

Charging Resistor for EV Hybrid Wirewound Technology



FEATURES

- Technology: hybrid wirewound
- High energy / volume ratio
- Easy mounting (faston connection 6.35 [0.250"])
- Possibility to mount on heatsink
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS
COMPLIANT

APPLICATIONS

- Precharge
- Discharge
- Active discharge resistor

LINKS TO ADDITIONAL RESOURCES



3D Models

| STANDARD ELECTRICAL SPECIFICATIONS | | | | |
|------------------------------------|--------------------------------------------------------|--------------------------------------------------|------------------------------|----------------------|
| GLOBAL MODEL | POWER RATING ON STAINLESS STEEL ⁽¹⁾ W | POWER RATING ON PAMITHERM ⁽¹⁾ W | RESISTANCE RANGE Ω | TOLERANCE \pm % |
| HRHA | 90 | 54 | 1 to 1K | 5, 10 |

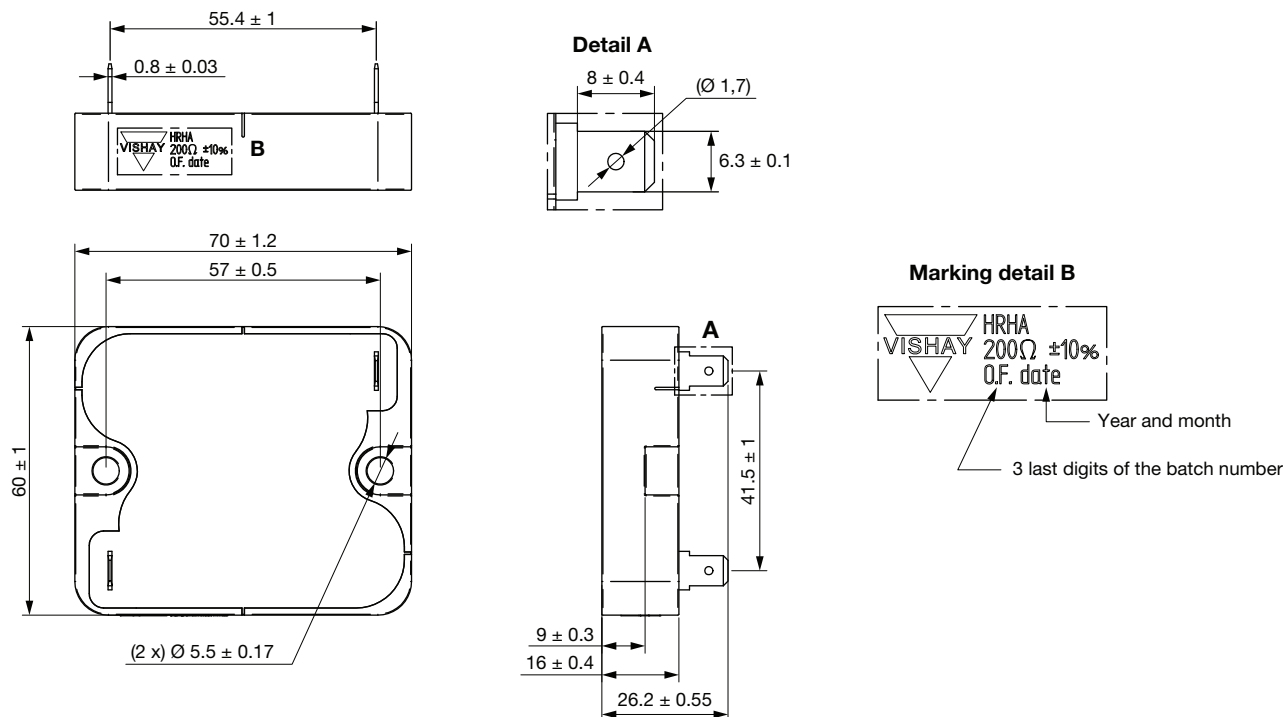
Note

⁽¹⁾ 6 mm thickness, see Fig. 2

| TECHNICAL SPECIFICATIONS | | |
|-----------------------------|--------|--------------------------|
| PARAMETER | UNIT | RESISTOR CHARACTERISTICS |
| Temperature coefficient | ppm/°C | \pm 100 (typical) |
| Operating temperature range | °C | -55 to +250 |

| GENERAL CHARACTERISTICS | |
|---------------------------------------------------------|---------------------------------------------------------|
| Dielectric base | Ceramic |
| Resistive circuit | Hybrid wirewound |
| Terminals | Stainless steel |
| Ohmic values | E24 (other on request) |
| Maximum operating voltage between terminals (by design) | 1000 V _{DC} |
| Dielectric voltage | 3000 V _{RMS} (higher on request), 50 Hz, 1 min |
| Creepage distance | 14 mm |
| Clearance distance | 14 mm |
| Weight | 160 g max. |

DIMENSIONS in millimeters



MOUNTING

For soldering recommendations please see www.vishay.com/doc?32595

DISSIPATION

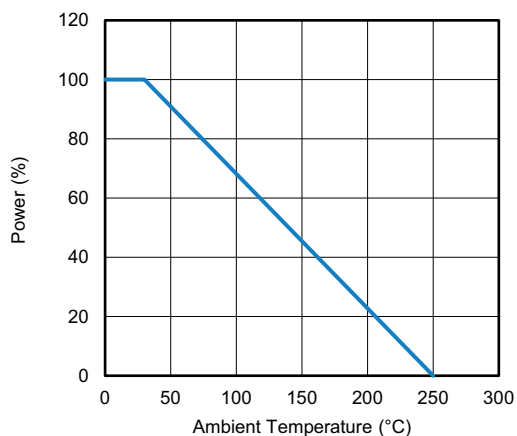


Fig. 1 - Permanent Applicable Power as a Function of Ambient Temperature

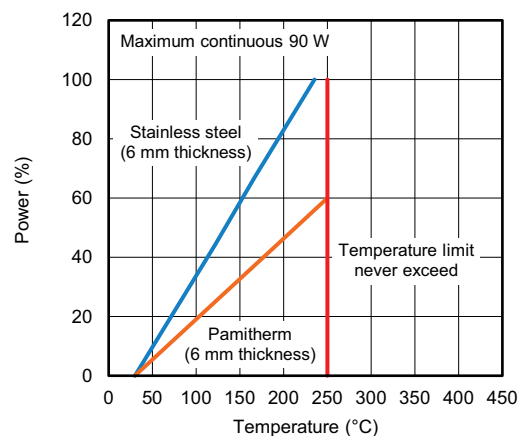


Fig. 2 - Bottom Case Temperature as a Function of the Power Applied at $T_{amb} = 30\text{ °C}$

ENERGY

| Energy mode at 30 °C room temperature | Stainless steel (6 mm thickness) | Pamitherm (6 mm thickness) |
|--------------------------------------------------------------|----------------------------------------|----------------------------------------|
| Refer to Fig. 2 for bottom case temperature vs. pulse number | PULSE – DURATION – WAIT ⁽¹⁾ | PULSE – DURATION – WAIT ⁽¹⁾ |
| Continuous cycle - short circuit wave (refer to Fig. 3) | 9000 J - 1.8 s - 100 s | 9000 J - 1.8 s - 167 s |
| Continuous cycle - RC discharge wave (refer to Fig. 4) | 1850 J - 0.74 s - 30 s | 1850 J - 0.74 s - 34 s |

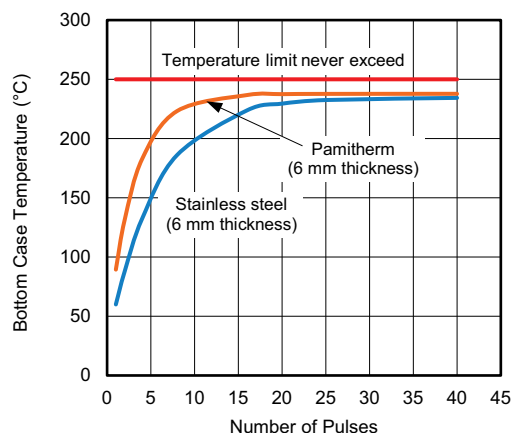


Fig. 3 - Bottom Case Temperature With Continuous Short Circuit Cycle 9000 J at $T_{amb} = 30\text{ °C}$

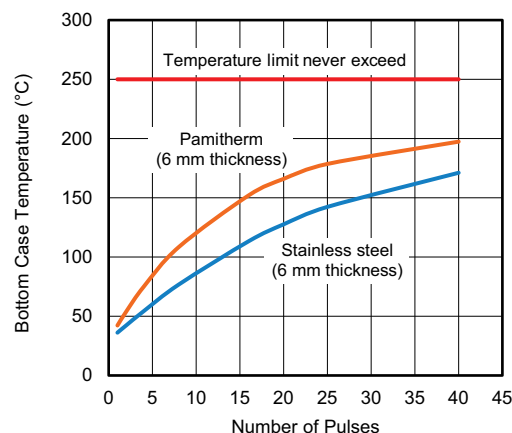


Fig. 4 - Bottom Case Temperature With Continuous RC Discharge Cycle 1850 J at $T_{amb} = 30\text{ °C}$

ORDERING INFORMATION

| HRHA | F | N | 22U | 5 % | BO12 |
|-------|-------------|---------|------------------|-----------|-----------|
| MODEL | TERMINATION | COATING | RESISTANCE VALUE | TOLERANCE | PACKAGING |

GLOBAL PART NUMBER INFORMATION

| | | | | | | | | | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------|---------------------------------------------------------|--|--|--|--|--|--|--|
| <div><div><div>H</div><div>R</div><div>H</div><div>A</div></div><div><div>F</div><div>C</div><div>2</div><div>0</div><div>0</div><div>0</div></div><div><div>J</div><div>B</div><div></div><div></div><div></div></div></div> <div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div><div>6</div><div>7</div></div> | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | | | |
| PRODUCT TYPE | TERMINATION | COATING (if applicable) | RESISTANCE VALUE | TOLERANCE | PACKAGING | INDUSTRIALIZATION NUMBER | | | | | | | |
| HRHA | F = faston | C = coated N = not coated | The first three digits are significant figures and the last specifies the number of zeros to follow, R designates decimal point. 4702 = 47 kΩ 47R0 = 47 Ω | J = 5 % K = 10 % | B = box Box quantity depends of model and size | Specific digits for custom design (if applicable) | | | | | | | |

EXAMPLES

| MODEL | DESCRIPTION | PART NUMBER |
|-------|---------------|-----------------------|
| HRHA | HRHAFN22R0JB | HRHA F N 22U 5 % BO12 |
| HRHA | HRH AFC22R0JB | HRHA F C 22U 5 % BO12 |



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