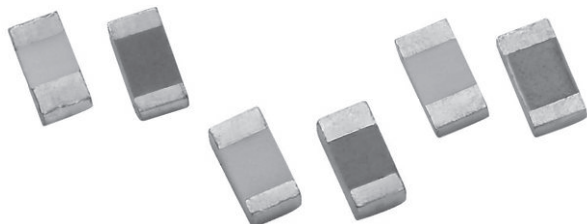


QPL MIL-PRF-55342 Qualified Thin Film Resistor, Surface-Mount Chip

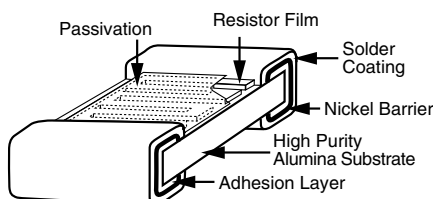


ADDITIONAL RESOURCES



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.

CONSTRUCTION



FEATURES

- Established reliability, “S” and “V” failure rate level (10 ppm), C = 2
- High purity alumina substrate
- 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

TYPICAL PERFORMANCE

| | ABSOLUTE |
|------|----------|
| TCR | 25 |
| TOL. | 0.1 |

STANDARD ELECTRICAL SPECIFICATIONS

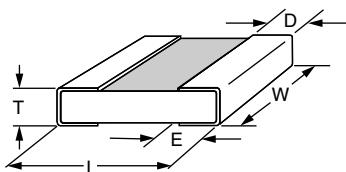
| TEST | SPECIFICATIONS | CONDITIONS |
|--------------------------------|---|-------------------|
| Material | Tamelox resistor film (passivated nichrome) | - |
| Resistance Range | 10 Ω to 6.19 M Ω | - |
| TCR: Absolute | ± 25 ppm/°C to ± 300 ppm/°C | -55 °C to +125 °C |
| Tolerance: Absolute | ± 0.1 % to ± 10 % | +25 °C |
| Stability: Absolute | $\Delta R \pm 0.02$ % | 2000 h at +70 °C |
| Stability: Ratio | - | - |
| Voltage Coefficient | 0.1 ppm/V | - |
| Working Voltage | 30 V to 200 V | - |
| Operating Temperature Range | -55 °C to +150 °C | - |
| Storage Temperature Range | -55 °C to +150 °C | - |
| Noise | < - 25 dB | - |
| Shelf Life Stability: Absolute | $\Delta R \pm 0.01$ % | 1 year at +25 °C |

**COMPONENT RATINGS**

| CASE SIZE | POWER RATING (mW) | WORKING VOLTAGE (V) | RESISTANCE RANGE (Ω) BY CHARACTERISTICS TOLERANCE | | | |
|-----------|-------------------|---------------------|--|----------------------|--------------------------------------|-------------------------------|
| | | | E (0.1 %, 0.25 %, 0.5 %) | E (1 %, 2 %, 5 %) | H, K, L, M (0.1 %, 0.25 %, 0.5 %) | H, K, L, M (1 %, 2 %, 5 %) |
| M55342/01 | 50 | 40 | 49.9 to 150K | 49.9 to 150K | 20 to 150K | 20 to 150K |
| M55342/02 | 125 | 40 | 49.9 to 301K | 49.9 to 301K | 20 to 301K | 20 to 301K |
| M55342/03 | 200 | 75 | 49.9 to 649K | 49.9 to 649K | 10 to 649K | 10 to 649K |
| M55342/04 | 150 | 125 | 49.9 to 1.69M | 49.9 to 1.69M | 10 to 1.69M | 10 to 1.69M |
| M55342/05 | 225 | 175 | 49.9 to 3.16M | 49.9 to 3.16M | 10 to 3.16M | 10 to 3.16M |
| M55342/06 | 150 | 50 | 49.9 to 475K | 49.9 to 475K | 10 to 475K | 10 to 475K |
| D55342/07 | 250 | 100 | 49.9 to 1.5M | 49.9 to 1.5M | 10 to 1.5M | 10 to 1.5M |
| M55342/08 | 800 | 150 | 49.9 to 4.02M | 49.9 to 4.02M | 10 to 4.02M | 10 to 4.02M |
| M55342/09 | 1000 | 200 | 49.9 to 6.19M | 49.9 to 6.19M | 10 to 6.19M | 10 to 6.19M |
| M55342/10 | 500 | 75 | 49.9 to 1M | 49.9 to 1M | 49.9 to 1M | 49.9 to 1M |
| M55342/11 | 50 | 30 | 49.9 to 100K | 49.9 to 100K | 20 to 100K | 20 to 100K |
| M55342/12 | 100 | 50 | 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

DIMENSIONS in inches

| CASE SIZE | TERM. | L | W | T | D | E |
|-----------|-------|-------------------------|---------------|----------------|-------------------------|-------------------------|
| M55342/01 | B | 0.055 ± 0.006 | 0.025 ± 0.005 | 0.010 to 0.033 | 0.010 ± 0.005 | 0.015 ± 0.005 |
| M55342/02 | B | 0.055 ± 0.006 | 0.050 ± 0.005 | 0.010 to 0.033 | 0.010 ± 0.005 | 0.015 ± 0.005 |
| M55342/03 | B | 0.105 ± 0.007 | 0.050 ± 0.005 | 0.010 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 | 0.010 to 0.033 | 0.020 ± 0.005 | 0.020 ± 0.005 |
| M55342/06 | B | 0.080 ± 0.006 | 0.050 ± 0.005 | 0.010 to 0.033 | 0.016 ± 0.008 | 0.015 ± 0.005 |
| D55342/07 | B | 0.126 ± 0.008 | 0.063 ± 0.005 | 0.010 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 | 0.010 to 0.033 | 0.020 ± 0.005 | 0.020 ± 0.005 |
| M55342/09 | B | 0.259 ± 0.009 / - 0.015 | 0.124 ± 0.005 | 0.010 to 0.033 | 0.020 ± 0.005 | 0.020 ± 0.005 |
| M55342/10 | B | 0.105 ± 0.007 | 0.100 ± 0.005 | 0.010 to 0.033 | 0.015 ± 0.005 | 0.015 ± 0.005 |
| M55342/11 | B | 0.040 ± 0.005 | 0.022 ± 0.005 | 0.010 to 0.033 | 0.010 ± 0.005 | 0.010 ± 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 |

ENVIRONMENTAL TESTS

| ENVIRONMENTAL 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 | ± 25 ppm/°C | < 15 ppm/°C |
| Life (2000 h at + 70 °C) | 0.5 % | 0.02 % |
| Life (10 000 h at + 70 °C) | 2.0 % | 0.04 % |

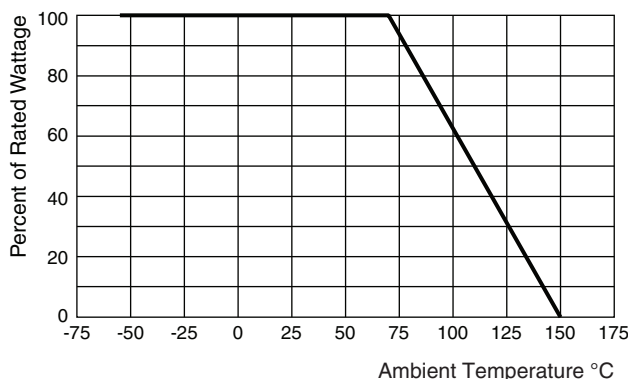
MECHANICAL SPECIFICATIONS

| | |
|--------------------|-------------------------|
| Resistive Element | TameloX |
| Substrate Material | Alumina |
| Chip Terminations | Solder over nickel |
| Fused Solder | Tin / lead solder alloy |

FSCM CAGE # - 57489



DERATING



GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: M55342E06B1C00RTS

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

| 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/°C H = 50 ppm/°C K = 100 ppm/°C L = 200 ppm/°C M = 300 ppm/°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. MULTIPLIER Tolerance 1 Ω 1 kΩ 1 MΩ 0.1 % A B C 0.25 % R U V 0.5 % W Y Z 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 U = 0.01 % per 1000 h ⁽³⁾ S = 0.001 % per 1000 h V = 0.001 % per 1000 h ⁽³⁾ C = non ER version | Standard Packaging: BS = BULK 100 min., 1 mult. WS = WAFFLE 100 min., 1 mult. W0 = WAFFLE 100 min., 100 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 (2K, 4K, or 5K dependent on case size) per tape and reel document 60034 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) | V for K, L and M TCR W/tolerance ≥ 1 % M = part marked ⁽²⁾ |

Historical Part Number example: M55342K06B5E60R (for reference purposes only)

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

Notes

- For M/D55342 T-level failure rate options please see VTF E/H (T-level) datasheet: www.vishay.com/ppg?60060
- ⁽¹⁾ Only add a V at the end of part number to specify Vishay Dale Thin Film for K, L and M TCR and tolerance 1 % and higher
- ⁽²⁾ Option 1 marking only. Case sizes 01, 02, 11, and 12 not available due to size
- ⁽³⁾ Failure rate U and V require group A and B testing on a production lot basis



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Vishay:

[CMF7068K100FKEK](#)