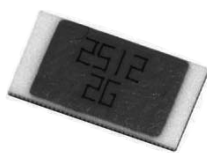


# HVF Series

## High Voltage Flip Chip Film



Ohmite's High Voltage Flip Chip Series incorporates high accuracy screen printing technology to achieve high voltage capability in a stable flip chip SMD chip resistor package. The HVF Series offers unmatched performance in comparison to standard chip resistors. Its unique design provides lower voltage and temperature coefficients, less noise, tighter tolerances, better stability, higher resistance values, and higher voltage ratings. HVF is available in convenient 1206 and 2512 footprints.

## FEATURES

- High voltage up to 3,000 volts
- Industry standard sizes
- Working temperature range  $-55^{\circ}\text{C}$  to  $200^{\circ}\text{C}$
- Designed for automatic insertion
- Non-magnetic construction

## SERIES SPECIFICATIONS

| Series  | Resistance Range | Tol.    | Power Rating (mW) | Voltage Rating* |
|---------|------------------|---------|-------------------|-----------------|
| HVF1206 | 1K-100M          | 1% std. | 300               | 1,500           |
|         | 100M-10G         | 5%      |                   |                 |
|         | 10G-100G         | 10%     |                   |                 |
| HVF2512 | 1K-100G          | 1% std. | 1000              | 3,000           |

\*Use Ohm's Law ( $V = \sqrt{P \cdot R}$ ) to calculate maximum working voltage.

\*\*Maximum available quantity per reel is 3,500 for 1206 size and 2,000 for 2512 size; call 1-866-9-OHMITTE for details.

## CHARACTERISTICS

**Resistance Range** 1K $\Omega$  to 100G $\Omega$

**Resistance Tolerance**  $\pm 1\%$  std.; 5% for HVF1206 100M $\Omega$ -10G $\Omega$  more; 10% for 10G $\Omega$ +

**Temperature Coefficient**  $\pm 100$ ppm std.

**Coating** Silicone

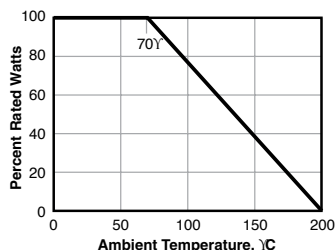
**Solder Pad Material** Silver (PdAg)

**Note:** HVF Series should not be used with tin-lead based solder compositions. Only silver-based solder compositions are recommended. Care should be taken in the selection of the solder flux contained in the solder paste. Some pastes are "corrosive" and can damage the coating and also the resistive layer during the soldering process at high temperature. PCBs must be properly cleaned to remove any layers of moisture containing halides below the resistor.

We recommend Halide Free (or Halogen Free) solder pastes, containing for example ROL0 or similar.

It is advisable for the PCB layout to provide a slot, or air gap, underneath the downward facing resistor element, thereby increasing insulation resistance and reducing the possibility of capacitive coupling to the PCB. Under no circumstances should any copper trace be present in the layout directly under the resistive element.

### Derating



### Voltage coefficient of Resistance

| Series | Resistance Range           | VCR (-ppm/V)* |
|--------|----------------------------|---------------|
| 1206   | 1K .. 10M $\Omega$         | <3.20         |
|        | 10M .. 100M $\Omega$       | <15.00        |
|        | 100M .. 1G $\Omega$        | <29.00        |
|        | 1G $\Omega$ .. 5G $\Omega$ | <40.00        |
| 2512   | 1K .. 30M $\Omega$         | <0.80         |
|        | 30M .. 300M $\Omega$       | <4.00         |
|        | 300M .. 3G $\Omega$        | <7.00         |
|        | 3G $\Omega$ .. 5G $\Omega$ | <10.00        |

\*Typical values. Voltage coefficient of resistance strongly depends on the resistance value. Contact Ohmite for details.

# HVF Series

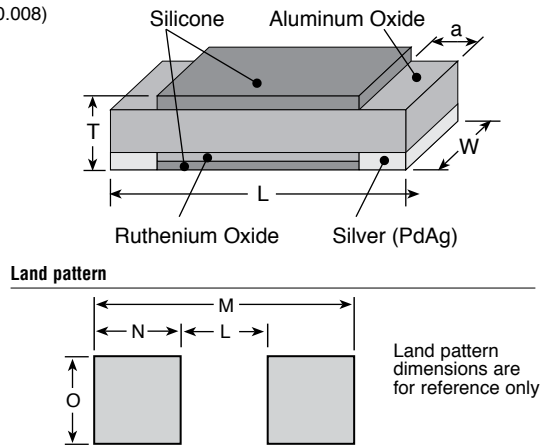
## High Voltage Flip Chip Film

### PERFORMANCE DATA

|                              |                                       |                                                             |
|------------------------------|---------------------------------------|-------------------------------------------------------------|
| <b>Insulation Resistance</b> | >10,000 MΩ                            | 500 Volt 25 °C 75% relative humidity                        |
| <b>Dielectric Strength</b>   | >1,000 Volt                           | 25 °C 75% relative humidity                                 |
| <b>Thermal Shock</b>         | $\Delta R/R < 0.1\%$ typ., 0.50% max. | MIL Std. 202, method 107, Cond. C (IEC 68 -2 -14)           |
| <b>Overload</b>              | $\Delta R/R < 0.1\%$ typ., 0.50% max. | 1,5 x P <sub>nom</sub> , 5 sec (do not exceed max. voltage) |
| <b>Moisture Resistance</b>   | $\Delta R/R < 0.1\%$ typ., 0.50% max. | MIL Std. 202, method 106 (IEC 68 -2 -3)                     |
| <b>Load Life</b>             | $\Delta R/R < 0.1\%$ typ., 0.50% max. | 1000 hours at rated power (IEC 115 -1)                      |

### DIMENSIONS

(in. ±0.008)



| Series  | L     | W     | a     | T (max.) | M     | N     | O     | L     |
|---------|-------|-------|-------|----------|-------|-------|-------|-------|
| HVF1206 | 0.128 | 0.063 | 0.018 | 0.028    | 0.150 | 0.040 | 0.080 | 0.070 |
| HVF2512 | 0.252 | 0.126 | 0.026 | 0.032    | 0.288 | 0.062 | 0.140 | 0.164 |

### ORDERING INFORMATION

| HVF1206T1004JE                      |                           | RoHS<br>Compliant                 | Taping Code<br>blank = bulk package<br>T = tape & reel                                                                       |
|-------------------------------------|---------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| High Voltage<br>Flip Chip<br>Series | Case Size<br>1206<br>2512 | TCR<br>T = 100 ppm<br>V = 50 ppm* | Ohms<br>First 3 digits are<br>significant; last<br>digit specifies<br>number of zeros to<br>follow. Example:<br>1006 = 100MΩ |
|                                     |                           |                                   | Tolerance<br>F = 1%<br>G = 2%<br>J = 5%                                                                                      |

\*Not available for all resistance values; consult factory

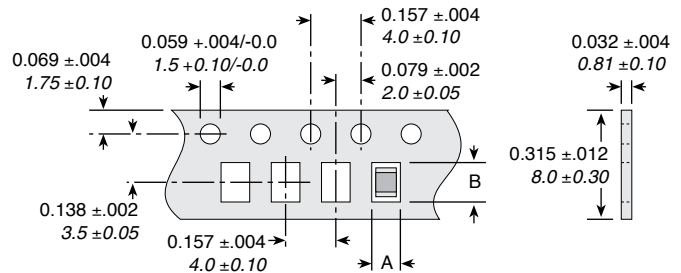
#### Standard part numbers

| Ohms  | HVF1206--- | HVF2512--- |
|-------|------------|------------|
| 25K   | ---T2502FE | ---T2502FE |
| 50K   | ---T5002FE | ---T5002FE |
| 75K   | ---T7502FE | ---T7502FE |
| 100K  | ---T1003FE | ---T1003FE |
| 250K  | ---T2503FE | ---T2503FE |
| 500K  | ---T5003FE | ---T5003FE |
| 1000K | ---T1004FE | ---T1004FE |
| 1500K | ---T1504FE | ---T1504FE |
| 2000K | ---T2004FE | ---T2004FE |
| 2500K | ---T2504FE | ---T2504FE |
| 5000K | ---T5004FE | ---T5004FE |
| 7500K | ---T7504FE | ---T7504FE |
| 1G    | ---T1007JE | ---T1007FE |
| 5G    |            | ---T5007FE |
| 10G   | ---T1008JE |            |

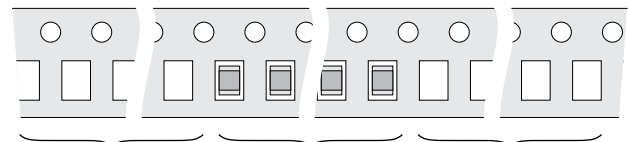
### TAPE AND REEL

Per EIA Std. RS-481

#### Tape



DIRECTION OF FEED →

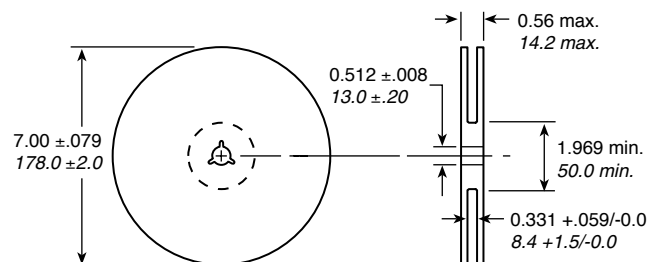


**Trailer**  
230mm min. – 560mm max. May consist of carrier and/or cover tape followed by a minimum of 160mm of carrier with sealed cover tape

**Components**

**Leader**  
Minimum of 40 empty component pockets sealed with cover tape

#### Reel



Standard Qty/Reel is 1000; maximum available quantity per reel is 3,500 for 1206 size and 2,000 for 2512 size; call 1-866-9-OHMITTE for details.