

- Features:**
- Chip size from 0402 to 2512
  - Max. resistance value less than 3 milliohm for 0402, less than 0.5 milliohm for all other sizes
  - Qualified to AEC-Q200
  - RoHS compliant/lead free and halogen free

- Applications:**
- Switching power supply
  - Voltage regulation module
  - DC-DC converter, adaptor, battery pack, charger
  - PDA and cell phone
  - Power management applications

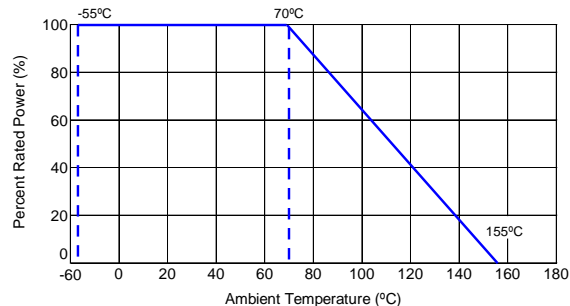


| Electrical Specifications |                    |                  |                          |                             |                 |
|---------------------------|--------------------|------------------|--------------------------|-----------------------------|-----------------|
| Type / Code               | Current Rating (A) | Power Rating (W) | Max Overload Current (A) | Operating Temperature Range | Ohmic Range (Ω) |
| HCJ0402                   | 6.5                | 0.125            | 14.2                     | -55°C to +155°C             | ≤ 0.003         |
| HCJ0603                   | 22.4               | 0.25             | 56                       |                             | ≤ 0.0005        |
| HCJ0805                   | 31.6               | 0.5              | 79                       |                             |                 |
| HCJ1206                   | 38.7               | 0.75             | 96.7                     |                             |                 |
| HCJ2512                   | 63.2               | 2                | 158                      |                             |                 |

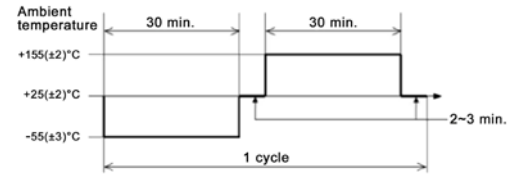
Power rating:  $P=I^2 \cdot R$

| Mechanical Specifications |               |               |               |               |        |
|---------------------------|---------------|---------------|---------------|---------------|--------|
|                           |               |               |               |               |        |
| Type / Code               | L             | W             | t             | A             | Unit   |
| HCJ0402                   | 0.039 ± 0.004 | 0.020 ± 0.002 | 0.016 ± 0.002 | 0.012 ± 0.004 | inches |
|                           | 1.00 ± 0.10   | 0.50 ± 0.05   | 0.40 ± 0.05   | 0.30 ± 0.10   | mm     |
| HCJ0603                   | 0.061 ± 0.004 | 0.031 ± 0.004 | 0.018 ± 0.004 | 0.014 ± 0.008 | inches |
|                           | 1.55 ± 0.10   | 0.80 ± 0.10   | 0.45 ± 0.10   | 0.35 ± 0.20   | mm     |
| HCJ0805                   | 0.083 ± 0.006 | 0.053 ± 0.006 | 0.028 ± 0.004 | 0.022 ± 0.008 | inches |
|                           | 2.10 ± 0.15   | 1.35 ± 0.15   | 0.70 ± 0.10   | 0.55 ± 0.20   | mm     |
| HCJ1206                   | 0.122 ± 0.008 | 0.061 ± 0.004 | 0.028 ± 0.004 | 0.031 ± 0.008 | inches |
|                           | 3.10 ± 0.20   | 1.55 ± 0.10   | 0.70 ± 0.10   | 0.80 ± 0.20   | mm     |
| HCJ2512                   | 0.256 ± 0.008 | 0.126 ± 0.008 | 0.030 ± 0.004 | 0.033 ± 0.010 | inches |
|                           | 6.50 ± 0.20   | 3.20 ± 0.20   | 0.75 ± 0.10   | 0.85 ± 0.25   | mm     |

**Power Derating Curve:**

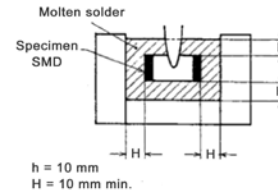
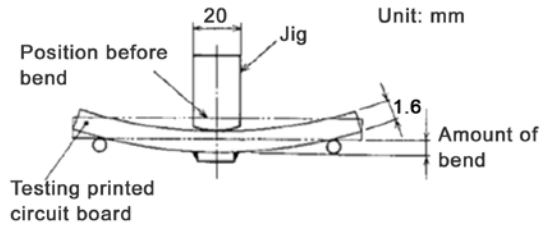


| Environmental Performance Characteristics |                         |   |   |
|---|-------------------------|---|---|
| Test                                      | Test Method             | Test Specification  | Test Condition  |
| Short Time Overload                       | JIS-C5202-5.5           | For 0402 size max. 0.003Ω<br>All other sizes max. 0.0005Ω | 2.5X rated current for 5 seconds  |
| Damp Heat with Load                       | MIL-STD-202, Method 103 |   | Specimens shall be placed in a chamber and subject to a relative humidity of 90~95% and to a temperature of 40°C ± 2°C for the period of 1000 hours   |
| High Temperature Exposure                 | JIS-C5202-7.2           |   | Part (mounted on board) is exposed in the heat chamber 125°C ± 3°C for 1000 hours   |
| Load Life                                 | JIS-C5202-7.10          |   | Apply rated power at 70°C ± 2°C for 1000 hours with 1.5 hours ON and 0.5 hour OFF   |
| Rapid Change of Temperature               | JIS-C5202-7.4           |   | Part (mounted on board) is exposed, -55°C ± 3°C (30 min.) / +155°C ± 2°C (30 minutes) for 5 cycles.<br>The following conditions as per picture below. |

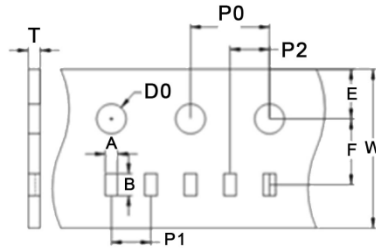


Note: Test board surface temperature shall not exceed 100°C when applying rated current.  
Storage Conditions: 5°C ~ 35°C. RH: 40%-75%

| Function Performance Characteristics |                         |   |  |
|--------------------------------------|-------------------------|---|--|
| Test                                 | Test Method             | Test Specification  | Test Condition   |
| Bending Strength                     | JIS-C5202-6.1           | For 0402 size max. 0.003Ω<br>All other sizes max. 0.0005Ω | Mount part to test substrate. Apply pressure in direction of arrow unit band width reaches 0.5mm (+0.2/-0mm)(illustrated in the figure below) and hold for 10 seconds ± 1 second.          |
| Resistance to Solder Heat            | MIL-STD-202, Method 210 | For 0402 size max. 0.003Ω<br>All other sizes max. 0.0005Ω | The part shall be immersed into the flux specified in the solder bath 260°C ± 5°C for 10 seconds ± 1 second  |
| Solderability                        | JIS-C5 202-6.11         | Solder shall be covered 95% or more of the electrode area | The part shall be immersed into the flux specified in the solder bath 235°C ± 5°C for 2 seconds ± 0.5 seconds. It shall be immersed to a point 10mm from its root.<br>(Sn96.5/Ag3.0/Cu0.5) |

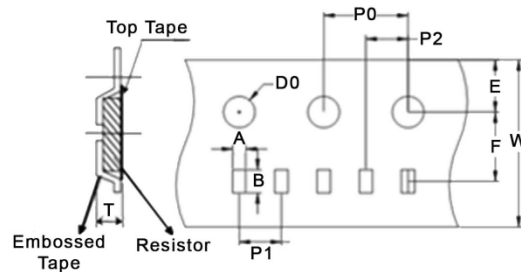


**Taping Specifications – Paper Tape**



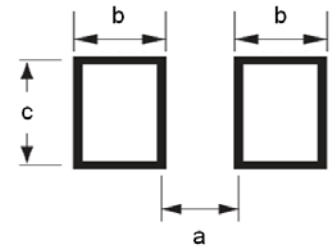
| Type / Code | A             | B             | E             | F             | W             | Unit   |
|-------------|---------------|---------------|---------------|---------------|---------------|--------|
| HCJ0402     | 0.028 ± 0.002 | 0.047 ± 0.002 | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.315 ± 0.008 | inches |
|             | 0.70 ± 0.05   | 1.20 ± 0.05   | 1.75 ± 0.10   | 3.50 ± 0.05   | 8.00 ± 0.20   | mm     |
| HCJ0603     | 0.043 ± 0.004 | 0.075 ± 0.004 | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.315 ± 0.008 | inches |
|             | 1.10 ± 0.10   | 1.90 ± 0.10   | 1.75 ± 0.10   | 3.50 ± 0.05   | 8.00 ± 0.20   | mm     |
| HCJ0805     | 0.063 ± 0.004 | 0.094 ± 0.004 | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.315 ± 0.008 | inches |
|             | 1.60 ± 0.10   | 2.40 ± 0.10   | 1.75 ± 0.10   | 3.50 ± 0.05   | 8.00 ± 0.20   | mm     |
| HCJ1206     | 0.079 ± 0.004 | 0.142 ± 0.004 | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.315 ± 0.008 | inches |
|             | 2.00 ± 0.10   | 3.60 ± 0.10   | 1.75 ± 0.10   | 3.50 ± 0.05   | 8.00 ± 0.20   | mm     |
| Type / Code | P0            | P1            | P2            | D0            | T             | Unit   |
| HCJ0402     | 0.157 ± 0.004 | 0.079 ± 0.004 | 0.079 ± 0.002 | 0.061 ± 0.002 | 0.018 ± 0.004 | inches |
|             | 4.00 ± 0.10   | 2.00 ± 0.10   | 2.00 ± 0.05   | 1.55 ± 0.05   | 0.45 ± 0.10   | mm     |
| HCJ0603     | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.061 ± 0.002 | 0.025 ± 0.004 | inches |
|             | 4.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.05   | 1.55 ± 0.05   | 0.64 ± 0.10   | mm     |
| HCJ0805     | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.061 ± 0.002 | 0.038 ± 0.004 | inches |
|             | 4.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.05   | 1.55 ± 0.05   | 0.97 ± 0.10   | mm     |
| HCJ1206     | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.061 ± 0.002 | 0.038 ± 0.004 | inches |
|             | 4.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.05   | 1.55 ± 0.05   | 0.97 ± 0.10   | mm     |

**Taping Specifications – Embossed Plastic Tape**



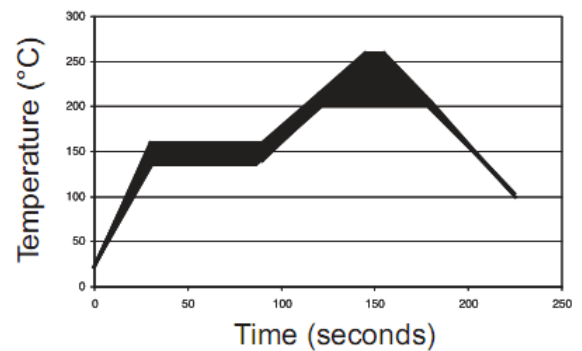
| Type / Code | A             | B             | E             | F             | W             | Unit   |
|-------------|---------------|---------------|---------------|---------------|---------------|--------|
| HCJ2512     | 0.138 ± 0.004 | 0.268 ± 0.004 | 0.069 ± 0.004 | 0.217 ± 0.002 | 0.472 ± 0.008 | inches |
|             | 3.50 ± 0.10   | 6.80 ± 0.10   | 1.75 ± 0.10   | 5.50 ± 0.05   | 12.00 ± 0.20  | mm     |
| Type / Code | P0            | P1            | P2            | D0            | T             | Unit   |
| HCJ2512     | 0.157 ± 0.002 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.059 ± 0.004 | 0.039 ± 0.008 | inches |
|             | 4.00 ± 0.05   | 4.00 ± 0.10   | 2.00 ± 0.05   | 1.50 ± 0.10   | 1.00 ± 0.20   | mm     |

| Recommended Pad Layout |       |       |       |        |
|------------------------|-------|-------|-------|--------|
| Type / Code            | a     | b     | c     | Unit   |
| HCJ0402                | 0.016 | 0.020 | 0.024 | inches |
|                        | 0.40  | 0.50  | 0.60  | mm     |
| HCJ0603                | 0.035 | 0.028 | 0.039 | inches |
|                        | 0.90  | 0.70  | 1.00  | mm     |
| HCJ0805                | 0.047 | 0.047 | 0.055 | inches |
|                        | 1.20  | 1.20  | 1.40  | mm     |
| HCJ1206                | 0.079 | 0.051 | 0.071 | inches |
|                        | 2.00  | 1.30  | 1.80  | mm     |
| HCJ2512                | 0.150 | 0.083 | 0.134 | inches |
|                        | 3.80  | 2.10  | 3.40  | mm     |



**Soldering Recommendations:**

- Peak reflow temperatures and durations
  - ✓ IR Reflow Peak = 260°C max for 10 seconds
  - ✓ Wave Solder = 260°C max for 10 seconds
- Compatible with lead and lead-free solder reflow processes
- Recommended IR reflow profile:



**RoHS Compliance**

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union’s directive regarding “Restrictions on Hazardous Substances” (RoHS 2). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament.

| RoHS Compliance Status  |                                     |                            |                                |                                   |  |                                       |
|-------------------------|-------------------------------------|----------------------------|--------------------------------|-----------------------------------|--|---------------------------------------|
| Standard Product Series | Description                         | Package / Termination Type | Standard Series RoHS Compliant | Lead-Free Termination Composition | Lead-Free Mfg. Effective Date (Std Product Series) | Lead-Free Effective Date Code (YY/WW) |
| HCJ                     | Molded Metal Plate Sensing Resistor | SMD                        | YES                            | 100% Matte Sn over Ni             | Always   | Always                                |

**“Conflict Metals” Commitment**

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the “conflict region” of the Easter Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

### Compliance to “REACH”

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, “The Registration, Evaluation, Authorization and Restriction of Chemicals”, otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

### Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

| How to Order   |          |                |           |          |          |           |           |             |                  |                  |   |          |
|----------------|----------|----------------|-----------|----------|----------|-----------|-----------|-------------|------------------|------------------|---|----------|
| 1              | 2        | 3              | 4         | 5        | 6        | 7         | 8         | 9           | 10               | 11               | 12  | 13       |
| <b>H</b>       | <b>C</b> | <b>J</b>       | <b>0</b>  | <b>6</b> | <b>0</b> | <b>3</b>  | <b>Z</b>  | <b>T</b>    | <b>0</b>         | <b>R</b>         | <b>0</b>  | <b>0</b> |
| Product Series | Size     | Rating Current | Tolerance |          |          |           | Packaging |             |                  |                  | Resistance Value  |          |
| HCJ            | 0402     | 6.5A           | Code      | Tol      | Size     | Value (Ω) | Code      | Description | Size             | Quantity         | Four characters with the multiplier used as the decimal holder.<br>0 ohm = 0R00 |          |
|                | 0603     | 22.4A          | Z         | Zero Ohm | 0402     | <0.003    | T         | Paper Tape  | 0402             | 10,000           |   |          |
|                | 0805     | 31.6A          |           |          | 0603     | <0.0005   |           |             | Embossed Plastic | 0603, 0805, 1206 | 5,000   |          |
|                | 1206     | 38.7A          |           |          | 1206     |           |           | 2512        |                  | 4,000            |   |          |
|                | 2512     | 63.2A          |           |          | 2512     |           |           |             |                  |                  |   |          |

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