

RVC1206FT470K Datasheet



| | |
|------------------------------|--|
| DiGi Electronics Part Number | RVC1206FT470K-DG |
| Manufacturer | Stackpole Electronics Inc |
| Manufacturer Product Number | RVC1206FT470K |
| Description | RES 470K OHM 1% 1/4W 1206 |
| Detailed Description | 470 kOhms ±1% 0.25W, 1/4W Chip Resistor 1206 (3 216 Metric) Thick Film |

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Purchase and inquiry

Manufacturer Product Number:

RVC1206FT470K

Series:

RVC

Resistance:

470 kOhms

Power (Watts):

0.25W, 1/4W

Features:

-

Operating Temperature:

-55°C ~ 155°C

Supplier Device Package:

1206

Height - Seated (Max):

0.026" (0.65mm)

Failure Rate:

-

Manufacturer:

Stackpole Electronics Inc

Product Status:

Active

Tolerance:

±1%

Composition:

Thick Film

Temperature Coefficient:

±100ppm/°C

Package / Case:

1206 (3216 Metric)

Size / Dimension:

0.122" L x 0.061" W (3.10mm x 1.55mm)

Number of Terminations:

2

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8533.21.0030

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

RVC Series

High Voltage Chip Resistor

Stackpole Electronics, Inc.
Resistive Product Solutions

Features:

- Voltage ratings 2 times or more compared to standard chip resistors
- Values up to 100MΩ
- Lower resistance values may be available - contact Stackpole
- Proportionally higher pulse power capability
- RoHS compliant, REACH compliant, and halogen free
- AEC-Q200 compliant



Electrical Specifications

| Type/Code | Power Rating (W) @ 70°C | Max Working Voltage (V) | Max Overload Voltage (V) | TCR (ppm/°C) | Ohmic Range (Ω) and Tolerance | |
|-----------|----------------------------|----------------------------|-----------------------------|----------------------|-------------------------------|--------------------------|
| | | | | | 1% | 5% |
| RVC0402 | 0.063 | 100 | 200 | ±100 ±200 ±400 | 39K - 1M | |
| | | | | | 1.02M - 10M - | 1.1M - 20M 22M - 100M |
| RVC0603 | 0.1 | 200 | 400 | ±100 ±200 ±400 | 56K - 1M | |
| | | | | | 1.02M - 10M - | 1.1M - 20M 22M - 100M |
| RVC0805 | 0.125 | 400 | 800 | ±100 ±200 ±400 | 100K - 1M | |
| | | | | | 1.02M - 10M - | 1.1M - 20M 22M - 100M |
| RVC1206 | 0.25 | 500 | 1000 | ±100 ±200 ±400 | 100K - 1M | |
| | | | | | 1.02M - 10M - | 1.1M - 20M 22M - 100M |
| RVC2010 | 0.5 | 2000 | 3000 | ±100 ±200 ±400 | 51K - 1M | |
| | | | | | 1.02M - 20M - | 1.1M - 20M 22M - 100M |
| RVC2512 | 1 | 3000 | 4000 | ±100 ±200 ±400 | 30K - 1M | |
| | | | | | 1.02M - 20M - | 1.1M - 20M 22M - 100M |

Working Voltage = $\sqrt{P \cdot R}$ or maximum working voltage listed above, whichever is lower.

Overload Voltage = $2.5 \cdot \sqrt{P \cdot R}$ or maximum overload voltage listed above, whichever is lower.

Mechanical Specifications



| Type/Code | Typical Unit Weight (mg) | L Body Length | W Body Width | H Body Height | a Top Termination | b Bottom Termination | Unit |
|-----------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------|
| RVC0402 | 0.62 | 0.039 ± 0.002 1.00 ± 0.05 | 0.020 ± 0.002 0.50 ± 0.05 | 0.014 ± 0.002 0.35 ± 0.05 | 0.008 ± 0.004 0.20 ± 0.10 | 0.008 ± 0.004 0.20 ± 0.10 | inches mm |
| RVC0603 | 2.0 | 0.063 ± 0.004 1.60 ± 0.10 | 0.031 ± 0.004 0.80 ± 0.10 | 0.018 ± 0.004 0.45 ± 0.10 | 0.012 ± 0.008 0.30 ± 0.20 | 0.012 ± 0.008 0.30 ± 0.20 | inches mm |
| RVC0805 | 4.4 | 0.079 ± 0.004 2.00 ± 0.10 | 0.049 ± 0.004 1.25 ± 0.10 | 0.020 ± 0.004 0.50 ± 0.10 | 0.014 ± 0.008 0.35 ± 0.20 | 0.016 ± 0.008 0.40 ± 0.20 | inches mm |
| RVC1206 | 8.9 | 0.122 ± 0.004 3.10 ± 0.10 | 0.061 ± 0.004 1.55 ± 0.10 | 0.022 ± 0.004 0.55 ± 0.10 | 0.020 ± 0.010 0.50 ± 0.25 | 0.020 ± 0.008 0.50 ± 0.20 | inches mm |

Rev Date: 2/18/2025

1

This specification may be changed at any time without prior notice.
Please confirm technical specifications before use.

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RVC Series

High Voltage Chip Resistor

Stackpole Electronics, Inc.
Resistive Product Solutions

Mechanical Specifications (cont.)

| Type/Code | Typical Unit Weight (mg) | L Body Length | W Body Width | H Body Height | a Top Termination | b Bottom Termination | Unit |
|-----------|--------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------|
| RVC2010 | 24.2 | 0.197 ± 0.008 5.00 ± 0.20 | 0.098 ± 0.006 2.50 ± 0.15 | 0.022 ± 0.004 0.55 ± 0.10 | 0.024 ± 0.010 0.60 ± 0.25 | 0.020 ± 0.008 0.50 ± 0.20 | inches mm |
| RVC2512 | 39.4 | 0.250 ± 0.008 6.35 ± 0.20 | 0.126 ± 0.006 3.20 ± 0.15 | 0.022 ± 0.004 0.55 ± 0.10 | 0.024 ± 0.010 0.60 ± 0.25 | 0.020 ± 0.008 0.50 ± 0.20 | inches mm |

Performance Characteristics

| Test | Test Method | Test Specification | | Test Condition |
|---|---|--|----------------|--|
| | | ±1% | ±5% | |
| Temperature Coefficient of Resistance (TCR) | JIS-C-5201-1 4.8 IEC-60115-1 4.8 | As specified by Electrical Specification Table | | -55 ~ +125°C, 25°C is the reference temperature |
| Short Time Overload | JIS-C-5201-1 4.13 IEC-60115-1 4.13 | ±(1% + 0.05Ω) | ±(2% + 0.05Ω) | RCWV *2.5 or Max. Overload Voltage whichever is lower for 5 seconds |
| Insulation Resistance | JIS-C-5201-1 4.6 IEC-60115-1 4.6 | ≥ 10G | | Max. Overload voltage for 1 minute |
| Endurance | JIS-C-5201-1 4.25 IEC-60115-1 4.25.1 | ±(2% + 0.1Ω) | ±(3% + 0.1Ω) | 70 ± 2°C, RCWV for 1000 hours with 1.5 hour "ON" and 0.5 hour "OFF" |
| Damp Heat with Load | JIS-C-5201-1 4.24 IEC-60115-1 4.24 | ±(2% + 0.1Ω) | ±(3% + 0.1Ω) | 40 ± 2°C, 90 ~ 95% R.H., RCWV for 1000 hours with 1.5 hour "ON" and 0.5 hour "OFF" |
| Dry Heat | JIS-C-5201-1 4.23 IEC-60115-1 4.23.2 | ±(1% + 0.05Ω) | ±(1.5% + 0.1Ω) | at +155°C for 1000 hours |
| Bending Strength | JIS-C-5201-1 4.33 IEC-60115-1 4.33 | ±(1% + 0.05Ω) | ±(1% + 0.05Ω) | Bending once for 5 seconds 2010, 2512 sizes: 2 mm; other sizes: 3 mm |
| Solderability | JIS-C-5201-1 4.17 IEC-60115-1 4.17 | 95% min. coverage | | 245 ± 5°C for 3 seconds |
| Resistance to Soldering Heat | JIS-C-5201-1 4.18 IEC-60115-1 4.18 | ±(0.5% + 0.05Ω) | ±(1% + 0.05Ω) | 260 ± 5°C for 10 seconds |
| Voltage Proof | JIS-C-5201-1 4.7 IEC-60115-1 4.7 | No breakdown or flashover | | 0402: 150 V for 1 minute 0603: 300 V for 1 minute 0805, 1206, 2010, 2512: 500 V for 1 minute |
| Leaching | JIS-C-5201-1 4.18 IEC-60068-2-58 8.2.1 | Individual leaching area ≤ 5% Total leaching area ≤ 10% | | 260 ± 5°C for 30 seconds |
| Rapid Change of Temperature | JIS-C-5201-1 4.19 IEC-60115-1 4.19 | ±(0.5% + 0.05Ω) | ±(1% + 0.05Ω) | -55 to +155°C, 5 cycles |

RCWV (Rated Continuous Working Voltage) = $\sqrt{P \cdot R}$ or Max. Operating Voltage whichever is lower.

Recommended storage temperature is 25 ± 3°C; humidity < 80% RH

Operating temperature range is -55 to 155°C

Power Derating Curve:



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Recommended Pad Layout



| Type/Code | a | b | c | Unit |
|-----------|---------------|---------------|---------------|--------------|
| RVC0402 | 0.020 0.50 | 0.018 0.45 | 0.024 0.60 | inches mm |
| RVC0603 | 0.035 0.90 | 0.024 0.60 | 0.035 0.90 | inches mm |
| RVC0805 | 0.047 1.20 | 0.028 0.70 | 0.051 1.30 | inches mm |
| RVC1206 | 0.079 2.00 | 0.035 0.90 | 0.063 1.60 | inches mm |
| RVC2010 | 0.150 3.80 | 0.035 0.90 | 0.110 2.80 | inches mm |
| RVC2512 | 0.193 4.90 | 0.063 1.60 | 0.138 3.50 | inches mm |

Recommended Solder Profile

This information is intended as a reference for solder profiles for Stackpole resistive components. These profiles should be compatible with most soldering processes. These are only recommendations. Actual numbers will depend on board density, geometry, packages used, etc., especially those cells labeled with “*”.

100% Matte Tin / RoHS Compliant Terminations

Soldering iron recommended temperatures: 330 to 350°C with minimum duration.
Maximum number of reflow cycles: 3.

Wave Soldering

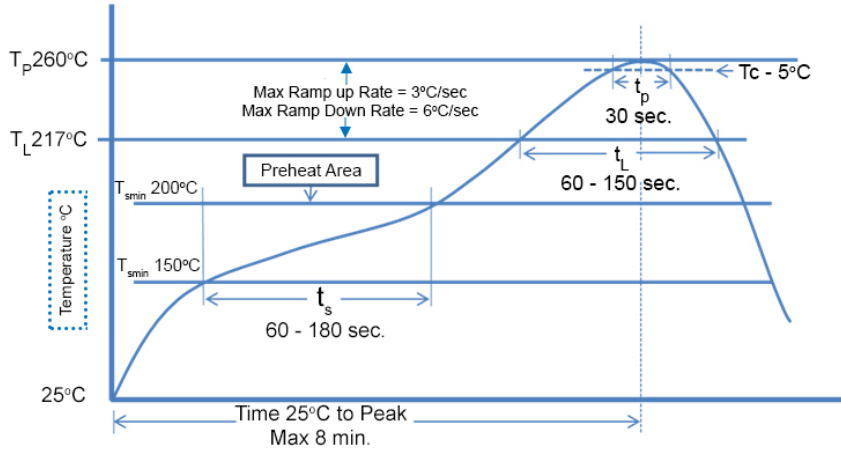
| Description | Maximum | Recommended | Minimum |
|--------------------|------------|-------------|------------|
| Preheat Time | 80 seconds | 70 seconds | 60 seconds |
| Temperature Diff. | 140°C | 120°C | 100°C |
| Solder Temp. | 260°C | 250°C | 240°C |
| Dwell Time at Max. | 10 seconds | 5 seconds | * |
| Ramp DN (°C/sec) | N/A | N/A | N/A |

Temperature Diff. = Difference between final preheat stage and soldering stage.

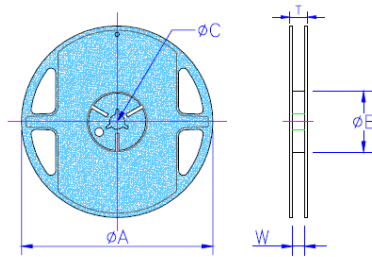
Convection IR Reflow

| Description | Maximum | Recommended | Minimum |
|--------------------|-------------|-------------|------------|
| Ramp Up (°C/sec) | 3°C/sec | 2°C/sec | * |
| Dwell Time > 217°C | 150 seconds | 90 seconds | 60 seconds |
| Solder Temp. | 260°C | 245°C | * |
| Dwell Time at Max. | 30 seconds | 15 seconds | 10 seconds |
| Ramp DN (°C/sec) | 6°C/sec | 3°C/sec | * |

Recommended Resistor Reflow Profile

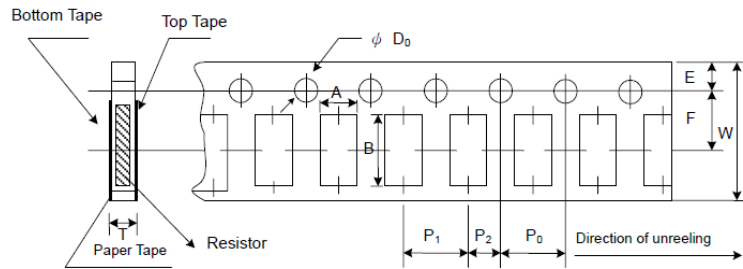


Reel Specifications



| Type/Code | Tape Width (mm) | Reel Diameter (inches) | A | B | C | W | T | Unit |
|--------------------------------------|-----------------|------------------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------|
| RVC0402, RVC0603 RVC0805, RVC1206 | 8 mm | 7" | 7.028 ± 0.059 178.50 ± 1.50 | 2.362 ± 0.039 60.00 ± 1.00 | 0.512 ± 0.008 13.00 ± 0.20 | 0.354 ± 0.020 9.00 ± 0.50 | 0.492 ± 0.020 12.50 ± 0.50 | inches mm |
| RVC2010, RVC2512 | 12 mm | 7" | 7.028 ± 0.059 178.50 ± 1.50 | 2.362 ± 0.039 60.00 ± 1.00 | 0.512 ± 0.020 13.00 ± 0.50 | 0.512 ± 0.020 13.00 ± 0.50 | 0.610 ± 0.020 15.50 ± 0.50 | inches mm |

Packaging Specifications - Paper Tape



| Type/Code | A | B | W | E | F | Unit |
|-----------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------|
| RVC0402 | 0.026 ± 0.004 0.65 ± 0.10 | 0.045 ± 0.004 1.15 ± 0.10 | 0.315 ± 0.008 8.00 ± 0.20 | 0.069 ± 0.004 1.75 ± 0.10 | 0.138 ± 0.002 3.50 ± 0.05 | inches mm |
| RVC0603 | 0.043 ± 0.004 1.10 ± 0.10 | 0.075 ± 0.004 1.90 ± 0.10 | 0.315 ± 0.008 8.00 ± 0.20 | 0.069 ± 0.004 1.75 ± 0.10 | 0.138 ± 0.002 3.50 ± 0.05 | inches mm |
| RVC0805 | 0.063 ± 0.004 1.60 ± 0.10 | 0.094 ± 0.008 2.40 ± 0.20 | 0.315 ± 0.008 8.00 ± 0.20 | 0.069 ± 0.004 1.75 ± 0.10 | 0.138 ± 0.002 3.50 ± 0.05 | inches mm |
| RVC1206 | 0.075 ± 0.004 1.90 ± 0.10 | 0.138 ± 0.008 3.50 ± 0.20 | 0.315 ± 0.008 8.00 ± 0.20 | 0.069 ± 0.004 1.75 ± 0.10 | 0.138 ± 0.002 3.50 ± 0.05 | inches mm |
| Type/Code | P0 | P1 | P2 | D | T | Unit |
| RVC0402 | 0.157 ± 0.004 4.00 ± 0.10 | 0.079 ± 0.002 2.00 ± 0.05 | 0.079 ± 0.002 2.00 ± 0.05 | 0.059 ± 0.004 1.50 ± 0.10 | 0.018 ± 0.004 0.45 ± 0.10 | inches mm |
| RVC0603 | 0.157 ± 0.004 4.00 ± 0.10 | 0.157 ± 0.002 4.00 ± 0.05 | 0.079 ± 0.002 2.00 ± 0.05 | 0.059 ± 0.004 1.50 ± 0.10 | 0.028 ± 0.004 0.70 ± 0.10 | inches mm |
| RVC0805 | 0.157 ± 0.004 4.00 ± 0.10 | 0.157 ± 0.002 4.00 ± 0.05 | 0.079 ± 0.002 2.00 ± 0.05 | 0.059 ± 0.004 1.50 ± 0.10 | 0.031 ± 0.004 0.80 ± 0.10 | inches mm |
| RVC1206 | 0.157 ± 0.004 4.00 ± 0.10 | 0.157 ± 0.002 4.00 ± 0.05 | 0.079 ± 0.002 2.00 ± 0.05 | 0.059 ± 0.004 1.50 ± 0.10 | 0.033 ± 0.004 0.85 ± 0.10 | inches mm |

Packaging Specifications - Plastic Tape



| Type/Code | A | B | W | E | F | Unit |
|-----------|------------------------------|------------------------------|-------------------------------|------------------------------|------------------------------|--------------|
| RVC2010 | 0.110 ± 0.004 2.80 ± 0.10 | 0.217 ± 0.004 5.50 ± 0.10 | 0.472 ± 0.012 12.00 ± 0.30 | 0.069 ± 0.004 1.75 ± 0.10 | 0.217 ± 0.002 5.50 ± 0.05 | inches mm |
| RVC2512 | 0.138 ± 0.004 3.50 ± 0.10 | 0.264 ± 0.004 6.70 ± 0.10 | 0.472 ± 0.012 12.00 ± 0.30 | 0.069 ± 0.004 1.75 ± 0.10 | 0.217 ± 0.002 5.50 ± 0.05 | inches mm |

RVC Series

High Voltage Chip Resistor

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Packaging Specifications - Plastic Tape (cont.)

| Type/Code | P0 | P1 | P2 | D | T | Unit |
|-----------|------------------------------|------------------------------|------------------------------|------------------------------|---------------|--------------|
| RVC2010 | 0.157 ± 0.004 4.00 ± 0.10 | 0.157 ± 0.004 4.00 ± 0.10 | 0.079 ± 0.002 2.00 ± 0.05 | 0.059 ± 0.004 1.50 ± 0.10 | 0.047 1.20 | inches mm |
| RVC2512 | 0.157 ± 0.004 4.00 ± 0.10 | 0.157 ± 0.004 4.00 ± 0.10 | 0.079 ± 0.002 2.00 ± 0.05 | 0.059 ± 0.004 1.50 ± 0.10 | 0.047 1.20 | inches mm |

Marking Instructions

E96 and E24 Values for 0805-2512 (1% tolerances)

The nominal resistance is marked on the surface of the overcoating with the use of **four character markings.**



E24 Values 0603-2512 (5% tolerance)

The nominal resistance is marked on the surface of the overcoating with the use of **three character markings.**



E96 Values for 0603 (1% Marking)

A two character number is assigned to each standard R-Value (E96) as shown in the chart below. This is followed by one alpha character which is used as a multiplier.

Each letter from "C" - "F" represents a specific multiplier.



| Alpha Character = Multiplier | Chip Marking | Value |
|------------------------------|--------------|---------------------|
| C = 1000 | 73C | 56.2x1000 = 56.2KΩ |
| D = 10000 | 05D | 11.0x10000 = 110KΩ |
| E = 100000 | 01E | 10.0 x100000 = 1MΩ |
| F = 1000000 | 01F | 10.0x1000000 = 10MΩ |

E96

| # | R-Value | # | R-Value | # | R-Value | # | R-Value | # | R-Value | # | R-Value |
|----|---------|----|---------|----|---------|----|---------|----|---------|----|---------|
| 01 | 10.0 | 17 | 14.7 | 33 | 21.5 | 49 | 31.6 | 65 | 46.4 | 81 | 68.1 |
| 02 | 10.2 | 18 | 15.0 | 34 | 22.1 | 50 | 32.4 | 66 | 47.5 | 82 | 69.8 |
| 03 | 10.5 | 19 | 15.4 | 35 | 22.6 | 51 | 33.2 | 67 | 48.7 | 83 | 71.5 |
| 04 | 10.7 | 20 | 15.8 | 36 | 23.2 | 52 | 34.0 | 68 | 49.9 | 84 | 73.2 |
| 05 | 11.0 | 21 | 16.2 | 37 | 23.7 | 53 | 34.8 | 69 | 51.1 | 85 | 75.0 |
| 06 | 11.3 | 22 | 16.5 | 38 | 24.3 | 54 | 35.7 | 70 | 52.3 | 86 | 76.8 |
| 07 | 11.5 | 23 | 16.9 | 39 | 24.9 | 55 | 36.5 | 71 | 53.6 | 87 | 78.7 |
| 08 | 11.8 | 24 | 17.4 | 40 | 25.5 | 56 | 37.4 | 72 | 54.9 | 88 | 80.6 |
| 09 | 12.1 | 25 | 17.8 | 41 | 26.1 | 57 | 38.3 | 73 | 56.2 | 89 | 82.5 |
| 10 | 12.4 | 26 | 18.2 | 42 | 26.7 | 58 | 39.2 | 74 | 57.6 | 90 | 84.5 |
| 11 | 12.7 | 27 | 18.7 | 43 | 27.4 | 59 | 40.2 | 75 | 59.0 | 91 | 86.6 |
| 12 | 13.0 | 28 | 19.1 | 44 | 28.0 | 60 | 41.2 | 76 | 60.4 | 92 | 88.7 |
| 13 | 13.3 | 29 | 19.6 | 45 | 28.7 | 61 | 42.2 | 77 | 61.9 | 93 | 90.9 |
| 14 | 13.7 | 30 | 20.0 | 46 | 29.4 | 62 | 43.2 | 78 | 63.4 | 94 | 93.1 |
| 15 | 14.0 | 31 | 20.5 | 47 | 30.1 | 63 | 44.2 | 79 | 64.9 | 95 | 95.3 |
| 16 | 14.3 | 32 | 21.0 | 48 | 30.9 | 64 | 45.3 | 80 | 66.5 | 96 | 97.6 |

Note: 0402 resistors are not marked

RVC Series

High Voltage Chip Resistor

Stackpole Electronics, Inc.
Resistive Product Solutions

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 3). 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 as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

| 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) |
| RVC | High Voltage Chip Resistor | SMD | YES(1) | 100% Matte Sn over Ni | Jan-03 | 03/01 |

Note (1): RoHS Compliant by means of exemption 7c-l.

"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 eastern 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



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