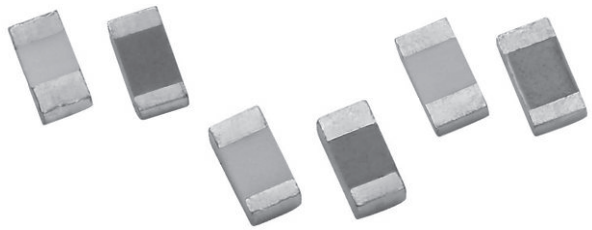
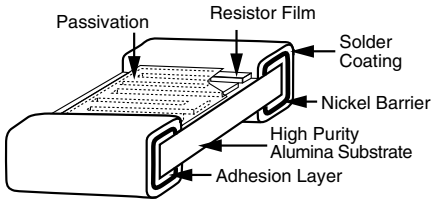
QPL MIL-PRF-55342 Qualified
Thin Film Resistor, Surface Mount Chip



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 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	Δ*R* ± 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	Δ*R* ± 0.01 %	1 year at +25 °C

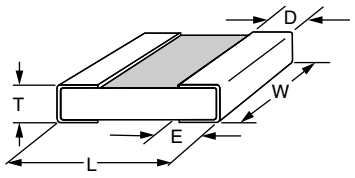
COMPONENT RATINGS

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	0.025 ± 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

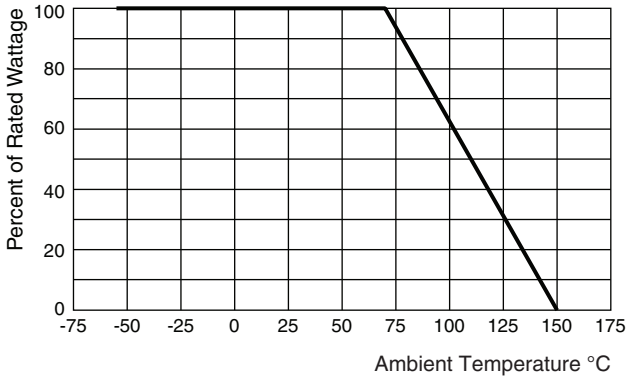
ENVIRONMENTAL TEST	MIL-PRF-55342 LIMITS (ΔR ±)	VISHAY PERFORMANCE (ΔR ±)
Thermal Shock	0.1 %	0.020 %
Low Temperature Operation	0.1 %	0.025 %
Short Time Overload	0.1 %	0.050 %
High Temperature Exposure	0.1 %	0.009 %
Resistance to Bonding	0.2 %	0.006 %
Moisture Resistance	0.2 %	0.004 %
TCR	± 25 ppm/°C	< 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	Tamelox
Substrate Material	Alumina
Chip Terminations	Solder over nickel
Fused Solder	Plated solder 90/10

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

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
0.5 %	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 (3)
S = 0.001 % per 1000 h
V = 0.001 % per 1000 h (3)
C = Non ER version

PACKAGING

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)

THIN FILM CODE (1)

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

(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.

Vishay Dale Thin Film Land Patterns

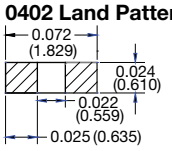
1. Scope

This technical note provides sample land patterns for Vishay Dale Thin Film SMT resistive products. The following drawings are based on IPC-SM-782 Surface Mount Design and Land Pattern Standard. These drawings are for reference only Vishay Thin Film recommends that the user contacts their PC board supplier for actual land patterns required. The pads are intended for lead (Pb)-free and tin / lead solder types.

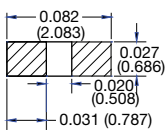
2. Product Series

Thin Film Surface Mount Chip Resistors (FC, L, P, PTN, PLT, PLTT. PLTU, PAT, PATT, PNM, M/D55342 QPL Series)

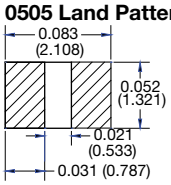
0402 Land Pattern



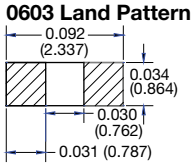
0502 Land Pattern



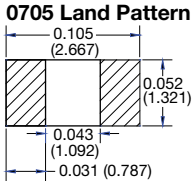
0505 Land Pattern



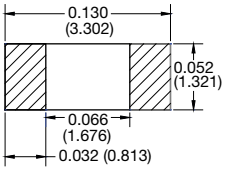
0603 Land Pattern



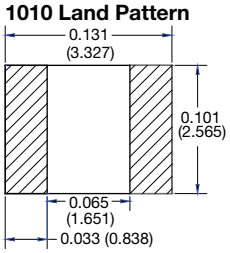
0705 Land Pattern



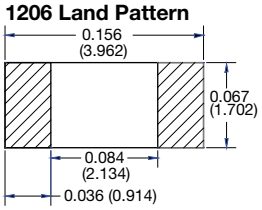
1005 Land Pattern



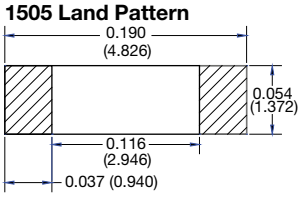
1010 Land Pattern



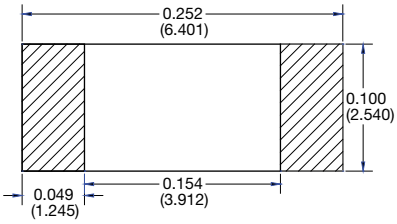
1206 Land Pattern



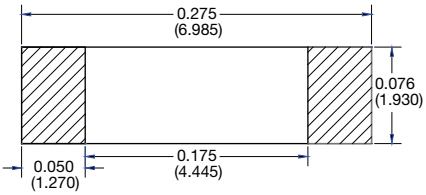
1505 Land Pattern



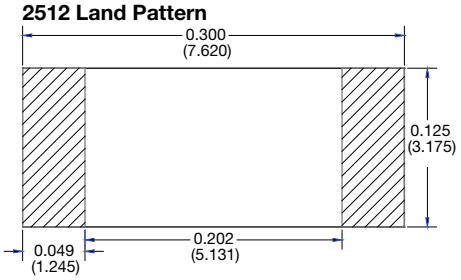
2010 Land Pattern



2208 Land Pattern

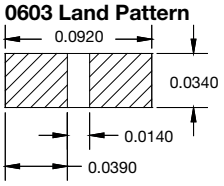


2512 Land Pattern

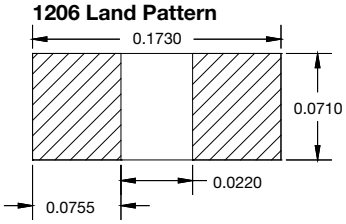


Thin Film Surface Mount Chip Resistors (PHP, PCAN Series)

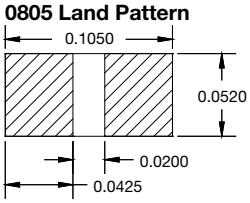
0603 Land Pattern



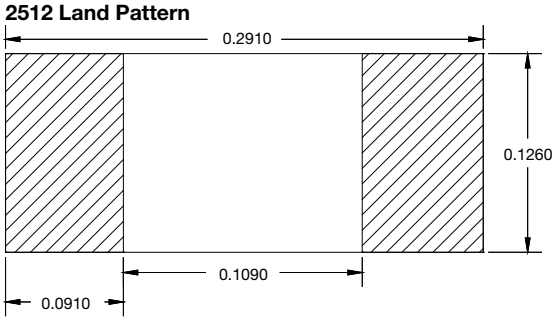
1206 Land Pattern



0805 Land Pattern

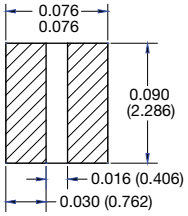


2512 Land Pattern

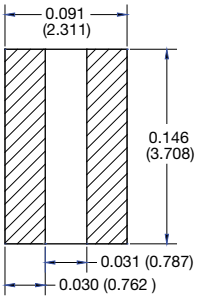


Thin Film Surface Mount Chip Resistors Long Axis Termination (L Series)

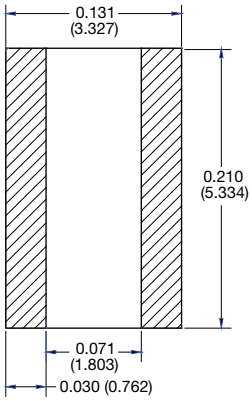
0508 Land Pattern



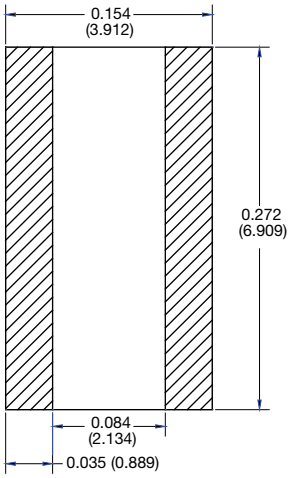
0612 Land Pattern



1020 Land Pattern

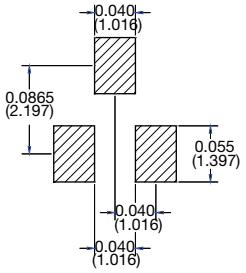


1225 Land Pattern

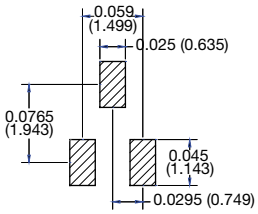


Surface Mount Networks (MPM, MP3, MP4 Series)

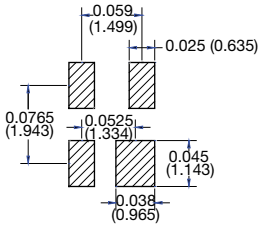
SOT-23 (MPM, MPMA)



SC70-3 (MP3)

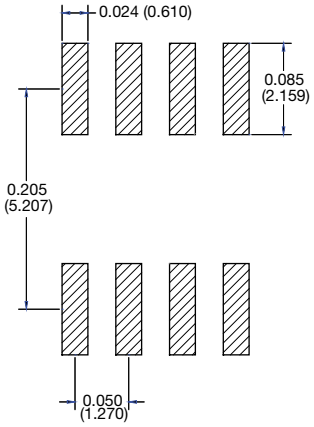


SC70-4 (MP4)

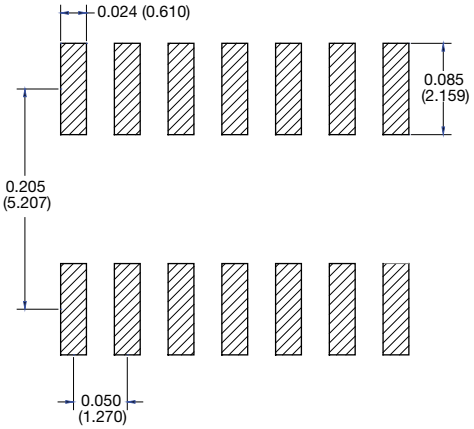


Surface Mount Networks SOIC Narrow Body 150 mils (ORN, CSO, MOMC, HTRN, AORN, MORN Series)

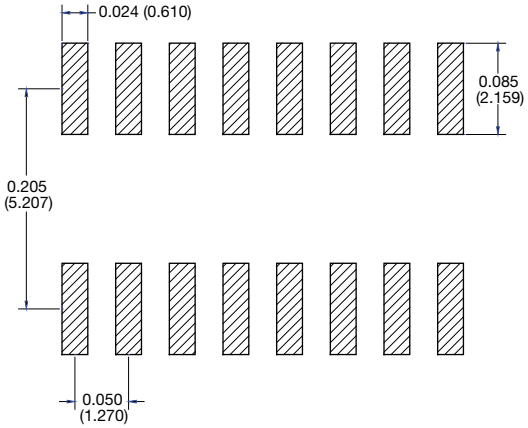
SOIC-8
(ORN, HTRN, AORN, CSO-8)



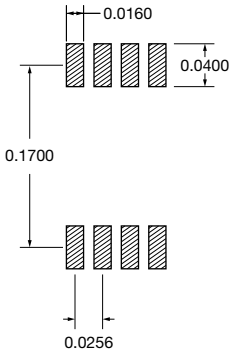
SOIC-14
(NOMC-14, NOMCA-14, CSO-14)



SOIC-16
(NOMC-16, NOMCA-16, CSO-16, VSOR-16)

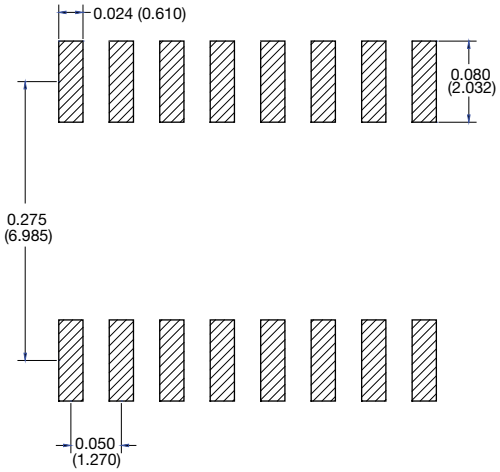


MORN MSOP MO-187AA
(MORN-8)



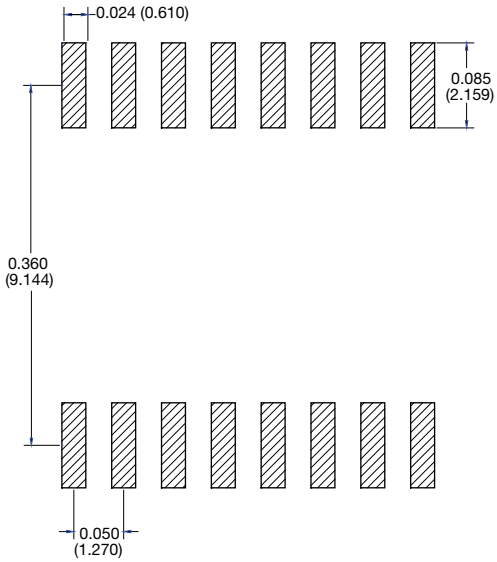
Surface Mount Networks SOIC Medium Body 220 mils (TOMC Series)

SOIC-16 (TOMC)

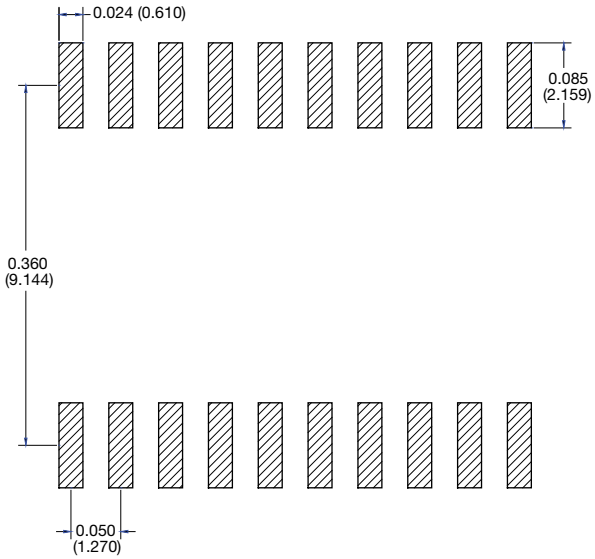


Surface Mount Networks SOIC Wide Body 300 mils (WOMC Series)

SOIC-16 (WOMC-16)



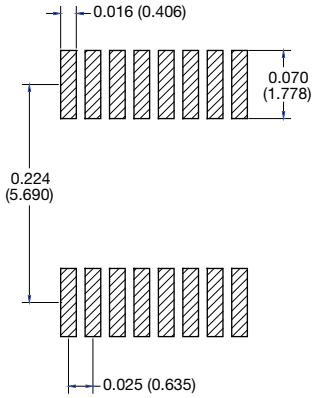
SOIC-20 (WOMC-20)



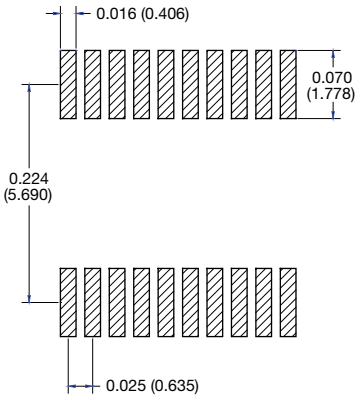
Surface Mount Networks High Density SSOP, TSOP (VSSR, VTSR Series)

SSOP MO-137

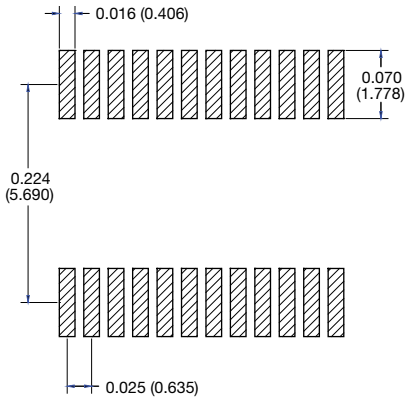
VSSR-16



OSOP-16, OSOP-20, OSOP-24, VSSR-20

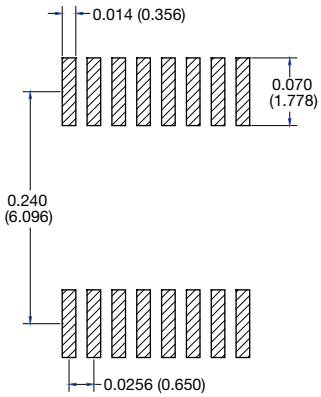


VSSR-24, HD-CSO-24

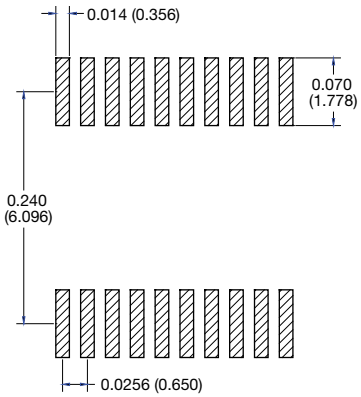


TSSOP MO-153

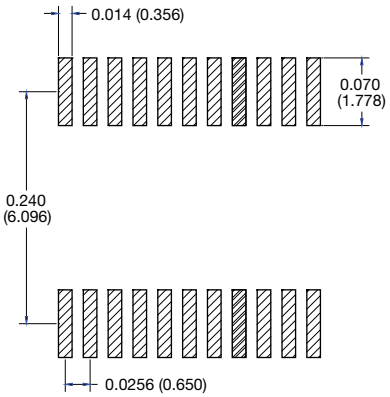
VTSR-16



VTSR-20

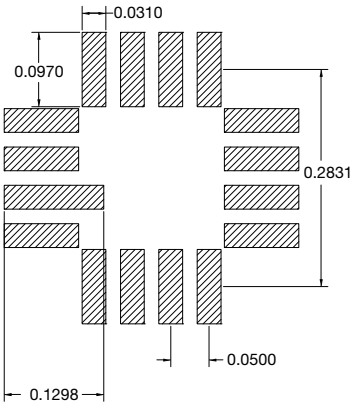


VTSR-24

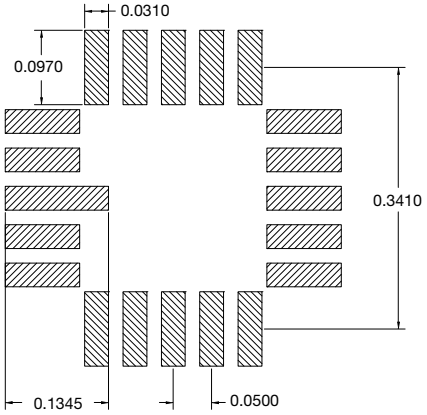


Surface Mount Leadless Networks (LCC Series)

16 Pin LCC

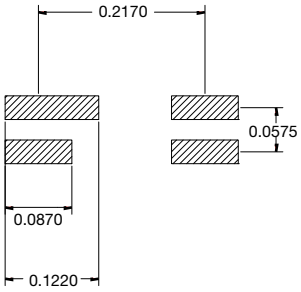


20 Pin LCC



Surface Mount Leadless Networks (MPH Series)

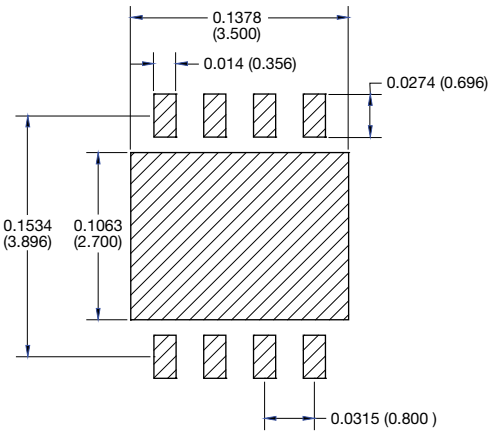
4 Pin LCC



Surface Mount Leadless Packages DUAL/ QUAD Flat No Lead (DFN, QFN Series)

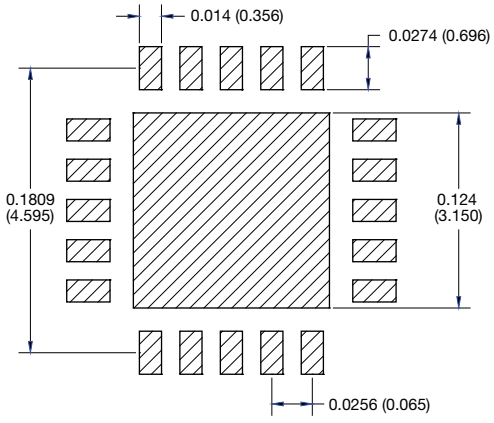
DFN MLP

DFN-8 4 x 5 mm Sq



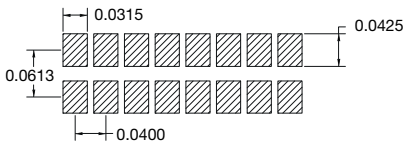
QFN MLP

QFN-20 5 x 5 mm Sq

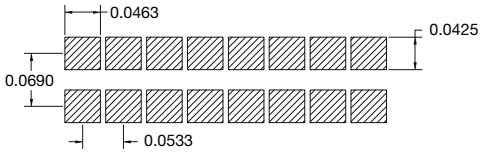


Surface Mount Leadless Resistor Arrays (PR Series)

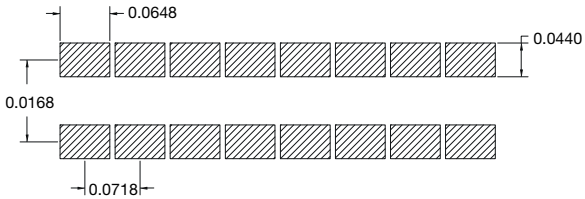
PR 100 (2 to 8 resistors)



PR 135 (2 to 8 resistors)



PR 182 (2 to 8 resistors)

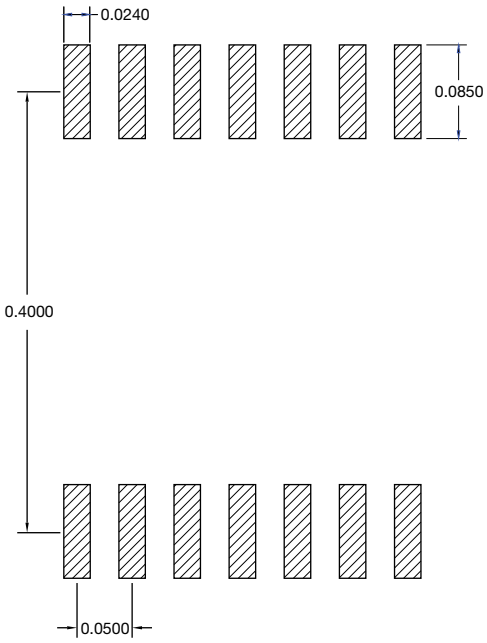


Note

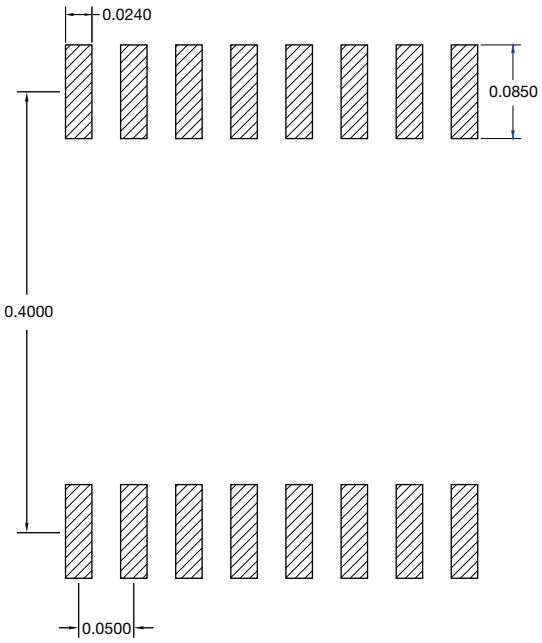
- All dimensions in inches (mm)

Flatpack

14 Pin Bottom Brazed Flatpack



16 Pin Bottom Brazed Flatpack



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