm/ $^{\circ}$ C | - 55 $^{\circ}$ C to + 125 $^{\circ}$ C |
| Absolute Tolerance             | $\pm 0.1$ %   | + 25 $^{\circ}$ C                       |
| Stability: $\Delta R$ Absolute | $\pm 0.1$ %   | 2000 hrs. at + 70 $^{\circ}$ C          |
| Voltage Coefficient            | $\pm 0.5$ ppm/Volt  |   |
| Operating Temperature Range    | - 55 $^{\circ}$ C to + 125 $^{\circ}$ C                   |   |
| Storage Temperature Range      | - 55 $^{\circ}$ C to + 150 $^{\circ}$ C                   |   |
| Noise                          | - 25 dB   |   |
| Shelf Life Stability           | 100 ppm   | 1 year at + 25 $^{\circ}$ C             |

### DIMENSIONS

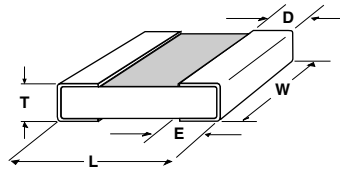
| CASE SIZE | TERM. | L                 | W                 | T              | D                          | E                          |
|-----------|-------|-------------------|-------------------|----------------|----------------------------|----------------------------|
| M55342/01 | B     | 0.050 $\pm$ 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          |
| M55342/07 | B     | 0.126 $\pm$ 0.008 | 0.063 $\pm$ 0.005 | 0.015 to 0.033 | 0.020 $\pm$ 0.005, - 0.010 | 0.020 $\pm$ 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          |



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

Vishay Thin Film

## DIMENSIONS (continued)



| CASE SIZE | MAX. WORKING VOLTAGE | POWER RATING (mW) |      | RES. RANGE ( $\Omega$ ) 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                  |
| M55342/07 | 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 (10 000 hrs at + 70 $^{\circ}$ C) | 2.0 %                                   | 0.04 %                                |

## MECHANICAL SPECIFICATIONS

|                    |                  |
|--------------------|------------------|
| Resistive Element  | Tamelox          |
| Substrate Material | Alumina          |
| Chip Terminations  | Gold over Nickel |
| Plating            | 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 |
| GLOBAL<br>MODEL                                       | TCR<br>CHARACTERISTIC   |   | CASE<br>SIZE   |   | TERMINATION    |   | OHMIC<br>VALUE   |   |   | FAILURE<br>RATE  |   | PACKAGING   |   |   |   |   |
| M55342<br><br>or<br><br>D55342<br>(/ 07 size<br>only) | E = 25 ppm/°C<br>> 100 Ω<br><br>H = 50 ppm/°C<br><br>K = 100 ppm/°C |   | 01 = 0502<br>02 = 0505<br>03 = 1005<br>04 = 1505<br>05 = 2208<br>06 = 0705<br>07 = 1206<br>08 = 2010<br>09 = 2512<br>10 = 1010<br>11 = 0402<br>12 = 0603 |   | B = solderable |   | Three digits and a letter. Letter<br>identifies tolerance, acts as<br>multiplier and decimal locator.<br><br>Multiplier<br>Tolerance    1 Ω    1 kΩ    1 MΩ<br>0.1 %    A        B        C<br>1 %        D        E        F<br>2 %        G        H        T<br>5 %        J        K        L<br>10 %        M        N        P |   |   | M = 1.0 %<br>per 1000 hrs.<br>P = 0.1 %<br>per 1000 hrs.<br>R = 0.01 %<br>per 1000 hrs.<br>C = non ER<br>version |   | BS = BULK<br>100 Min 1 Mult<br>WS = WAFFLE<br>100 Min 1 Mult<br>TAPE AND REEL<br>T0 = 100 Min 100 Mult<br>T1 = 1000 Min 1000 Mult<br>T3 = 300 Min 300 Mult<br>T5 = 500 Min 500 Mult<br>TF = Full Reel 2500<br>TS = 100 Min 1 Mult |   |   |   |   |

Historical Part Number example: M55342K06B5E60R (will continue to be accepted)

|        |                    |           |             |                     |              |
|--------|--------------------|-----------|-------------|---------------------|--------------|
| M55342 | K                  | 06        | B           | 5E60                | R            |
| SERIES | TCR CHARACTERISTIC | CASE SIZE | TERMINATION | VALUE AND TOLERANCE | FAILURE RATE |



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