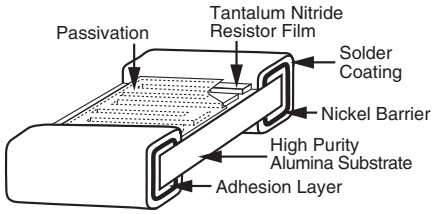
QPL MIL-PRF-55342 Qualified
Ta_2N Thin Film Resistor, Surface Mount Chip

Thin Film MIL chip resistors feature an 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.

FEATURES

- Established reliability, “R” and “U” failure rate level (0.01 % per 1000 h), 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 %
- Complete MIL-testing available in-house
- Antistatic waffle pack or tape and reel packaging available
- Military / aerospace / QPL approval

CONSTRUCTION



TYPICAL PERFORMANCE

	ABSOLUTE
TCR	25
TOL.	0.1

STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS	CONDITIONS
Material	Tantalum nitride (Ta_2N) resistor film	-
Resistance Range	49.9 Ω to 3.3 MΩ	-
TCR: Absolute	± 25 ppm/°C to ± 300 ppm/°C	-55 °C to +125 °C
Tolerance: Absolute	± 0.1 % to ± 10 %	+25 °C
Stability: Absolute	ΔR ± 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	ΔR ± 0.01 %	1 year at +25 °C

COMPONENT RATINGS

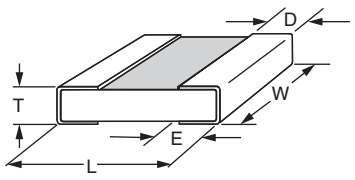
CASE SIZE	POWER RATING (mW)	WORKING VOLTAGE (V)	RESISTANCE RANGE BY TOLERANCE		
			0.1 %, 0.25 %, 0.5 %, 1 %	2.0 % and 5.0 %	10 %
M55342/01	50	40	49.9 Ω to 64.9 kΩ	51 Ω to 68 kΩ	51 Ω to 68 kΩ
M55342/02	125	40	49.9 Ω to 140 kΩ	51 Ω to 150 kΩ	51 Ω to 150 kΩ
M55342/03	200	75	49.9 Ω to 357 kΩ	51 Ω to 360 kΩ	51 Ω to 360 kΩ
M55342/04	150	125	49.9 Ω to 806 kΩ	51 Ω to 820 kΩ	51 Ω to 820 kΩ
M55342/05	225	175	49.9 Ω to 1.5 MΩ	51 Ω to 1.5 MΩ	51 Ω to 1.5 MΩ
M55342/06	150	50	49.9 Ω to 309 kΩ	51 Ω to 820 kΩ	51 Ω to 820 kΩ
D55342/07	250	100	49.9 Ω to 1 MΩ	51 Ω to 1 MΩ	51 Ω to 1 MΩ
M55342/08	800	150	49.9 Ω to 2.0 MΩ	49.9 Ω to 2.0 MΩ	51 Ω to 2.23 MΩ
M55342/09	1000	200	49.9 Ω to 3.01 MΩ	51 Ω to 3 MΩ	51 Ω to 3.3 MΩ
M55342/10	500	75	49.9 Ω to 604 kΩ	51 Ω to 620 kΩ	51 Ω to 680 kΩ
M55342/11	50	30	49.9 Ω to 49.9 kΩ	51 Ω to 51 kΩ	51 Ω to 51 kΩ
M55342/12	100	50	49.9 Ω to 130 kΩ	51 Ω to130 kΩ	51 Ω to 150 kΩ

Note

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

For technical questions, contact: thinfilm@vishay.com

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	0.025 ± 0.005	0.010 to 0.033	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

ENVIRONMENTAL TESTS

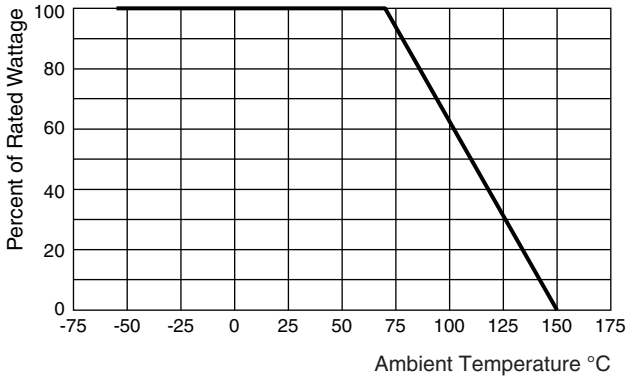
ENVIRONMENTAL TEST	MIL-PRF-55342 LIMITS (ΔR ±)	VISHAY PERFORMANCE (ΔR ±)
Thermal Shock	0.1 %	0.020 %
Low Temperature Operation	0.1 %	0.025 %
Short Time Overload	0.1 %	0.050 %
High Temperature Exposure	0.1 %	0.009 %
Resistance to Bonding	0.2 %	0.006 %
Moisture Resistance	0.2 %	0.004 %
TCR	± 25 ppm/°C	< 15 ppm/°C
Life (2000 h at + 70 °C)	0.5 %	0.02 %
Life (10 000 h at + 70 °C)	2.0 %	0.04 %

MECHANICAL SPECIFICATIONS

Resistive Element	Tantalum nitride (Ta_2N)
Substrate Material	Alumina
Chip Terminations	Solder over nickel
Plated Solder	90/10

FSCM CAGE # - 57489

DERATING



GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: M55342E06B9B00MT12

M	5	5	3	4	2	E	0	6	B	9	B	0	0	M	T	1	4

GLOBAL MODEL

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

TCR CHARACTERISTIC

E = 25 ppm/°C
H = 50 ppm/°C
K = 100 ppm/°C
L = 200 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.

	MULTIPLIER		
Tolerance	1 Ω	1 kΩ	1 MΩ
0.1 %	A	B	C
0.25 %	R	U	V
0.50 %	W	Y	Z
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
U = 0.01 % per 1000 h

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 (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)

THIN FILM CODE

4 for Ta_2N resistor film type

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