



**THE DATASHEET OF
RSF100JT-73-20R**



DATA SHEET

METAL OXIDE FILM RESISTORS

General Purpose, Flameproof

RSF Series

±2%, ±5%

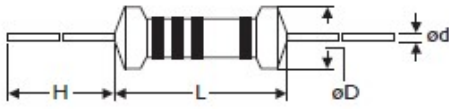
1/4W to 5W

RoHS compliant & Halogen Free



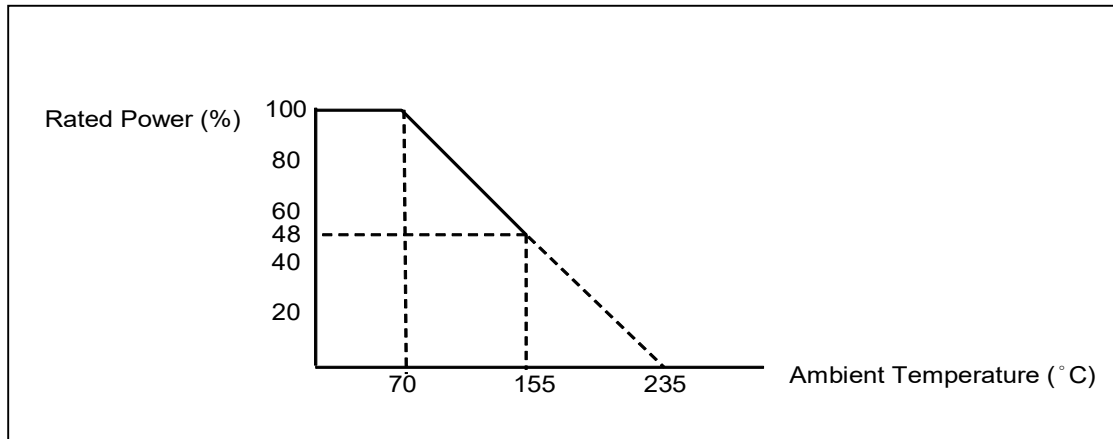
DIMENSIONS

Unit: mm



| Normal | Miniature | L | ψD | H | ψd |
|--------|-----------|------------|-----------|----------|-------------|
| RSF-50 | RSF1WS | 9.0 ± 0.5 | 3.3 ± 0.3 | 26 ± 2.0 | 0.55 ± 0.05 |
| RSF100 | RSF2WS | 11.5 ± 1.0 | 4.5 ± 0.5 | 35 ± 2.0 | 0.8 ± 0.05 |
| RSF200 | RSF3WS | 15.5 ± 1.0 | 5.0 ± 0.5 | 33 ± 2.0 | 0.8 ± 0.05 |
| RSF3WM | RSF5SS | 17.5 ± 1.0 | 6.5 ± 1.0 | 32 ± 2.0 | 0.8 ± 0.05 |
| RSF300 | RSF5WS | 24.5 ± 1.0 | 8.5 ± 1.0 | 38 ± 2.0 | 0.8 ± 0.05 |
| RSF500 | - | 24.5 ± 1.0 | 8.5 ± 1.0 | 38 ± 2.0 | 0.8 ± 0.05 |

DERATING CURVE



ELECTRICAL CHARACTERISTICS

| CHARACTERISTICS | RSF-50 | RSF100 | RSF200 | RSF3WM | RSF300 | RSF500 |
|-----------------------------|-------------------------------|--------|--------|--------|--------|--------|
| Power Rating at 70 °C | 1/2W | 1W | 2W | 3W | 3W | 5W |
| Maximum working voltage | 250V | 350V | 350V | 450V | 500V | 750V |
| Maximum overload voltage | 400V | 600V | 600V | 700V | 800V | 1000V |
| Voltage Proof on Insulation | 350V | 500V | 500V | 500V | 500V | 500V |
| Resistance Range | 1Ω – 1MΩ for E24 series value | | | | | |
| Operating Temp. Range | - 55°C to +155°C | | | | | |
| Temperature Coefficient | ±300ppm/°C | | | | | |

Note: For resistance value out of above range is by request. Below 10Ω and over 20K(excluded) are using alloy film

| CHARACTERISTICS | RSF1WS | RSF2WS | RSF3WS | RSF5SS | RSF5WS |
|-----------------------------|-------------------------------|--------|--------|--------|--------|
| Power Rating at 70 °C | 1W | 2W | 3W | 5W | 5W |
| Maximum working voltage | 300V | 350V | 350V | 500V | 700V |
| Maximum overload voltage | 500V | 600V | 600V | 800V | 900V |
| Voltage Proof on Insulation | 400V | 500V | 500V | 500V | 500V |
| Resistance Range | 1Ω – 1MΩ for E24 series value | | | | |
| Operating Temp. Range | - 55°C to +155°C | | | | |
| Temperature Coefficient | ±300ppm/°C | | | | |

Note: For resistance value out of above range is by request. Below 10Ω and over 20K(excluded) are using alloy film

TEST AND REQUIREMENTS

| TEST | TEST METHOD | PROCEDURE | APPRAISE |
|-------------------------------|------------------|--|---|
| Short Time Overload | IEC 60115-1 4.13 | 2.5 times RCWV for 5 sec. (Not more than maximum overload voltage) | ±1%+0.05Ω for normal style ±2%+0.05Ω for miniature style |
| Voltage Proof on Insulation | IEC 60115-1 4.7 | In V-Block for 60 sec. test voltage as above table | No Breakdown |
| Temperature Coefficient | IEC 60115-1 4.8 | Between -55°C to +155°C | By Type |
| Insulation Resistance | IEC 60115-1 4.6 | In V-Block for 60 sec. | >1,000MΩ |
| Solderability | IEC 60115-1 4.17 | 245±5°C for 3±0.5 Sec. | 95% Min. coverage |
| Solvent Resistance of Marking | IEC 60115-1 4.30 | IPA for 5±0.5 Min. with ultrasonic | No deterioration of coatings and markings |
| Robustness of Terminations | IEC 60115-1 4.16 | Direct load for 10 Sec. in the direction of the terminal leads | ≥2.5Kg(24.5N) |
| Periodic-pulse Overload | IEC 60115-1 4.39 | 4 times RCWV 10,000 cycles (1 Sec. on, 25 Sec. off) | ±2.0%+0.05Ω |
| Damp Heat Steady State | IEC 60115-1 4.24 | 40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV | ±5.0%+0.05Ω |
| Endurance at 70°C | IEC 60115-1 4.25 | 70±2°C at RCWV(or Umax., whichever less) for 1,000 Hr.(1.5 Hr.on, 0.5 Hr. off) | ±5.0%+0.05Ω |
| Temperature Cycling | IEC 60115-1 4.19 | → -55°C → Room Temp. → +155°C Room Temp.(5 cycles) | ±1.0%+0.05Ω |
| Resistance to Soldering Heat | IEC 60115-1 4.18 | 260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body | ±1.0 %+0.05Ω |
| Accidental Overload Test | IEC 60115-1 4.26 | 4 times RCWV for 1 Min. | No evidence of flaming or arcing |

Note:

RCWV (Rated Continuous Working Voltage):

The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

$$V = \sqrt{P \times R}$$

or max. working voltage whichever is less

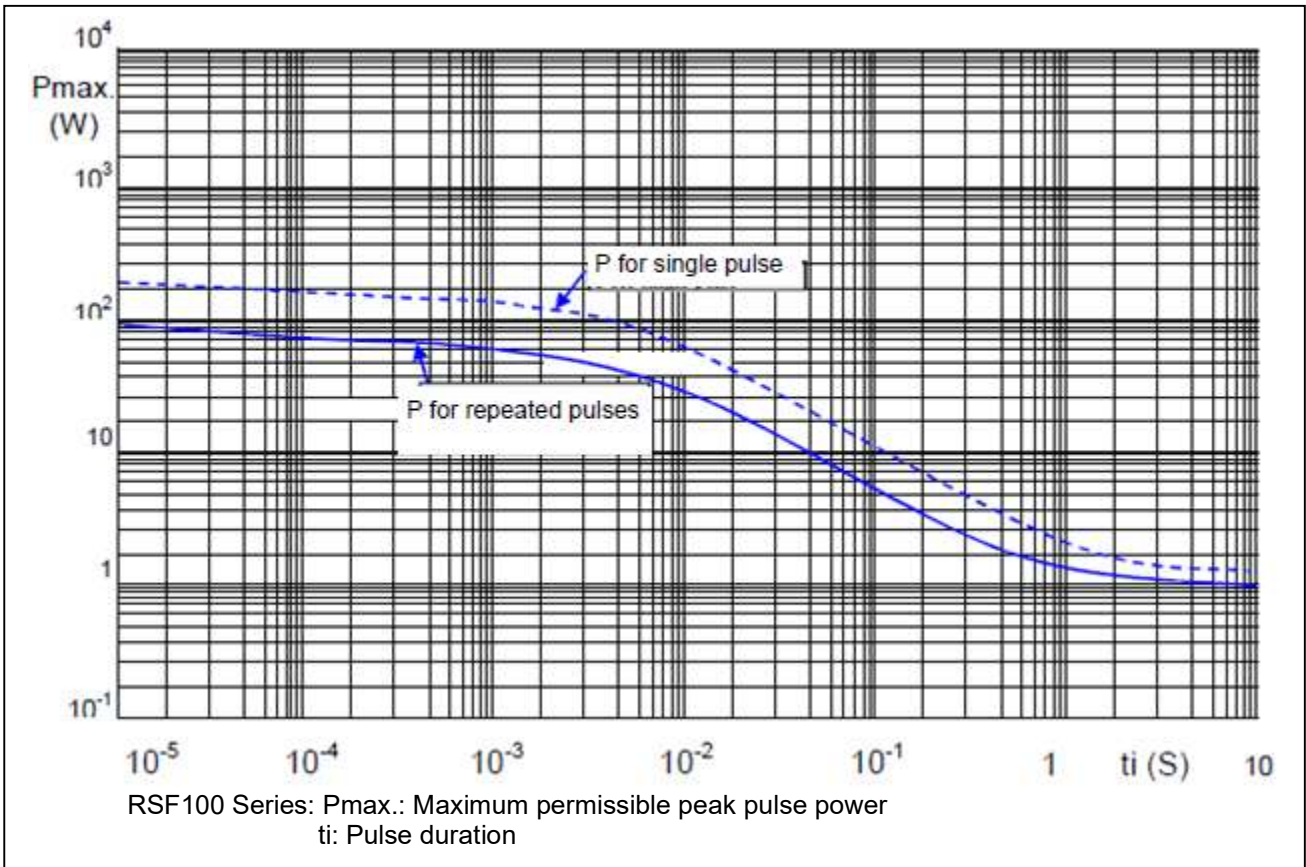
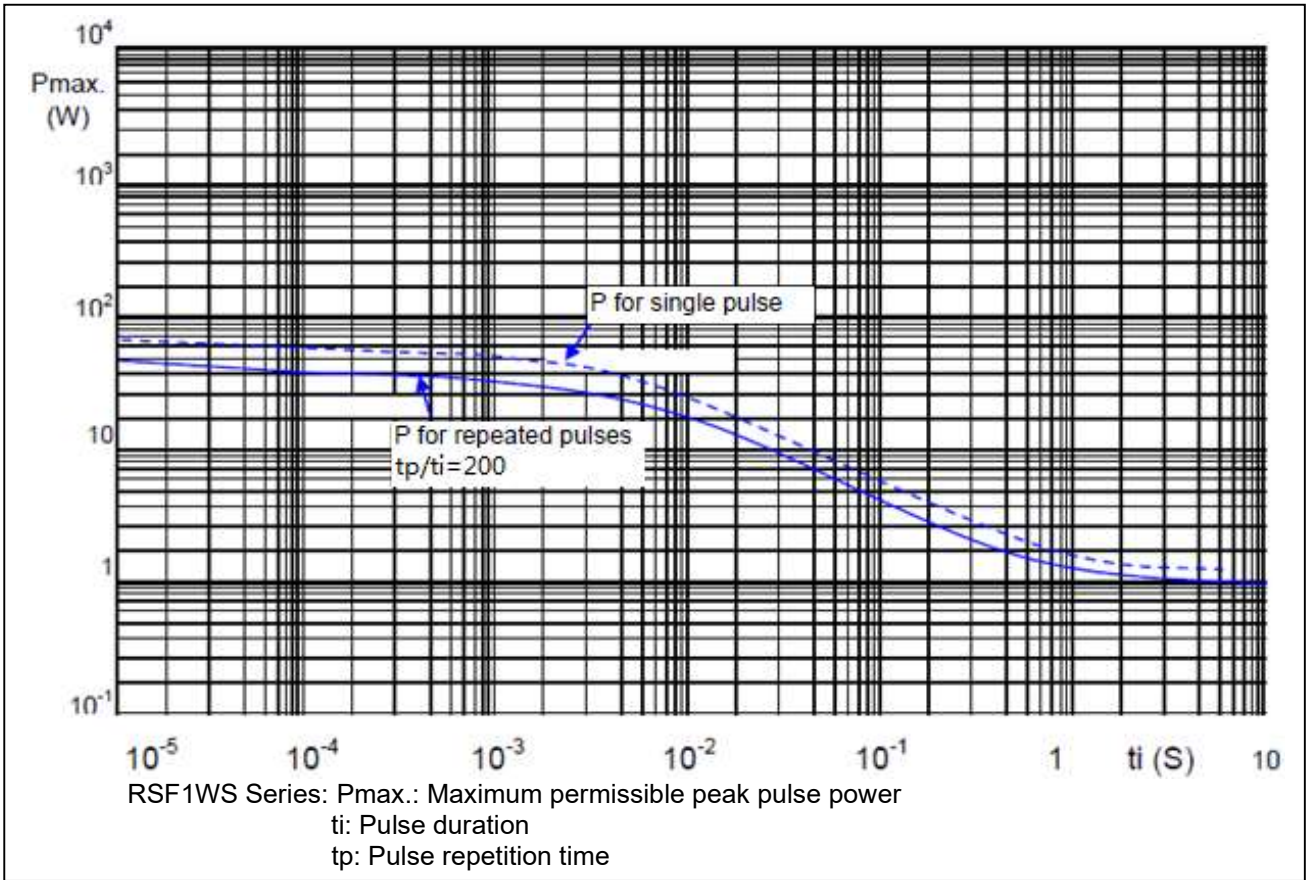
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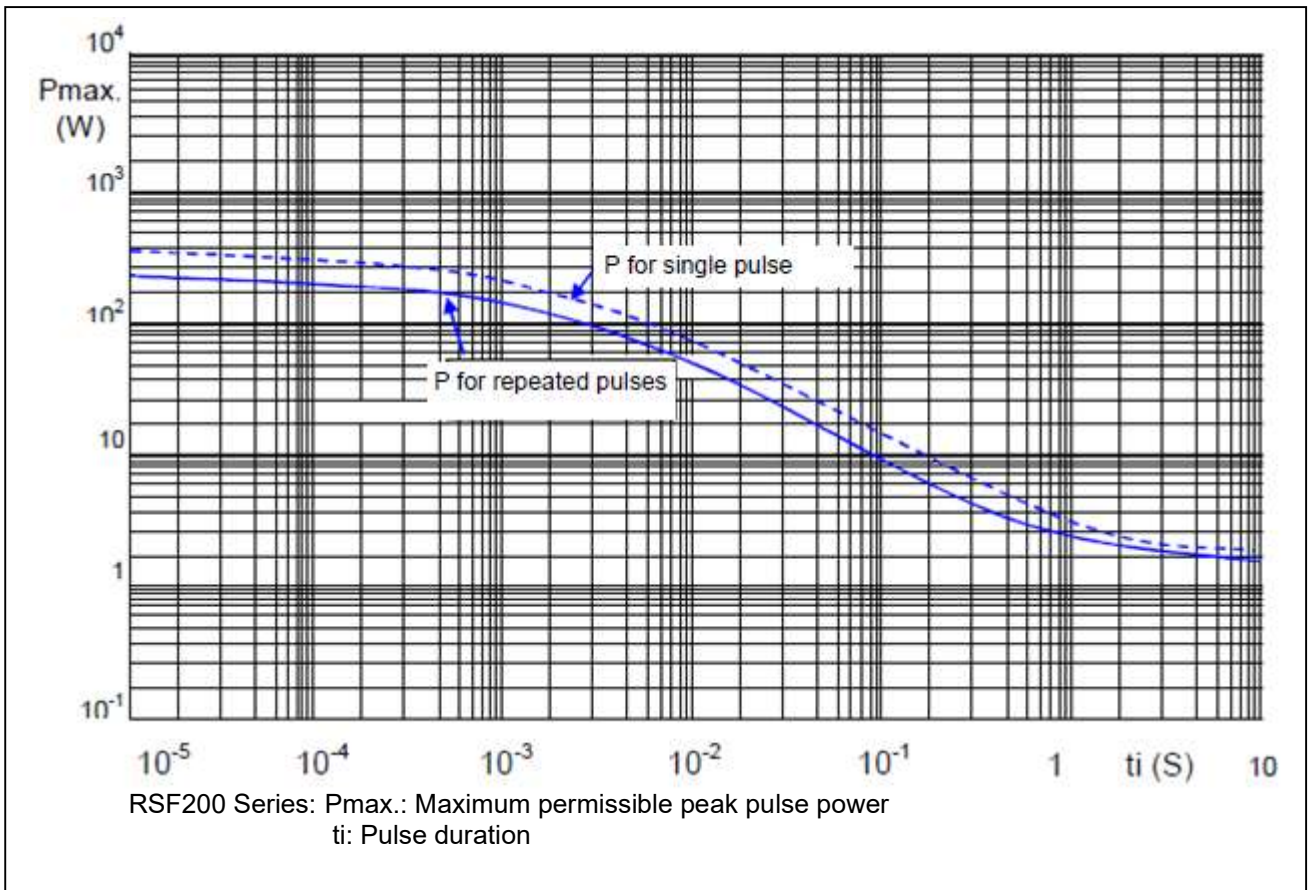
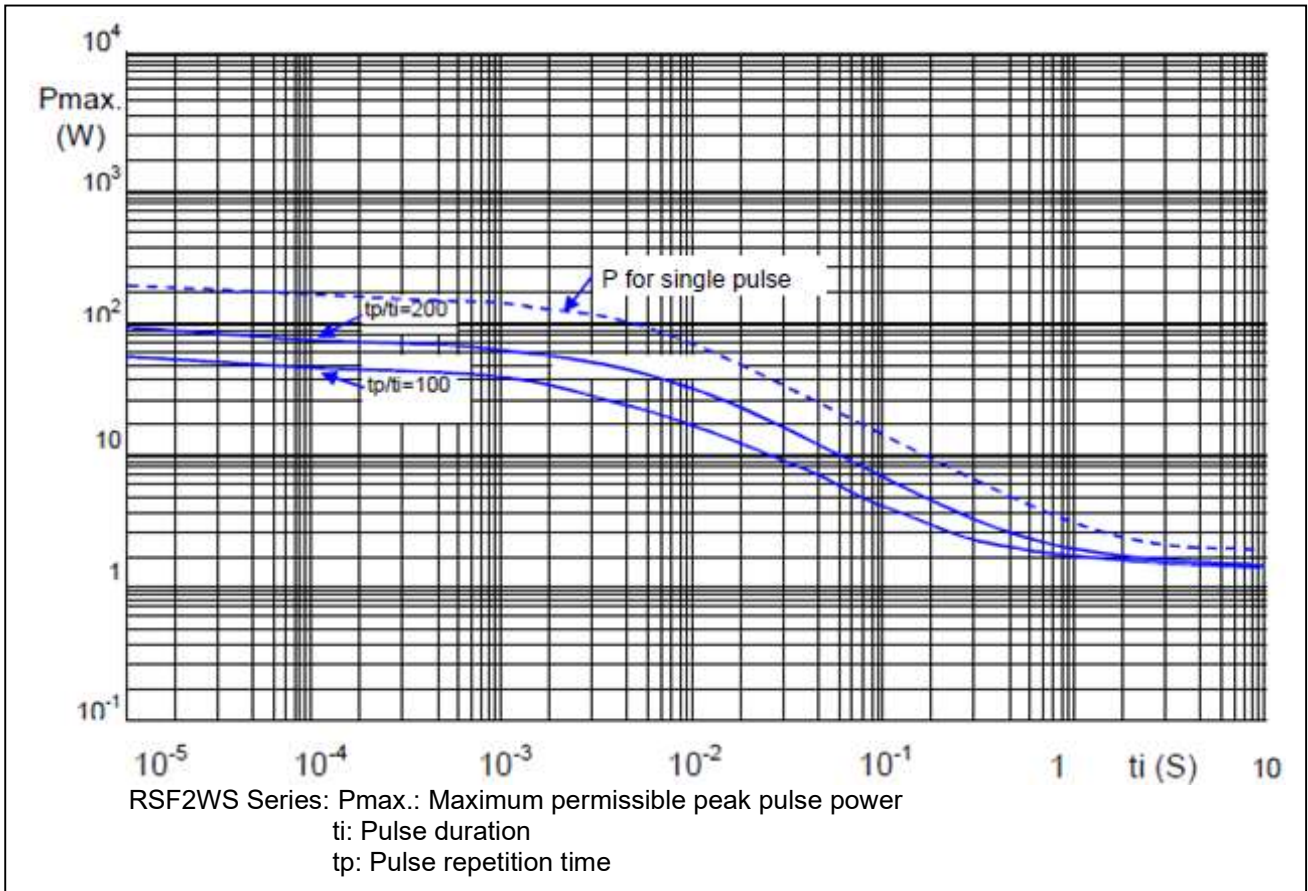
V=Continuous rated DC or
AC (rms) working voltage (V)

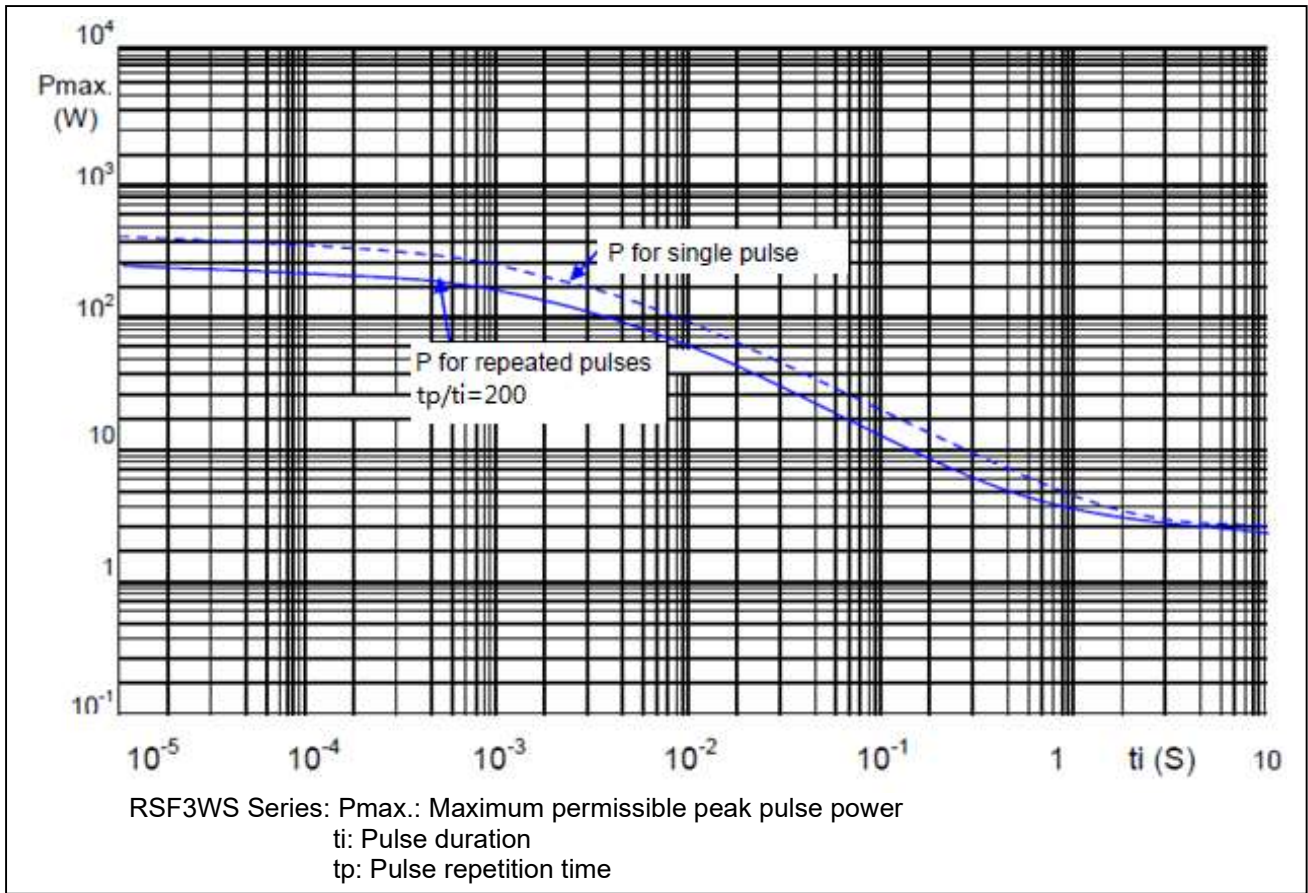
P=Rated power (W)

R=Resistance value (Ω)

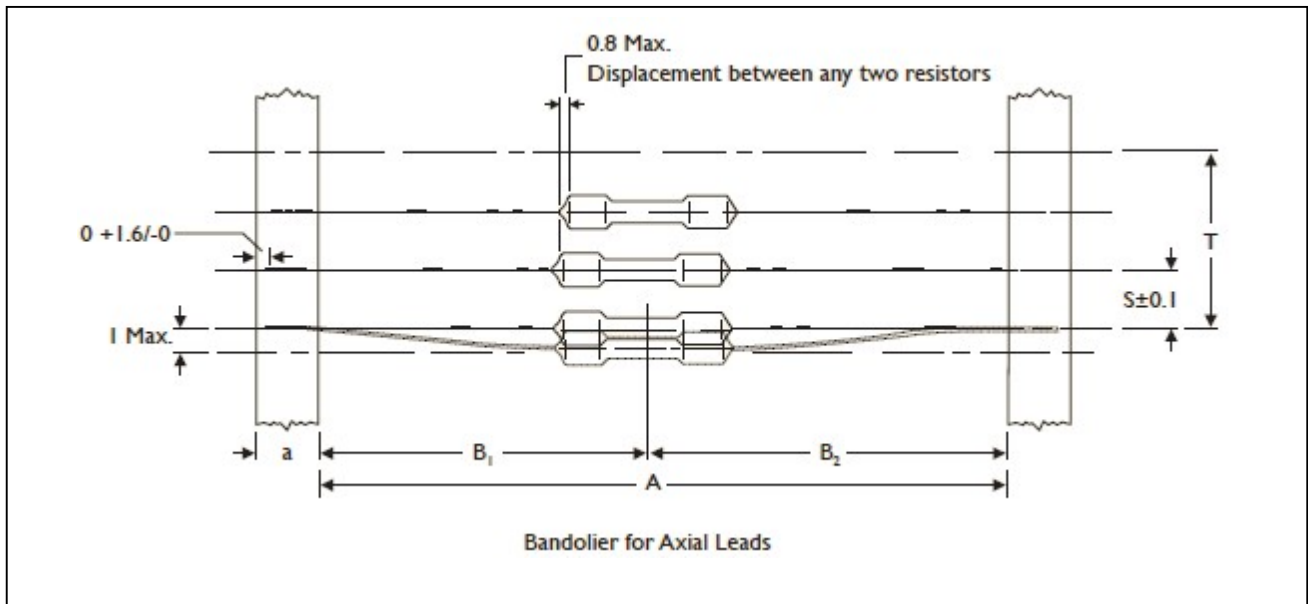
PULSE DIAGRAMS







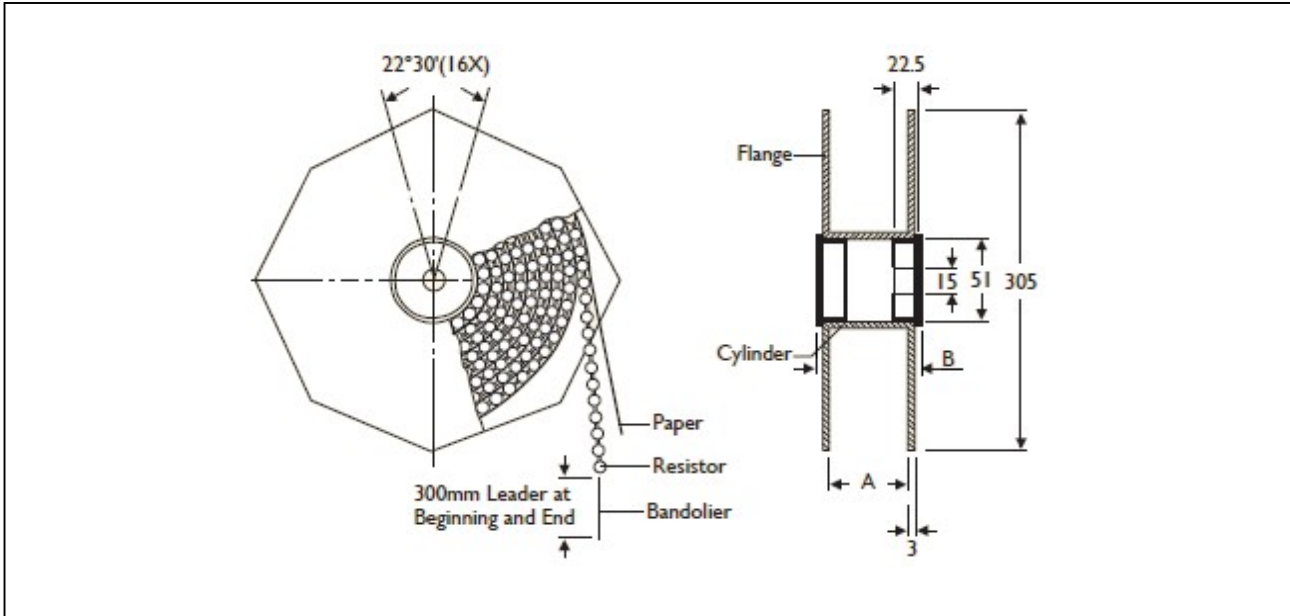
AXIAL / REEL TAPE SPECIFICATION



Unit: mm

| Normal | Miniature | a | A | B1-B2 (Max.) | S (spacing) | T (max. deviation of spacing) |
|--------|-----------|---------|--------------------------|--------------|-------------|--|
| RSF-50 | RSF1WS | 6 ± 0.5 | 52.4 ± 1.5 | 1.2 | 5 | 1 mm per 10 spacing, 0.5 mm per 5 spacing |
| RSF100 | RSF2WS | 6 ± 0.5 | 73.0 ± 1.5 52.4 ± 1.5 | 1.5 1.2 | 5 | |
| RSF200 | RSF3WS | 6 ± 0.5 | 73.0 ± 1.5 52.4 ± 1.5 | 1.5 1.2 | 10 | |
| RSF3WM | RSF5SS | 6 ± 0.5 | 73.0 ± 1.5 | 1.5 | 10 | |
| RSF300 | RSF5WS | 6 ± 0.5 | 91.0 ± 1.5 | 1.5 | 10 | |
| RSF500 | - | 6 ± 0.5 | 91.0 ± 1.5 | 1.5 | 10 | |

TAPE ON REEL PACKING

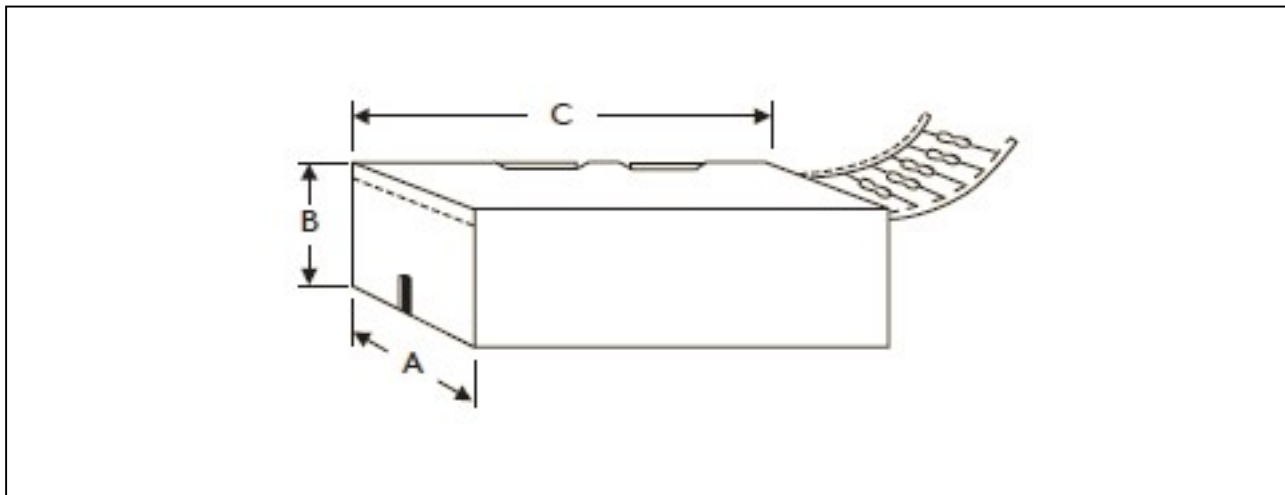


TYPE

Unit: mm/piece

| Normal | Miniature | Across Flange(A) | B | Quantity Per Reel |
|--------|-----------|------------------|------|-------------------|
| RSF-50 | RSF1WS | 66.5 | 75.5 | 2,500 |
| RSF100 | RSF2WS | 87 | 96 | 2,000 |
| RSF200 | RSF3WS | 87 | 96 | 1,000 |
| RSF3WM | RSF5SS | 87 | 96 | 1,000 |

TAPE ON BOX PACKING



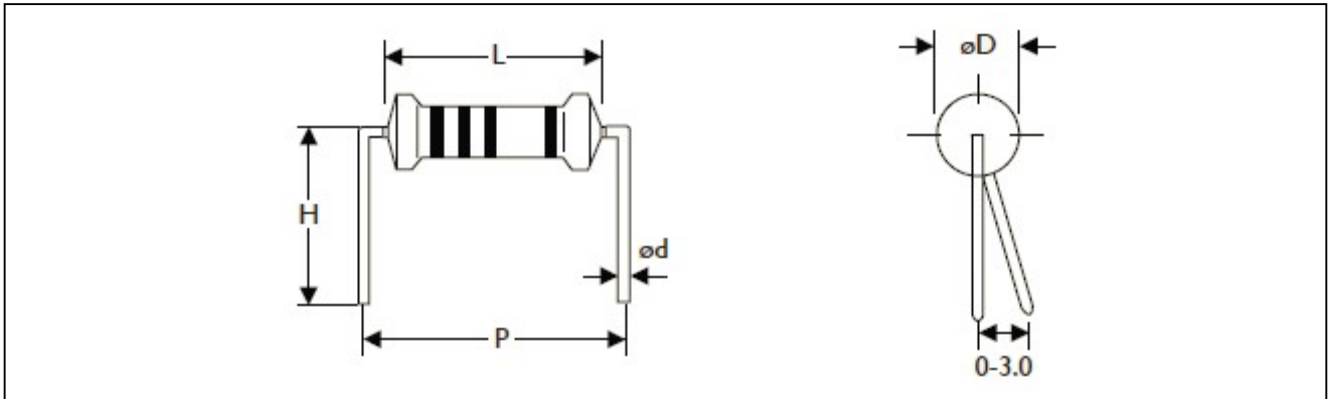
| TYPE | | DIMENSIONS | | | Unit: mm/piece |
|--------|-----------|------------|----|-----|------------------|
| Normal | Miniature | A | B | C | Quantity Per Box |
| RSF-50 | RSF1WS | 73 | 45 | 258 | 1,000 |
| RSF100 | RSF2WS | 81 | 91 | 260 | 1,000 |
| RSF100 | RSF2WS | 103 | 78 | 260 | 1,000 |
| RSF200 | RSF3WS | 81 | 91 | 260 | 1,000 |
| RSF200 | RSF3WS | 103 | 94 | 260 | 1,000 |
| RSF3WM | RSF5SS | 103 | 78 | 260 | 500 |
| RSF300 | RSF5WS | 116 | 79 | 255 | 250 |
| RSF500 | - | 116 | 79 | 255 | 250 |

BULK PACKING

| Normal | Miniature | Piece/Per Inner Box | Bag/Per Inner Box | Piece Per Bag |
|--------|-----------|---------------------|-------------------|---------------|
| RSF-50 | RSF1WS | 5,000 | 5 | 1,000 |
| RSF100 | RSF2WS | 2,000 | 4 | 500 |
| RSF200 | RSF3WS | 1,000 | 2 | 500 |
| RSF3WM | RSF5SS | 1,000 | 2 | 500 |
| RSF300 | RSF5WS | 500 | 10 | 50 |
| RSF500 | - | 500 | 10 | 50 |

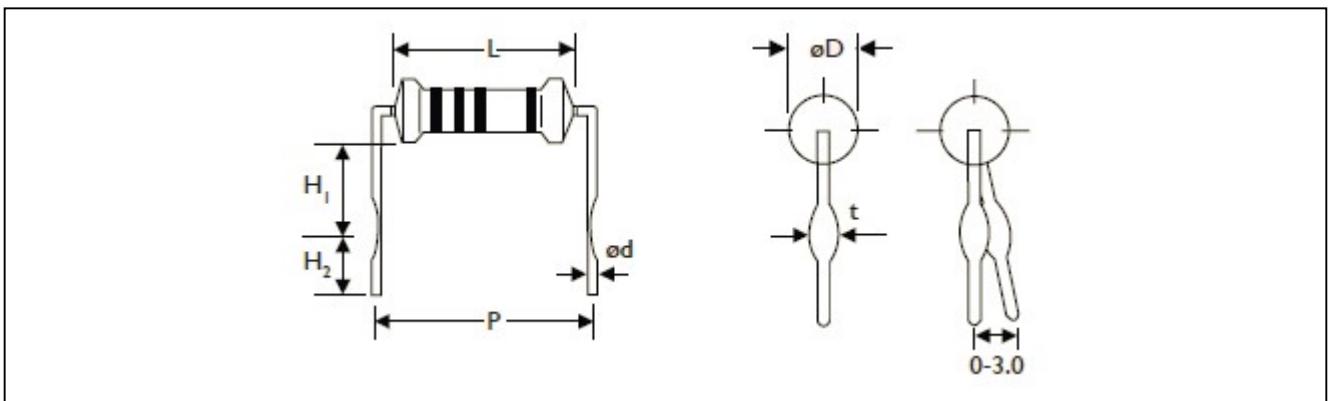
FORMING

M TYPE



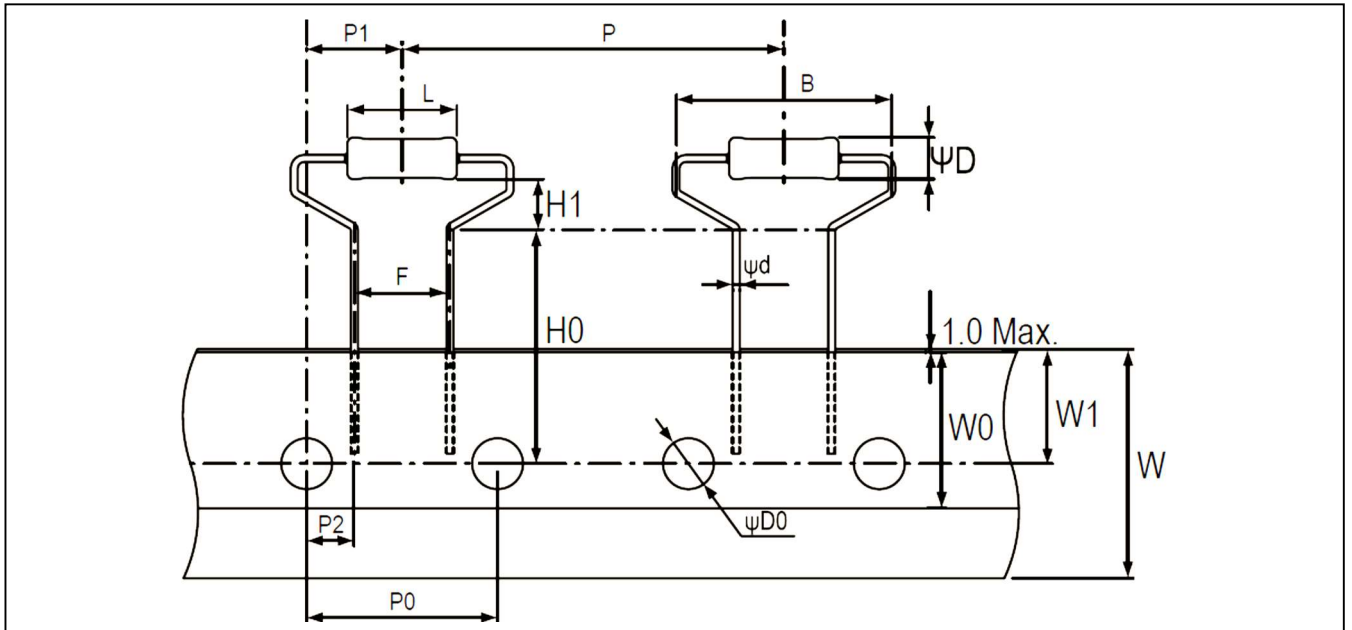
| TYPE | | DIMENSIONS | | | | | Unit: mm |
|--------|-----------|------------|-----------|-------------|----------|----------|----------|
| Normal | Miniature | L | ψD | ψd | P | H | |
| RSF-50 | RSF1WS | 9.0 ± 0.5 | 3.3 ± 0.3 | 0.55 ± 0.05 | 12.5 ± 1 | 10.0 ± 1 | |
| RSF100 | RSF2WS | 11.5 ± 1.0 | 4.5 ± 0.5 | 0.8 ± 0.05 | 15.0 ± 1 | 12.5 ± 1 | |
| RSF200 | RSF3WS | 15.5 ± 1.0 | 5.0 ± 0.5 | 0.8 ± 0.05 | 20.0 ± 1 | 15.0 ± 1 | |
| RSF3WM | RSF5SS | 17.5 ± 1.0 | 6.5 ± 1.0 | 0.8 ± 0.05 | 25.0 ± 1 | 15.0 ± 1 | |

MB TYPE



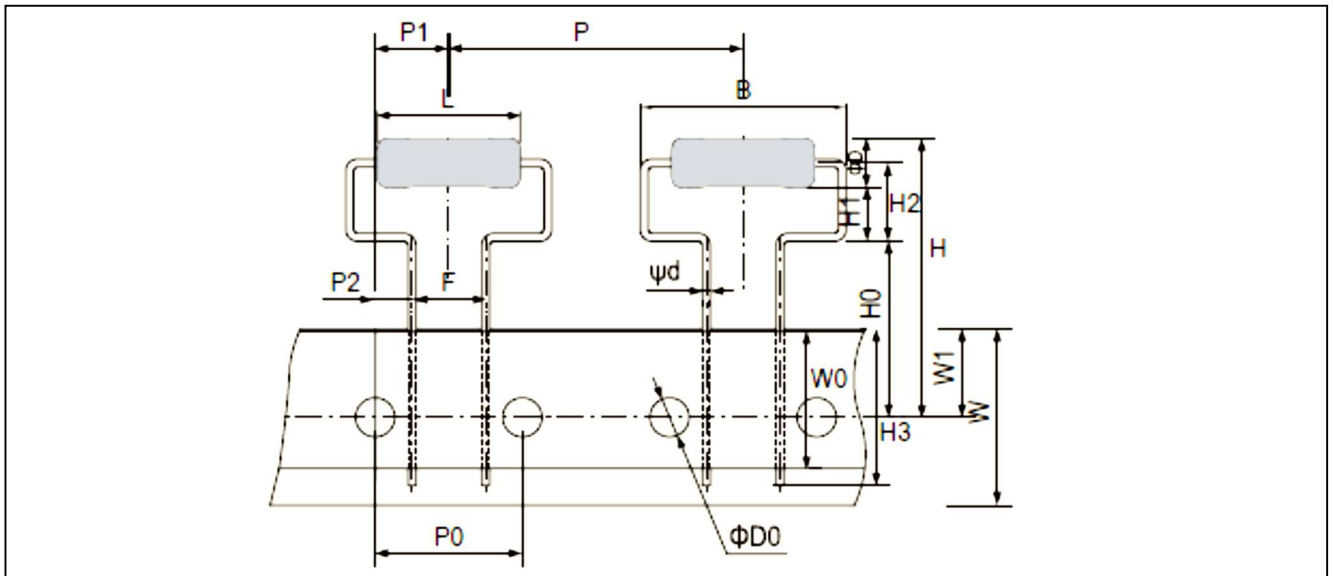
| TYPE | | DIMENSIONS | | | | | | | Unit: mm |
|--------|-----------|------------|-----------|-------------|----------|----------|---------|-----------|----------|
| Normal | Miniature | L | ψD | ψd | P | H1 | H2 | t | |
| RSF-50 | - | 9.0 ± 0.5 | 3.3 ± 0.3 | 0.55 ± 0.05 | 12.5 ± 1 | 6.0 ± 1 | 5.0 ± 1 | 1.2 ± 0.2 | |
| - | RSF1WS | 9.0 ± 0.5 | 3.3 ± 0.3 | 0.8 ± 0.05 | 12.5 ± 1 | 6.0 ± 1 | 5.0 ± 1 | 1.4 ± 0.2 | |
| RSF100 | RSF2WS | 11.5 ± 1.0 | 4.5 ± 0.5 | 0.8 ± 0.05 | 15.0 ± 1 | 6.0 ± 1 | 5.0 ± 1 | 1.4 ± 0.2 | |
| RSF200 | RSF3WS | 15.5 ± 1.0 | 5.0 ± 0.5 | 0.8 ± 0.05 | 20.0 ± 1 | 10.0 ± 1 | 5.0 ± 1 | 1.4 ± 0.2 | |
| RSF3WM | RSF5SS | 17.5 ± 1.0 | 6.5 ± 1.0 | 0.8 ± 0.05 | 25.0 ± 1 | 10.0 ± 1 | 5.0 ± 1 | 1.4 ± 0.2 | |

MHA TYPE



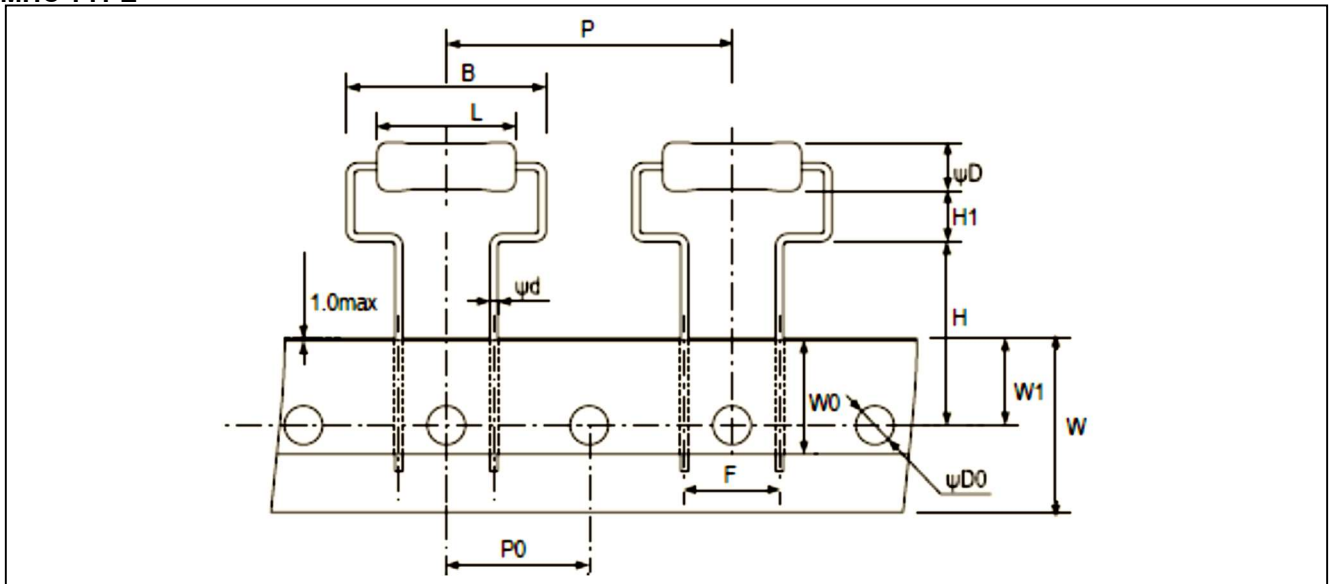
| TYPE | | DIMENSIONS | | | | | | | | Unit: mm |
|---------------|------------------|------------|-----------|-----------|----------|-----------|-----------|------------|-----------|----------|
| Normal | Miniature | L | ψD | ψd | B | H0 | H1 | P | P0 | |
| | | 9.0±0.5 | 3.3±0.3 | 0.55±0.05 | 17.5Max | 19.0±1.0 | 4.0±1.0 | 30.0±1.0 | 15.0±0.3 | |
| RSF-50 | RSF1WS | P1 | P2 | F | W | W0 | W1 | ψD0 | | |
| | | 7.5±1.0 | 3.75±0.5 | 7.5±0.5 | 18.0±0.5 | 5.0Min | 9.0±0.5 | 4.0±0.2 | | |

MHB TYPE



| TYPE | | DIMENSIONS | | | | | | | | | Unit: mm |
|---------------|------------------|------------|-----------|-----------|-----------|----------|-----------|-----------|-----------|------------|----------|
| Normal | Miniature | L | ψD | ψd | B | H | H0 | H1 | H2 | H3 | |
| | | 15.5±1.0 | 5.0±0.5 | 0.8±0.05 | 21.0Max. | 30Max. | 18.0±1.0 | 5.5(Ref.) | 8.0±1.5 | 16Max. | |
| RSF200 | RSF3WS | P | P0 | P1 | P2 | F | W | W0 | W1 | ψD0 | |
| | | 30.0±1.0 | 15.0±0.3 | 7.5±1.0 | 3.75±0.8 | 7.5±0.5 | 18.0±0.5 | 5.0Min. | 9.0±0.5 | 4.0±0.3 | |

MHC TYPE



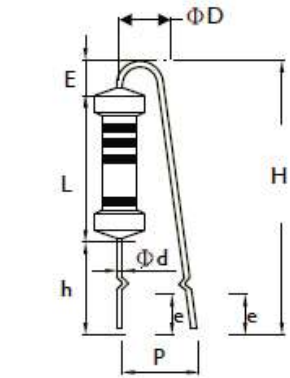
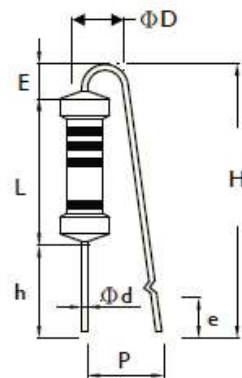
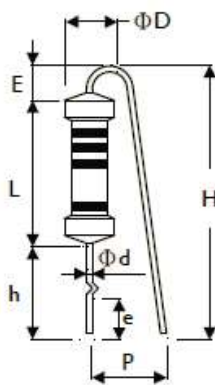
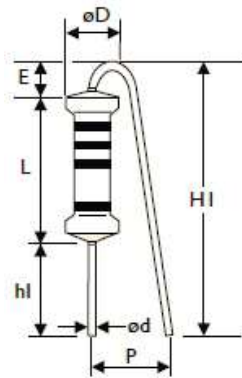
| TYPE | | DIMENSIONS | | | | | | | | Unit: mm |
|---------------|------------------|------------|-----------|-----------|-----------|------------|-----------|----------|-----------|----------|
| Normal | Miniature | L | ψD | ψd | B | H | H1 | P | P0 | |
| | | 15.5±1.0 | 5.0±0.5 | 0.8±0.05 | 21.0Max. | 19.0±1.0 | 5.25±1.0 | 30.0±1.0 | 15.0±0.3 | |
| RSF200 | RSF3WS | F | W | W0 | W1 | ψD0 | | | | |
| | | 10.0±0.5 | 18.0±0.5 | 5.0Min. | 9.0±0.5 | 4.0±0.2 | | | | |

F TYPE

FK TYPE

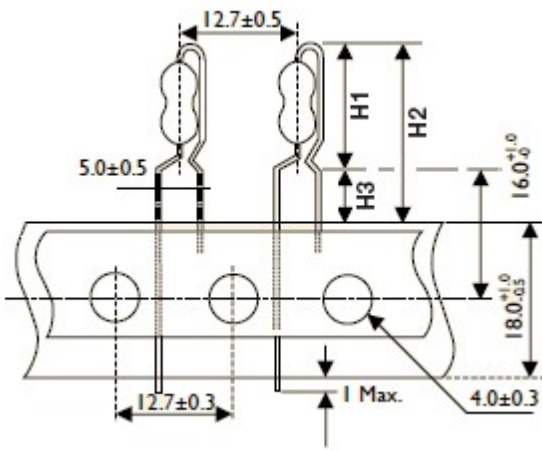
FFK TYPE

FKK TYPE

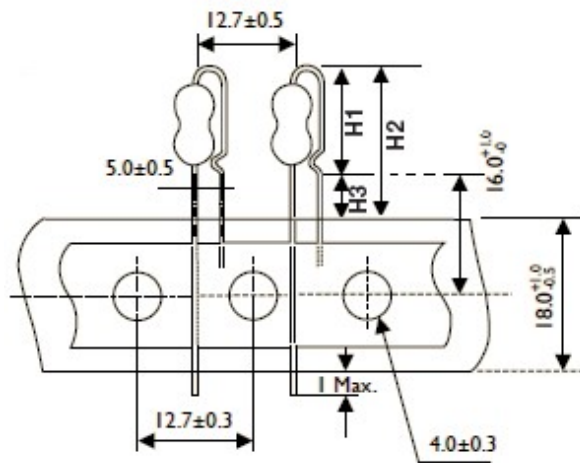


| TYPE | | DIMENSIONS | | | | | | | | | | Unit: mm |
|---------------|------------------|------------|-----------|-----------|----------|----------|---------------|-----------|----------------|---------------|----------|----------|
| Normal | Miniature | L | ψD | ψd | P | h | H Max. | h1 | H1 Max. | E Max. | e | |
| RSF-50 | RSF1WS | 9.0±0.5 | 3.3±0.3 | 0.55±0.05 | 6±1 | 8±1 | 22 | 5±1 | 18.5 | 3.5 | 3.5±1 | |
| RSF100 | RSF2WS | 11.5±1 | 4.5±0.5 | 0.8±0.05 | 6±1 | 8±1 | 24 | 5±1 | 20 | 3.5 | 3.5±1 | |
| RSF200 | RSF3WS | 15.5±1 | 5.0±0.5 | 0.8±0.05 | 8±1 | 8±1 | 28 | 5±1 | 25 | 3.5 | 3.5±1 | |

PN TYPE (Taping Pack)



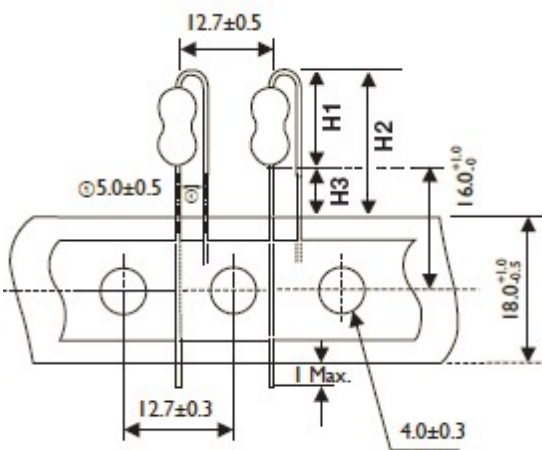
AV TYPE (Taping Pack)



| TYPE | | DIMENSIONS | | | Unit: mm |
|--------|-----------|------------|------------|------------|----------|
| Normal | Miniature | H1 Max. | H2 Max. | H3 Max. | |
| RSF-50 | RSF1WS | 17 | 25.5 | 8.5 | |
| RSF100 | RSF2WS | 19 | 27.5 | 8.5 | |

| TYPE | | DIMENSIONS | | | Unit: mm |
|--------|-----------|------------|------------|------------|----------|
| Normal | Miniature | H1 Max. | H2 Max. | H3 Max. | |
| RSF-50 | RSF1WS | 14.5 | 23 | 8.5 | |
| RSF100 | RSF2WS | 17.5 | 26 | 8.5 | |

FT TYPE (Taping Pack)



| TYPE | | DIMENSIONS | | | Unit: mm |
|--------|-----------|------------|------------|------------|----------|
| Normal | Miniature | H1 Max. | H2 Max. | H3 Max. | |
| RSF-50 | RSF1WS | 13 | 21.5 | 8.5 | |
| RSF100 | RSF2WS | 16 | 24.5 | 8.5 | |

MARKING



| COLOR | 1st BAND | 2nd BAND | 3rd BAND | MULTIPLIER | TOLERANCE |
|--------|----------|----------|----------|------------|------------|
| BLACK | 0 | 0 | 0 | 1Ω | |
| BROWN | 1 | 1 | 1 | 10Ω | |
| RED | 2 | 2 | 2 | 100Ω | ± 2% (G) |
| ORANGE | 3 | 3 | 3 | 1KΩ | |
| YELLOW | 4 | 4 | 4 | 10KΩ | |
| GREEN | 5 | 5 | 5 | 100K | |
| BLUE | 6 | 6 | 6 | 1MΩ | |
| VIOLET | 7 | 7 | 7 | 10MΩ | |
| GREY | 8 | 8 | 8 | 0.001Ω | |
| WHITE | 9 | 9 | 9 | 0.0001Ω | |
| GOLD | | | | 0.1Ω | ± 5% (J) |
| SILVER | | | | 0.01Ω | |

REVISION HISTORY

| REVISION | DATE | CHANGE NOTIFICATION | DESCRIPTION |
|-----------|--------------|---------------------|--|
| Version 4 | Apr.1, 2024 | - | - Added forming code description for part number |
| Version 3 | Mar.27, 2024 | - | - Delete M type for RSF300&RSF5WS |
| Version 2 | Nov.10, 2023 | - | - Delete MB type for RSF300&RSF500&RSF5WS |
| Version 1 | Aug.31, 2023 | - | - Revised LEGAL DISCLAIMER |
| Version 0 | Aug.16, 2021 | - | - First issue of this specification |

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