Thick Film Chip Dividers, High Voltage

FEATURES

- High voltage up to 3000 V
- Typical resistance ratios of 250:1, 500:1, etc.; maximum resistance ratio of 800:1
- Flow solderable
- Tape and reel packaging available
- Termination style: 3-sided wraparound termination or single termination flip chip available
- Suitable for solderable, epoxy bondable, or wire bondable applications
- Termination material: solder-coated nickel barrier or solder coated non-magnetic terminations standard; gold, palladium silver, platinum gold, platinum silver or platinum palladium gold terminations available
- Multiple styles, termination materials and configurations, allow wide design flexibility
- Epoxy bondable or wire bondable non-magnetic terminations available
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details.

STANDARD ELECTRICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>GLOBAL MODEL</th>
<th>CASE SIZE</th>
<th>POWER RATING $P_{70 \degree C}$ W</th>
<th>MAXIMUM WORKING VOLTAGE (1) V</th>
<th>RESISTANCE RANGE (2) Ω</th>
<th>TOLERANCE (2) ± %</th>
<th>TEMPERATURE COEFFICIENT (4) (-55 °C to +155 °C) ± ppm/°C</th>
<th>TCR TRACKING ± ppm/°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDHV 2512</td>
<td>2512</td>
<td>1</td>
<td>3000</td>
<td>20M to 20G</td>
<td>1, 2, 5, 10, 20</td>
<td>100</td>
<td>50 (typical)</td>
</tr>
</tbody>
</table>

Notes

(1) Continuous working voltage shall be $\sqrt{P \times R}$ or maximum working voltage, whichever is less.
(2) Resistance values below 1 GΩ are calibrated at 100 VDC, and values of 1 GΩ and above are calibrated at 1000 VDC. Calibration at other voltages available upon request.
(3) Contact factory for tighter tolerances.
(4) Reference only: not for all values specified. Consult factory for your value.

VOLTAGE AND TEMPERATURE COEFFICIENTS OF RESISTANCE CHART TYPICAL

<table>
<thead>
<tr>
<th>RESISTANCE (Ω)</th>
<th>RATIO (TYPICAL)</th>
<th>VCR (ppm/V)</th>
<th>TCR (ppm/°C) -55 °C to +155 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>20M</td>
<td>250:1</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>150M</td>
<td>300:1</td>
<td>10</td>
<td>150</td>
</tr>
<tr>
<td>800M</td>
<td>500:1</td>
<td>10</td>
<td>200</td>
</tr>
</tbody>
</table>

Note

* Contact factory for other ratios.
### GLOBAL PART NUMBER INFORMATION

**New Global Part Numbering:** CDHVAF20M0J2500GFB (preferred part number format)

<table>
<thead>
<tr>
<th>GLOBAL MODEL</th>
<th>TERM STYLE</th>
<th>TERM MATERIAL</th>
<th>RESISTANCE VALUE (R1)</th>
<th>TOLERANCE R1/R2</th>
<th>RATIO TOLERANCE</th>
<th>SOLDER TERMINATION</th>
<th>PACKAGING</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDHV = CDHV2512</td>
<td>A = 3-sided</td>
<td>F = nickel barrier</td>
<td>M = MΩ</td>
<td>3 digit significant figure, followed by a multiplier</td>
<td>± 2%</td>
<td>E = Sn100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B = top only</td>
<td>G = non-magnetic</td>
<td>G = GΩ</td>
<td>2500 = 50:1</td>
<td>± 2%</td>
<td>F = Sn95/Ag5,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A = palladium silver</td>
<td>J = ± 5%</td>
<td>2500 = 250:1</td>
<td>± 3%</td>
<td>HSD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B = platinum gold</td>
<td>K = ± 10%</td>
<td>2500 = 300:1</td>
<td>± 5%</td>
<td>N = no solder</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>C = gold</td>
<td>M = ± 20%</td>
<td>2500 = 500:1</td>
<td>± 5%</td>
<td>S = Sn62 / Pb36 / Ag2,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>D = platinum silver</td>
<td></td>
<td></td>
<td></td>
<td>HSD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>E = platinum palladium gold</td>
<td></td>
<td></td>
<td></td>
<td>T = Sn90 / Pb10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Historical Part Numbering: CDHV2512AF2005J2500Ge2 (will continue to be accepted)

Note
- For additional information on packaging, refer to the “Surface Mount Resistor Packaging” document (www.vishay.com/doc?31543).

### MATERIAL SPECIFICATIONS

- **Resistive element:** Ruthenium oxide
- **Encapsulation:** Glass
- **Substrate:** 96 % alumina
- **Termination:** Solder-coated nickel barrier or solder coated non-magnetic terminations standard. Gold, palladium silver, platinum gold, platinum silver, platinum palladium gold terminations available.
- **Solder finish:** Pure tin or tin / lead solder alloys standard. Tin / silver or tin / lead / silver solder alloys available.

### ENVIRONMENTAL SPECIFICATIONS

- **Operating temperature:** -55 °C to +155 °C
- **Life:** Less than 0.5 % change when tested at full rated power

Note
- Reference only: not for all values specified. Consult factory for your size and value.
## DIMENSIONS in inches (millimeters)

<table>
<thead>
<tr>
<th>TERMINATION</th>
<th>LENGTH (L) ± 0.006 (0.152)</th>
<th>WIDTH (W) ± 0.006 (0.152)</th>
<th>THICKNESS (T) ± 0.005 (0.127)</th>
<th>A ± 0.005</th>
<th>B ± 0.005</th>
<th>C ± 0.005</th>
<th>E ± 0.005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Style A (3-sided wraparound)</td>
<td>0.250</td>
<td>0.126</td>
<td>0.025</td>
<td>0.025</td>
<td>0.025</td>
<td>0.040</td>
<td>0.046</td>
</tr>
<tr>
<td>Style B (top only)</td>
<td>0.240</td>
<td>0.126</td>
<td>0.025</td>
<td>0.025</td>
<td>0.025</td>
<td>0.040</td>
<td>-</td>
</tr>
</tbody>
</table>

### DERATING CURVE

![Derating Curve Image]

**Note**
- Reference only: not for all values specified. Consult factory for your specific value.
### Notes

1. Standard solder plating for the nickel barrier and non-magnetic parts is solder terminations E or T. Hot solder dipped terminations F or S are also available.
2. Use solder termination N for applications requiring epoxy bondable mounting, and solder terminations F or S for applications requiring solderable mounting.
3. While not recommended, palladium silver terminations could be used for solderable applications when using a solder alloy containing silver. If the solder paste being used to solder the palladium silver terminated parts to the boards does not have a silver-based composition, then the silver in the terminations could begin to leach when it is exposed to liquidus non-silver-based solders, causing the potential for solderability and/or solder joint issues.

### TYPE TERMINATION MATERIAL | TERMINATION STYLE | TERMINATION STYLE / MATERIAL CODE | SOLDER TERMINATION CODE
--- | --- | --- | ---
Solderable | Nickel barrier | 3-sided (wraparound) | AF | E or T (standard); F or S (optional) (1)
Solderable | Non-magnetic | 3-sided (wraparound) | AG | E or T (standard); F or S (optional) (1)
Epoxy bondable / solderable | Platinum palladium gold | Top only (flip chip) | BE | N (standard); F or S (optional) (2)
Wire bondable / epoxy bondable | Gold | Top only (flip chip) | BC | N
Epoxy bondable | Palladium silver (3) | Top only (flip chip) | BA | N
Platinum gold | BB |
Platinum silver | BD |

### SCHEMATIC

Insert schematic image here.
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