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(wholly owned by Hong Kong Resistors Manufactory International Ltd.)

AN ISO 9001:2008 CERTIFIED MANUFACTURER

AN OHSAS 18001:2007 MANUFACTURER

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DATA SHEET

Name of Product : **CARBON FILM FIXED RESISTOR –BULK PACKING
SMALL SIZE (CP WIRE)**

Sales Executive : _____

Date: _____

| 製造 Prepared by | 檢驗 Inspected by | 審核 Audited by | 核准 Authorized by |
|-------------------------|-------------------------|-------------------------|-------------------------|
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| 客戶 customer approval | 客戶 customer approval | 客戶 customer approval | 客戶 customer approval |
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Spec. No. CFBPS CP 2015

Rev. No.: 2015 May.(1)

PRODUCT : CARBON FILM FIXED RESISTOR(CP WIRE) TYPE : CF25S/50S/100S/200S/300S/500S

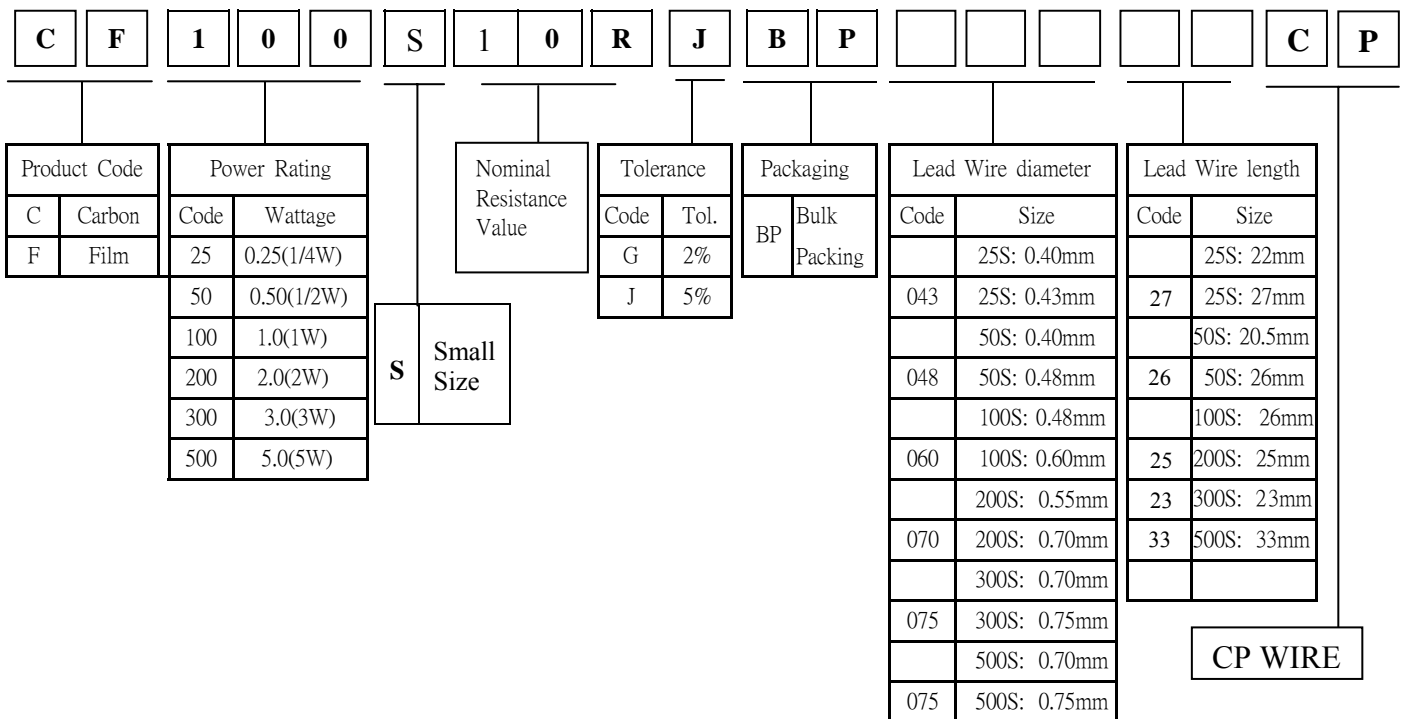
1. APPLICABLE SCOPE :

- 1.1 This specification is for use in CARBON FILM FIXED RESISTORS
- 1.2 Characteristics and specifications are according to those of :
JIS C 5202
- 1.3 RoHS and REACH compliant product

2. TYPE

It is composed of description , rated wattage , nominal resistance , tolerance and packaging.

2.1 Make Up :



2.2 Explanation :

Part Number

Description

CF 100S 10R J BP

Carbon Film Fixed Resistor ,1W , small size ,10Ω, +/-5% tolerance , bulk packing

CP Wire diameter: d=0.48mm, Lead Wire length: L=26mm.

* Remarks : The power rating of 1/8W is coded as 125

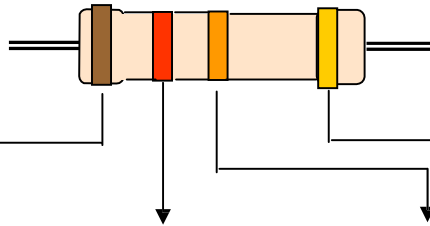
PRODUCT : CARBON FILM FIXED RESISTOR(CP WIRE)

TYPE : CF25S/50S/100S/200S/300S/500S

2.3 Color code indication

Fixed resistors of which the nominal resistance value and tolerance are indicated by color codes as per Table 1:

TABLE - 1



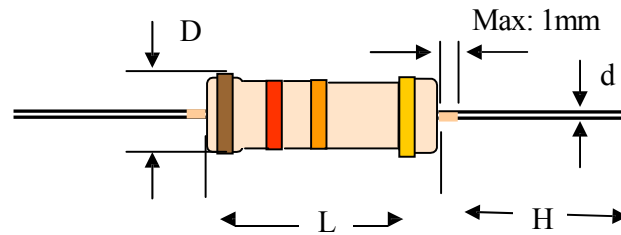
| COLOR | 1 ST DIGIT | 2 ND DIGIT | MULTIPLIER | TOLERANCE |
|--------|-----------------------|-----------------------|------------|-----------|
| BLACK | 0 | 0 | 1 | |
| BROWN | 1 | 1 | 10 | |
| RED | 2 | 2 | 100 | G(±2%) |
| ORANGE | 3 | 3 | 1,000 | |
| YELLOW | 4 | 4 | 10,000 | |
| GREEN | 5 | 5 | 100,000 | |
| BLUE | 6 | 6 | 1000,000 | |
| VIOLET | 7 | 7 | 10,000,000 | |
| GREY | 8 | 8 | | |
| WHITE | 9 | 9 | | |
| GOLD | | | 0.1 | J (±5%) |
| SILVER | | | 0.01 | |

PRODUCT : CARBON FILM FIXED RESISTOR(CP WIRE)

TYPE : CF25S/50S/100S/200S/300S/500S

3. DIMENSIONS :

TABLE - 2



Unit : mm

| TYPE | BODY | | LEAD WIRE | |
|--------|------------|-----------|--------------|-------------------|
| | L | D | H | d |
| CF25S | 3.5 ± 0.5 | 1.7 ± 0.5 | 22 (27) ±1 | 0.40 (0.43) ±0.05 |
| CF50S | 6.0 ± 1.0 | 2.3 ± 0.5 | 20.5 (26) ±1 | 0.40 (0.48) ±0.05 |
| CF100S | 9.0 ± 1.0 | 3.0 ± 0.5 | 26 ±1 | 0.48 (0.60) ±0.05 |
| CF200S | 11.0 ± 1.5 | 4.0 ± 0.5 | 25 ±1 | 0.55 (0.70) ±0.05 |
| CF300S | 15.0 ± 1.5 | 5.0 ± 0.5 | 23 ±1 | 0.70 (0.75) ±0.05 |
| CF500S | 17.0 ± 1.5 | 6.0 ± 0.5 | 33 ±1 | 0.70 (0.75) ±0.05 |

| | |
|--|---|
| PRODUCT : CARBON FILM FIXED RESISTOR(CP WIRE) | TYPE : CF25S/50S/100S/200S/300S/500S |
|--|---|

4. SPECIFICATIONS

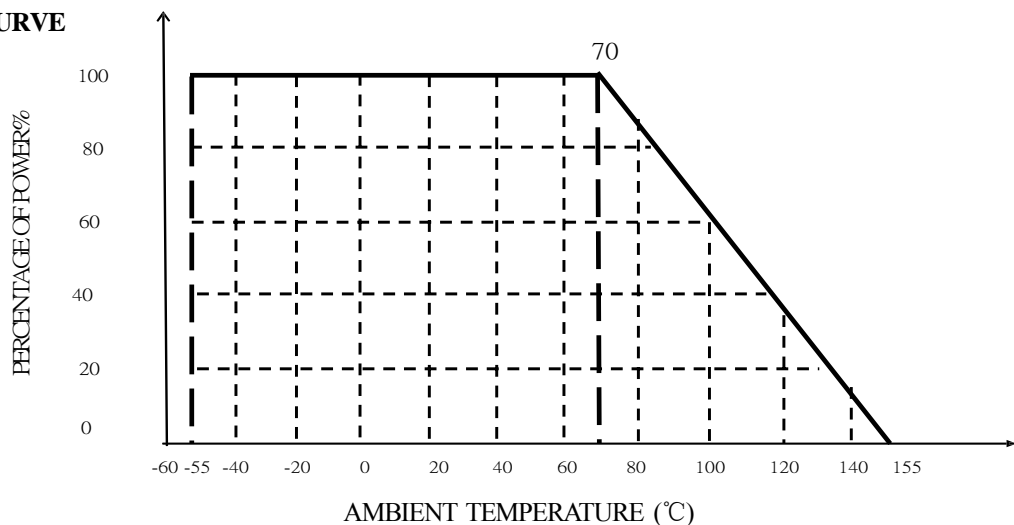
TABLE - 3

| DESCRIPTION | CF-25S | CF-50S | CF-100S | CF-200S | CF-300S | CF-500S |
|---------------------------------|---|---|---|---|---|---|
| STANDARD RESISTANCE VALUE RANGE | 1Ω- 4.7MΩ | 1Ω- 4.7MΩ | 1Ω- 4.7MΩ | 1Ω- 4.7MΩ | 1Ω- 4.7MΩ | 1Ω- 4.7MΩ |
| POWER RATING AT 70°C | 1/4W | 1/2W | 1W | 2W | 3W | 5W |
| * MAX WORKING VOLTAGE | 200V | 250V | 350V | 500V | 500V | 500V |
| * MAX OVERLOAD VOLTAGE | 400V | 500V | 700V | 1,000V | 1,000V | 1,000V |
| OPERATING TEMPERATURE RANGE | -55°C~+135°C | -55°C~+135°C | -55°C~+155°C | -55°C~+155°C | -55°C~+155°C | -55°C~+155°C |
| TEMPERATURE COEFFICIENT | ≤ 10Ω 10Ω- 220KΩ 230KΩ- 1MΩ OVER 1MΩ | ±300PPM 0~ -500PPM 0~ -1,000PPM 0~ -1,500PPM | ±300PPM 0~ -500PPM 0~ -700PPM 0~ -1,000PPM | ±300PPM 0~ -400PPM 0~ -600PPM 0~ -1,000PPM | ±300PPM 0~ -400PPM 0~ -600PPM 0~ -1,000PPM | ±300PPM 0~ -400PPM 0~ -600PPM 0~ -1,000PPM |
| TEMPERATURE CYCLING | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) |
| VOLTAGE COEFFICIENT | MAX. 50PPM/V | MAX. 50PPM/V | MAX. 50PPM/V | MAX. 50PPM/V | MAX. 50PPM/V | MAX. 50PPM/V |
| INSULATION RESISTANCE | MIN.1,000 MΩ | MIN.1,000 MΩ | MIN.1,000 MΩ | MIN.1,000 MΩ | MIN.1,000 MΩ | MIN.1,000 MΩ |
| HUMIDITY | ±3% | ±3% | ±3% | ±3% | ±3% | ±3% |
| SHORT-TIME OVERLOAD | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) |
| SOLDERABILITY | MIN. 95% COVERED | MIN. 95% COVERED | MIN. 95% COVERED | MIN. 95% COVERED | MIN. 95% COVERED | MIN. 95% COVERED |
| VIBRATION | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) | ±(1R%+0.05Ω) |
| LOAD LIFE | MAX. ±5% | MAX. ±5% | MAX. ±5% | MAX. ±5% | MAX. ±5% | MAX. ±5% |

* The working is calculated based on the resistance value following the formula of $V=\sqrt{(P*R)}$ or to its maximum extent as indicated above

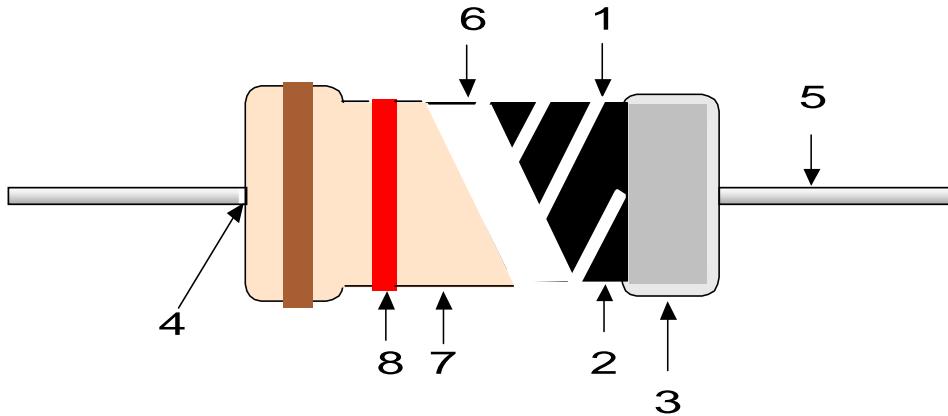
* The overload voltage is calculated based on the resistance value following the formula of $V= 2.5 * \sqrt{(P*R)}$ or to its maximum extent as indicated above

5. POWER DERATING CURVE



| | |
|--|---|
| PRODUCT : CARBON FILM FIXED RESISTOR(CP WIRE) | TYPE : CF25S/50S/100S/200S/300S/500S |
|--|---|

6. STRUCTURAL DIAGRAM



- | | |
|------------------------|-----------------------------|
| (1) CORE | CERAMIC ROD |
| (2) RESISTANCE FILM | CARBON FILM |
| (3) TERMINAL | TINNED IRON CAP |
| (4) CONNECTION | ELECTRIC WELDING |
| (5) LEAD WIRE | CP WIRE |
| (6) UNDERCOAT | ELECTRIC INSULATION VARNISH |
| (7) FINISHING PAINTING | ELECTRIC INSULATION PAINT |
| (8) INDICATION | COLOR CODE INK |

TABLE - 4

| RATED RESISTANCE VALUE | MAX. TESTING VOLTAGE | |
|---------------------------------|----------------------|--------------------------|
| | 0.25W | 0.5W / 1W / 2W / 3W / 5W |
| $0.1\Omega \leq R < 10\Omega$ | 0.3 | 0.3 |
| $10\Omega \leq R < 100\Omega$ | 0.3 | 1 |
| $100\Omega \leq R < 1K\Omega$ | 1 | 3 |
| $1K\Omega \leq R < 10K\Omega$ | 3 | 10 |
| $10K\Omega \leq R < 100K\Omega$ | 10 | 30 |
| $100K\Omega \leq R < 1M\Omega$ | 30 | 50 |
| $1M\Omega \leq R$ | 50 | 100 |

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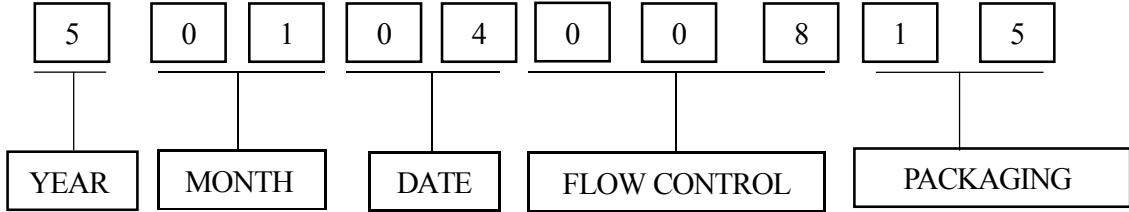
7. CHARACTERISTICS

TABLE – 5

| | | |
|---------------------------------------|----------------------------------|--|
| DC RESISTANCE VALUE | TEST METHOD MIL-STD-202 ITEM 303 | VOLTAGE AS TABLE -4. TEMPERATURE 25 ±2°C. AQL 0.25%. |
| VOLTAGE WITHSTAND | TEST METHOD MIL-STD-202 ITEM 301 | V-BLOCK METHOD. VOLTAGE AS TABLE -3 ×1.42 , 1 MIN. AQL 1%. |
| SHORT TIME OVERLOAD | TEST METHOD JIS C 5202 ITEM 5.5 | RATED VOLTAGE × 2.5 TIMES OR MAX.WORKINGVOLTAGE × 2 TIMES. ABOVE TEST 5 SEC. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(1%R+0.05 Ω). |
| TERMINAL STRENGTH | TEST METHOD MIL-STD-202 ITEM 211 | TENSILE STRENGTH : 1KG TENSIONAL STRENGTH : 180°, 2 CYCLES. BENDING STRENGTH : 0.5KG 2 TIMES. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(0.5%R+0.05 Ω). |
| SOLDERABILITY OF TERMINAL | TEST METHOD MIL-STD-202 ITEM 210 | 260±5°C 10±1SEC. AFTER TESTING, LEAVE FOR 3 HOURS. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(1%R+0.05 Ω). |
| TEMPERATURE CYCLE | TEST METHOD MIL-STD-202 ITEM 107 | LOW SIDE TEMPERATURE : -55°C±3°C 30MIN. ROOM TEMPERATURE : 10-15MIN. HIGH SIDE TEMPERATURE :+125°C±3°C 30MIN. ROOM TEMPERATURE : 10-15MIN. ABOVE TEST 5 CYCLES AFTER LAST CYCLE, LEAVE FOR 1-3 HOURS. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(1%R+0.05 Ω). |
| VIBRATION WITHSTAND | TEST METHOD MIL-STD-202 ITEM 204 | X, Y, Z-EACH DIRECTION 2 HOURS. AMPLITUDE 0.75MM. RANGE : 10HZ ~ 500HZ. THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(1%R+0.05 Ω). |
| LOAD LIFE | TEST METHOD MIL-STD-202 ITEM 108 | 70±2°C. 1000 HOURS RATED VOLTAGE (1.5 HOURS ON, 0.5 HOUR OFF). THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(5%R+0.1 Ω). |
| RESISTANCE TEMPERATURE COEFFICIENT | TEST METHOD MIL-STD-202 ITEM 304 | THE RESISTANCE VALUE CHANGE RATE SHALL BE AS TABLE – 3. |
| LOAD LIFE IN HUMIDITY | TEST METHOD MIL-STD-202 ITEM 103 | THE RESISTANCE VALUE CHANGE RATE SHALL BE WITHIN ±(5%R+0.1 Ω). |

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8. LOT NO. (Coding System)



9. PACKING DATA

| TYPE | PER PACKET | PER BOX | PER CARTON | INNER BOX | | | EXPORT CARTON | | |
|--------|------------|-----------|------------|-----------|-------|------|---------------|-------|-------|
| | | | | L | W | H | L | W | H |
| CF25S | 1,000PCS | 10,000PCS | 100,000PCS | / | / | / | 305mm | 198mm | 180mm |
| CF50S | 1,000PCS | 10,000PCS | 100,000PCS | 220mm | 138mm | 57mm | 310mm | 295mm | 245mm |
| CF100S | 500PCS | 5,000PCS | 50,000PCS | / | / | / | 280mm | 280mm | 260mm |
| CF200S | 500PCS | 4,000PCS | 40,000PCS | / | / | / | 310mm | 295mm | 245mm |
| CF300S | 250PCS | 2,000PCS | 20,000PCS | / | / | / | 280mm | 280mm | 260mm |
| CF500S | 100PCS | 1,000PCS | 10,000PCS | / | / | / | 280mm | 280mm | 260mm |

