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, THJP, M/D55342 QPL Series)

<table>
<thead>
<tr>
<th>Land Patterns</th>
<th>0402</th>
<th>0502</th>
<th>0505</th>
<th>0603</th>
<th>0705</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.130 (3.302)</td>
<td>0.075 (1.905)</td>
<td>0.082 (2.083)</td>
<td>0.083 (2.108)</td>
<td>0.092 (2.337)</td>
<td>0.105 (2.667)</td>
</tr>
<tr>
<td>0.096 (2.493)</td>
<td>0.004 (0.102)</td>
<td>0.037 (0.945)</td>
<td>0.031 (0.787)</td>
<td>0.034 (0.864)</td>
<td>0.030 (0.762)</td>
</tr>
<tr>
<td>0.025 (0.635)</td>
<td>0.025 (0.635)</td>
<td>0.031 (0.787)</td>
<td>0.031 (0.787)</td>
<td>0.031 (0.787)</td>
<td>0.031 (0.787)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Land Patterns</th>
<th>1005</th>
<th>1010</th>
<th>1206</th>
<th>1505</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.131 (3.327)</td>
<td>0.101 (2.565)</td>
<td>0.156 (3.962)</td>
<td>0.190 (4.826)</td>
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</tr>
<tr>
<td>0.065 (1.651)</td>
<td>0.065 (1.651)</td>
<td>0.084 (2.134)</td>
<td>0.094 (2.372)</td>
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</tr>
<tr>
<td>0.032 (0.813)</td>
<td>0.033 (0.838)</td>
<td>0.036 (0.914)</td>
<td>0.037 (0.940)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Land Patterns</th>
<th>2010</th>
<th>2208</th>
<th>2512</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.250 (6.350)</td>
<td>0.275 (6.985)</td>
<td>0.300 (7.620)</td>
<td></td>
</tr>
<tr>
<td>0.154 (3.912)</td>
<td>0.175 (4.445)</td>
<td>0.202 (5.118)</td>
<td></td>
</tr>
<tr>
<td>0.048 (1.222)</td>
<td>0.050 (1.269)</td>
<td>0.049 (1.248)</td>
<td></td>
</tr>
<tr>
<td>0.250 (6.401)</td>
<td>0.250 (6.401)</td>
<td>0.250 (6.401)</td>
<td></td>
</tr>
</tbody>
</table>
Thin Film Surface-Mount Chip Resistors (PHP, PCAN Series)

Thin Film Surface-Mount Chip Resistors Long Axis Termination (THJP, L Series)
Surface-Mount Networks (MPM, MP3, MP4 Series)

- **SOT-23 (MPM, MPMA)**
  - 0.040 (1.016)
  - 0.0865 (2.197)
  - 0.055 (1.397)

- **SC70-3 (MP3)**
  - 0.025 (0.635)
  - 0.050 (1.270)

- **SC70-4 (MP4)**
  - 0.025 (0.635)
  - 0.050 (1.270)

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

- **SOIC-8 (ORN, HTRN, AORN, CSO-8)**
  - 0.024 (0.610)
  - 0.050 (1.270)

- **SOIC-14 (NOMC-14, NOMCA-14, CSO-14)**
  - 0.024 (0.610)
  - 0.050 (1.270)

- **SOIC-16 (NOMC-16, NOMCA-16, CSO-16, VSOR-16)**
  - 0.024 (0.610)
  - 0.050 (1.270)

- **MORN MSOP MO-187AA (MORN-8)**
  - 0.0160
  - 0.0400
  - 0.1700
  - 0.0256
Surface-Mount Networks SOIC Medium Body 220 mils (TOMC Series)

Surface-Mount Networks SOIC Wide Body 300 mils (WOMC Series)
Surface-Mount Networks High Density SSOP, TSOP (VSSR, VTSR Series)

- SSOP MO-137
  - OSOP-16, VSSR-16
  - OSOP-20, VSSR-20
  - OSOP-24, VSSR-24, HD-CSO-24

- TSSOP MO-153
  - VTSR-16
  - VTSR-20
  - VTSR-24

For technical questions, contact: thinfilm@vishay.com

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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