



THIN FILM SURFACE-MOUNT CHIP RESISTOR

E/H (T-Level M/D55342)



“T” ESTABLISHED RELIABILITY LEVEL FOR MIL-PRF-55342 QPL THIN FILM CHIP RESISTORS

QPL MIL-PRF-55342 Qualified Thin Film Resistor Surface-Mount Chip, Now to “T” Level Reliability

KEY BENEFITS

- QPL approved for “T” level high-reliability space applications for characteristics E, H, K, M
- The product now receives a burn-in prior to shipment
- Materials are approved for space outgassing limits
- Verification to American Society for Testing and Materials (ASTM E-595) Standard Test Method for Total Mass Loss (TML) and Collected Volatile Condensable Materials (CVCM) from Outgassing in a Vacuum Environment

APPLICATIONS

- Aircraft
- Avionics
- Satellites
- Space communications systems
- Missile systems
- Weaponry and other combat equipment
- Space exploration



QPL MIL-PRF-55342 Qualified Thin Film Resistor Surface-Mount Chip Now to "T" Level Reliability

FEATURES

- T-level (space) qualified
- Passes outgassing requirements of ASTM-E595
- TCR to ± 25 ppm/ $^{\circ}$ C
- Tolerances to ± 0.1 %
- 100 % power conditioning



Thin Film MIL-PRF-55342 established reliability "T" level chip resistors feature a thin film resistor element and with all sputtered wraparound terminations that provide excellent adhesion and dimensional uniformity. They are ideal in applications requiring stringent performance requirements. Established reliability is assured through 100 % screening and extensive environmental testing for every lot that includes complete 100 % group A, power conditioning and group B lot testing performed for T-level product assurance.

TYPICAL PERFORMANCE

	ABSOLUTE
TCR	25
TOL.	0.1

DIMENSIONS in inches

CASE SIZE	TERML	L	W	T	D	E
M55342/02	B	0.055 \pm 0.006	0.050 \pm 0.003	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 0.003	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 0.003	0.015 to 0.033	0.015 \pm 0.005	0.015 \pm 0.005
M55342/06	B	0.080 \pm 0.006	0.050 \pm 0.003	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
M55342/10	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

STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS	CONDITIONS
Material	Passivated nichrome	-
Resistance Range	100 Ω to 1.5 M Ω	-
TCR: Absolute	25 ppm/ $^{\circ}$ C (E), 50 ppm/ $^{\circ}$ C (H)	- 55 $^{\circ}$ C to + 125 $^{\circ}$ C + 25 $^{\circ}$ C
Tolerance: Absolute	$\Delta R \pm 0.1$ %	-
Stability: Absolute	$\Delta R \pm 0.02$ %	2000 h at + 70 $^{\circ}$ C
Voltage Coefficient	< 0.1 ppm/V	-
Working Voltage	40 V to 125 V	-
Operating Temperature Range	- 55 $^{\circ}$ C to + 125 $^{\circ}$ C	-
Storage Temperature Range	- 55 $^{\circ}$ C to + 150 $^{\circ}$ C	-
Noise	< - 25 dB	-
Thermal EMF	< 0.1 μ V/ $^{\circ}$ C	-
Shelf Life Stability: Absolute	$\Delta R \pm 0.01$ %	1 year at + 25 $^{\circ}$ C

ENVIRONMENTAL TESTS

ENVIRONMENTAL TEST	MIL-PRF-55342 LIMITS ($\Delta R \pm$)	VISHAY PERFORMANCE ($\Delta R \pm$)
Thermal Shock	0.10 %	0.02 %
Low Temperature Operation	0.10 %	0.03 %
Short Time Overload	0.10 %	0.05 %
High Temperature Exposure	0.10 %	0.01 %
Resistance to Bonding	0.20 %	0.01 %
Moisture Resistance	0.20 %	0.04 %
TCR	± 25 ppm/ $^{\circ}$ C	< 15 ppm/ $^{\circ}$ C
Life (2000 h at + 70 $^{\circ}$ C)	0.05 %	0.02 %
Life (10 000 h at + 70 $^{\circ}$ C)	2.00 %	0.04 %

COMPONENT RATINGS

CASE SIZE	MAX. WORKING VOLTAGE (V)	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 %)
M55342/02	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
M55342/06	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
M55342/10	75	500	49.9 to 1M	49.9 to 1M	49.9 to 1M	49.9 to 1M

MECHANICAL SPECIFICATIONS

Resistive Element	Passivated nichrome
Substrate Material	Alumina
Chip Terminations	Solder over nickel
Fused Solder	SN 63

Revision 28-Jul-10

DISCLAIMER All product specifications and data are subject to change without notice. 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 herein or in any other disclosure relating to any product. Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed herein, which apply to these products. 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. The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications. Product names and markings noted herein may be trademarks of their respective owners.

Build Vishay into your Design

For technical questions, contact thinfilm@vishay.com