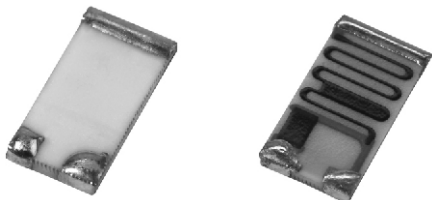


# Thick Film Chip Dividers, High Voltage



## FEATURES

- High voltage up to 3000 V
- Typical resistance ratios of 250:1, 500:1, etc.
- 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 standard; gold, palladium silver, platinum gold, platinum silver or platinum palladium gold terminations available
- Multiple styles, termination materials and configurations, allow wide design flexibility
- Non-magnetic terminations available
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS\***  
COMPLIANT  
HALOGEN  
**FREE**

## Note

\* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

## STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL MODEL | CASE SIZE | POWER RATING<br>$P_{70^{\circ}\text{C}}$<br>W | MAXIMUM WORKING VOLTAGE <sup>(1)</sup><br>V | RESISTANCE RANGE <sup>(2)</sup><br>$\Omega$ | TOLERANCE <sup>(3)</sup><br>$\pm$ % | TEMPERATURE COEFFICIENT <sup>(4)</sup><br>(- 55 °C to + 150 °C)<br>$\pm$ ppm/°C | TCR TRACKING<br>$\pm$ ppm/°C |
|--------------|-----------|-----------------------------------------------|---------------------------------------------|---------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------|------------------------------|
| CDHV 2512    | 2512      | Contact factory                               | 3000                                        | 20M to 20G                                  | 1, 2, 5, 10, 20                     | 100                                                                             | 50 (typical)                 |

## Notes

- (1) Continuous working voltage shall be  $\sqrt{P \times R}$  or maximum working voltage, whichever is less.
- (2) Resistance values are calibrated at 100 V<sub>DC</sub>. Calibration at other voltages available upon request. Contact factory for lower values.
- (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

| RESISTANCE ( $\Omega$ ) | RATIO (TYPICAL) | VCR (ppm/V) | TCR (ppm/°C) - 55 °C to + 150 °C |
|-------------------------|-----------------|-------------|----------------------------------|
| 20M                     | 250:1           | 10          | 100                              |
| 150M                    | 300:1           | 10          | 150                              |
| 800M                    | 500:1           | 10          | 200                              |

## Note

- Contact factory for other ratios.

## GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: **CDHVAF20M0J2500** (preferred part number format)

| GLOBAL MODEL              | TERM STYLE                                | TERM MATERIAL                                                                                                                                                               | RESISTANCE VALUE (R1)                                                                                                                       | TOLERANCE                                                                                                              | RATIO R1/R2                                                                                                               | RATIO TOLERANCE                                                      | SOLDER TERMINATION                                                                                                                                   | PACKAGING                                                                                                                                                         |
|---------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CDHV</b> =<br>CDHV2512 | <b>A</b> = 3-sided<br><b>B</b> = Top only | <b>F</b> = Nickel barrier<br><b>A</b> = Palladium silver<br><b>B</b> = Platinum gold<br><b>C</b> = Gold<br><b>D</b> = Platinum silver<br><b>E</b> = Platinum palladium gold | <b>M</b> = M $\Omega$<br><b>G</b> = G $\Omega$<br><b>20M0</b> = 20 M $\Omega$<br><b>800M</b> = 800 M $\Omega$<br><b>1G00</b> = 1 G $\Omega$ | <b>F</b> = $\pm$ 1 %<br><b>G</b> = $\pm$ 2 %<br><b>J</b> = $\pm$ 5 %<br><b>K</b> = $\pm$ 10 %<br><b>M</b> = $\pm$ 20 % | 3 digit significant figure, followed by a multiplier<br><b>2500</b> = 250:1<br><b>3000</b> = 300:1<br><b>5000</b> = 500:1 | <b>G</b> = $\pm$ 2 %<br><b>H</b> = $\pm$ 3 %<br><b>J</b> = $\pm$ 5 % | <b>D</b> = Sn95/Ag5, HSD<br><b>E</b> = Sn100<br><b>F</b> = Sn95/Ag5<br><b>N</b> = No solder<br><b>S</b> = Sn62/Pb36/Ag2, HSD<br><b>T</b> = Sn90/Pb10 | <b>B</b> = Bulk<br><b>F</b> = T/R (full reel)<br><b>1</b> = T/R (1000 pcs)<br><b>5</b> = T/R (500 pcs)<br><b>T</b> = T/R (250 pcs min.)<br><b>W</b> = Waffle tray |

Historical Part Numbering: **CDHV2512AF2005J2500Ge2** (will continue to be accepted)

| HISTORICAL MODEL | TERM STYLE | TERM MATERIAL | RESISTANCE VALUE (R1) | TOLERANCE | RATIO R1/R2 | RATIO TOLERANCE | SOLDER TERMINATION |
|------------------|------------|---------------|-----------------------|-----------|-------------|-----------------|--------------------|
| <b>CDHV2512</b>  | <b>A</b>   | <b>F</b>      | <b>2005</b>           | <b>J</b>  | <b>2500</b> | <b>G</b>        | <b>e2</b>          |

## Note

- For additional information on packaging, refer to the Surface Mount Resistor Packaging document ([www.vishay.com/doc?31543](http://www.vishay.com/doc?31543)).

**MECHANICAL SPECIFICATIONS**

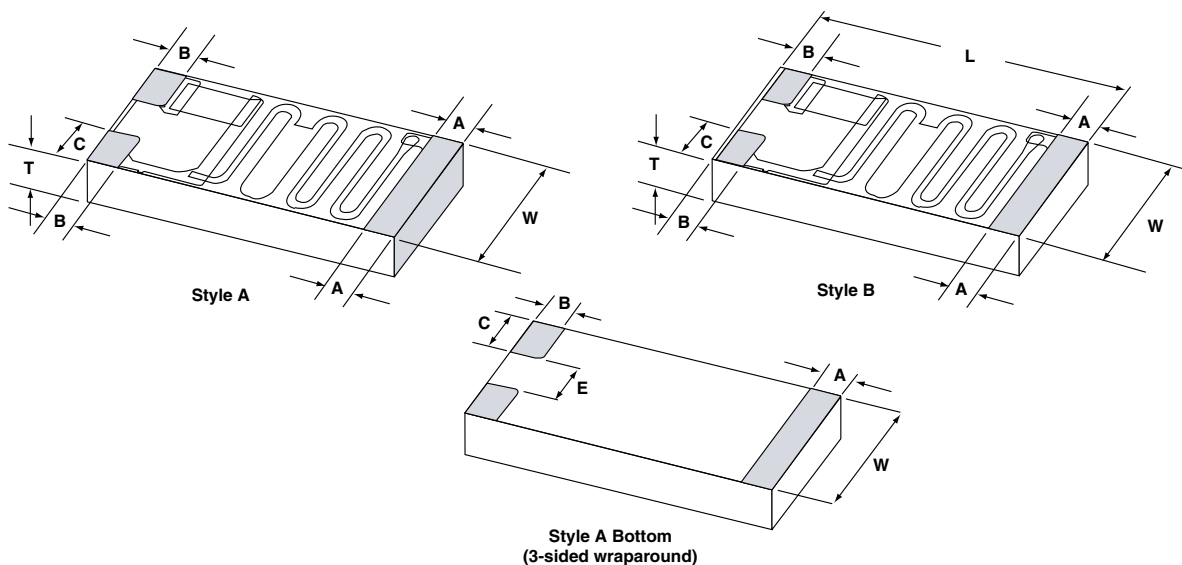
|                   |                                                                                                                                                         |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|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

**ENVIRONMENTAL SPECIFICATIONS**

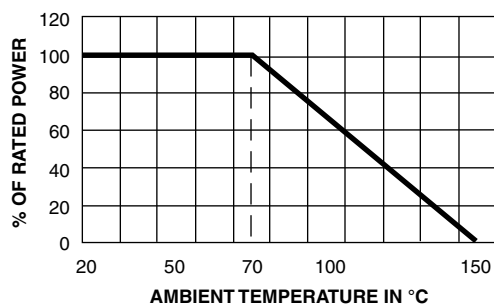
**Operating Temperature:** - 55 °C to + 150 °C

**Life:** Less than 0.5 % change when tested at full rated power

(Reference only: Not for all values specified. Consult factory for your size and value.)

**DIMENSIONS** in inches (millimeters)


| TERMINATION                     | LENGTH (L)<br>± 0.006 (0.152) | WIDTH (W)<br>± 0.006 (0.152) | THICKNESS (T)<br>± 0.005 (0.127) | A ± 0.005 | B ± 0.005 | C ± 0.005 | E ± 0.005 |
|---------------------------------|-------------------------------|------------------------------|----------------------------------|-----------|-----------|-----------|-----------|
| STYLE A<br>(3-sided wraparound) | 0.250                         | 0.126                        | 0.025                            | 0.025     | 0.025     | 0.040     | 0.046     |
| STYLE B<br>(top only)           | 0.240                         | 0.126                        | 0.025                            | 0.025     | 0.025     | 0.040     | -         |

**DERATING CURVE**

**Note**

- (Reference only: Not for all values specified. Consult factory for your specific value.)

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

**Notes**

- <sup>(1)</sup> Use solder termination N for applications requiring epoxy bondable mounting, and solder terminations D or S for applications requiring solderable mounting.
- <sup>(2)</sup> 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.
- <sup>(3)</sup> Standard solder plating for the nickel barrier parts are solder terminations E or T. Plated termination F and hot solder dipped terminations D or S are also available.



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