

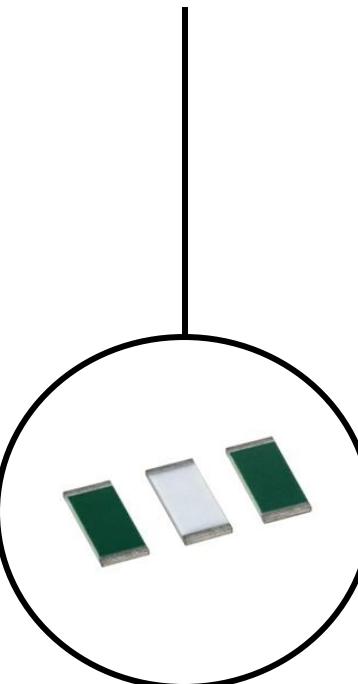
# VISHAY THIN & THICK FILM - QPL MIL-PRF-55342

## Market Segments

- Avionics, Military, Space

## Applications

- Cockpit, Flight Control, Radar
- Missile Guidance, Fuzing
- Communication, Transmission Base
- Vision Systems, UAV, Satellite



## Competitors

- State of the Art
- Mini-Systems



## Features

- Available in /01 through /13 case sizes
- Thick film /14 (0201 case size) **Coming Soon**
- TCR to  $\pm 25\text{ppm/}^{\circ}\text{C}$ , Tolerance to  $\pm 0.1\%$
- Termination style B - tin / lead wraparound over nickel barrier
- Established Reliability to C, M, P, R, S, U, V, and Space level T failure rates available

## Our Advantages

- Complete MIL-Testing available in house
- Thin Film Manufactured in USA
- Space Grade in both Thick and Thin Film
- MIL and Space Grade Jumper MIL-PRF-32159
- Resistive film options, Ruthenium Oxide and Tamelox, to meet performance needs

# Terminology

## E-REL (Established Reliability)

- A quantitative maximum failure rate demonstrated under controlled conditions specified in a Department of Defense specification and usually expressed as percent failures per thousand hours of test.

## Failure Rate

- The probability of failure per unit of time of items in operation. Sometimes estimated as a ratio of the number of failures to the accumulated operating time for the items.

Failure Rate Level Designation/Symbol	Failure Rate (Percent/1,000 Hours)
C	Non-Established Reliability
M	1
P	0.1
R	0.01
S	0.001
T	Space Level

Failure Rate	Failure Rate Substitution
T (Space)	—
S (0.001)	T
R (0.01)	T, S
P (0.1)	T, S, R
M (1.0)	T, S, R, P
C (Non-ER)	T, S, R, P, M

# Ordering Differences Thin Film vs Thick Film Mil-PRF-55342

- Characteristic E TCR 25 ppm & H TCR 50 ppm – Thin Film only
- Tolerances <0.5% – Thin Film only
- Tolerance = 0.5% – Thin Film standard/Thick Film needs special suffix “D”
- Characteristic K TCR (100 ppm) and above with 1% tolerance and looser – Thick Film standard/Thin Film needs special suffix “V”
- Thin Film MOQ as low as 25 pcs
- Thin Film available in any resistor nominal inside datasheet limits
- JAN Brand available for designated values
- Group A, B, and C tests available in both
  - B and C is generic

# Ordering Thin Film Mil-PRF-55342

## 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
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GLOBAL MODEL	TCR CHARACTERISTIC	CASE SIZE	TERMINATION
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

OHMIC VALUE				FAILURE RATE	PACKAGING	THIN FILM CODE <sup>(1)</sup>
M = 1.0 % per 100 h	P = 0.1 % per 1000 h	R = 0.01 % per 1000 h	U = 0.01 % per 1000 h	<b>Standard Packaging:</b> BS = BULK 25 min., 1 mult. WS = WAFFLE 25 min., 1 mult. WO = WAFFLE 100 min., 100 mult. TAPE AND REEL TO = 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 = 25 min., 1 mult. <b>Special Packaging:</b> WAFFLE WI = 25 min., 1 mult. (item single lot date code) WP = 25 min., 1 mult. (package unit single lot date code) TAPE AND REEL TI = 25 min., 1 mult. (item single lot date code) TP = 25 min., 1 mult. (package unit single lot date code)	V for K, L and M TCR W/tolerance $\geq 1\%$ M = part marked <sup>(2)</sup>	
Tolerance	1 $\Omega$	1 k $\Omega$	1 M $\Omega$			
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			

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](http://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

## GLOBAL PART NUMBER INFORMATION

Global Part Numbering: M55342E06B1C00TTS

M	5	5	3	4	2	E	0	7	B	1	C	0	0	T	T	S	V
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MODEL	TCR CHARACTERISTIC	CASE SIZE	TERMINATION
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

OHMIC VALUE				PRODUCT LEVEL DESIGNATOR	PACKAGING	VENDOR
Tolerance	1 $\Omega$	1 k $\Omega$	1 M $\Omega$	T = space level	BS = BULK 1 min., 1 mult.	V = Vishay Thin Film <sup>(1)</sup>
0.1 %	A	B	C		WAFFLE PACK	Thin Film <sup>(1)</sup>
0.25 %	R	U	V		WS = WAFFLE 25 min., 1 mult.	M = part marked <sup>(2)</sup>
0.5 %	W	Y	Z		WI = 25 min., 1 mult. (item single lot date code)	
1 %	D	E	F		WP = 25 min., 1 mult. (package unit single lot date code)	
2 %	G	H	T		WO = 100 min., 100 mult.	
5 %	J	K	L		TAPE AND REEL TO = 100 min., 100 mult.	
10 %	M	N	P		T1 = 1000 min., 1000 mult. T3 = 300 min., 300 mult. T5 = 500 min., 500 mult. TF = full reel TS = 25 min., 1 mult. TI = 25 min., 1 mult. (item single lot date code)	

### Notes

- For all other M/D55342 failure rate options please see VTF standard E/H datasheet: [www.vishay.com/ppg?60018](http://www.vishay.com/ppg?60018)

(1) For K, L and M TCR  $\geq 1\%$  tolerance add a V at end of part number to specify Vishay Thin Film vs. Dale Thick Film.  
E.g.: M55342K06B1F00TWSV

(2) Option 1 marking only case size 02 not available. Part marking available on the following: 0705, 1005, 1206, 1505, 2010, 2208, 2512

# Ordering Thick Film Mil-PRF-55342

GLOBAL PART NUMBER INFORMATION																								
New Global Part Numbering: M55342M02B10E0RWB (preferred part number format)																								
M	5	5	3	4	2	M	0	2	B	1	0	E	0	R	W	B								
MIL STYLE		CHARACTERISTICS		SPEC. SHEET		TERMINATION STYLE		VALUE AND TOLERANCE		FAILURE RATE		PACKAGING <sup>(1)</sup>		SPECIAL										
D55342 applies to Style 07 (RM1206) only.		K = 100 ppm L = 200 ppm M = 300 ppm		(see Standard Electrical Specifications table)		B = pre-tinned nickel barrier, wraparound		(see Tolerance and Multipliers table)		C = non-ER M = 1.0 %/1000 h P = 0.1 %/1000 h R = 0.01 %/1000 h U = 0.01 %/1000 h <sup>(2)</sup> S = 0.001 %/1000 h V = 0.001 %/1000 h <sup>(2)</sup> T = space level		TP = tin / lead, T/R (full) TN = tin / lead, T/R (full), w/ESD UL = tin / lead, T/R single lot date code S3 = tin / lead, T/R (1000 pieces) SV = tin / lead, T/R (1000 pieces), w/ESD WB = tin / lead, waffle tray WA = tin / lead, waffle tray, w/ESD WL = tin / lead, waffle tray, single lot date code S2 = tin / lead, T/R (500 pieces) SU = tin / lead, T/R (500 pieces), w/ESD S6 = tin / lead, T/R (300 pieces) ST = tin / lead, T/R (300 pieces), w/ESD		Blank = standard (dash number) (up to 1 digits) D = 0.5 % tolerance <sup>(3)</sup> S = space level w/option 1 part marking (-97) <sup>(4)</sup> T = space level (-98) 2 = option 1 part marking (-20) <sup>(4)</sup> 3 = options 2 and 3 part marking (-30) <sup>(4)</sup>										
M55342 applies to all other styles.																								
Historical Part Numbering: M55342M02B10E0R (will continue to be accepted)																								
M55342	M	02	B	10E0	R	WB																		
MIL STYLE	CHARACTERISTICS	SPEC. SHEET	TERMINATION STYLE	VALUE AND TOLERANCE	FAILURE RATE	PACKAGING CODE																		

## Notes

- For additional information on packaging, refer to the Surface Mount Resistor Packaging document ([www.vishay.com/doc?31543](http://www.vishay.com/doc?31543))
- Products with space level failure rates are only offered in packaging codes with ESD overpack and labeling. For all other failure rates, the ESD pack codes are an optional type of packaging
- Failure rates U and V require group A and B inspection ran on each production lot
- Add a "D" after the packaging code at the end of the global part number to specify Vishay Dale Thick Film product with a tolerance of 0.5 %
- MIL spec option 1, 2, and 3 part marking is not offered for the slash sheet 01, 02, 11, and 13 sizes