



### MELF-MFR TYPE



Coating color: Blue.

塗裝色: 藍色

### Dimensions:

| Type     | Size | Dimensions(mm) |            |          |          |
|----------|------|----------------|------------|----------|----------|
|          |      | L              | D          | C        | S        |
| MELF-MFR | 0102 | 2.2+0/-0.1     | 1.1+0/-0.1 | 0.4±0.05 | 0.1±0.05 |
|          | 0204 | 3.5±0.2        | 1.45±0.1   | 0.7±0.1  | 0.15±0.1 |
|          | 0207 | 5.7±0.2        | 2.2±0.1    | 0.8±0.2  | 0.2±0.1  |
|          | 0309 | 8.5±0.3        | 3±0.3      | 1.7±0.2  | 0.3±0.1  |
|          | 0411 | 10.5±0.3       | 4±0.3      | 2.3±0.2  | 0.3±0.1  |
|          | 0515 | 14.5±0.3       | 4.5±0.3    | 2.3±0.2  | 0.3±0.1  |

### Range:

| Type     | Size | POWER RATING           | MAX. WORKING VOLTAGE | MAX. OVERLOAD VOLTAGE | T.C.R.                                | RESISTANCE RANGE        |                         |                         |                        |                     |                        |  |
|----------|------|------------------------|----------------------|-----------------------|---------------------------------------|-------------------------|-------------------------|-------------------------|------------------------|---------------------|------------------------|--|
|          |      |                        |                      |                       |                                       | ±0.1%                   | ±0.25%                  | ±0.5%                   | ±1%                    | ±5%                 |                        |  |
| MELF-MFR | 0102 | 1/8W<br>0.2W           | 150V                 | 300V                  | ±15ppm<br>±25ppm<br>±50ppm<br>±100ppm | 50 <sub>Ω</sub> - 56K   | 50 <sub>Ω</sub> - 100K  | 1 <sub>Ω</sub> - 1M     | 0 <sub>Ω</sub> 22 - 2M |                     |                        |  |
|          |      | 100 <sub>Ω</sub> - 56K |                      |                       |                                       | 100 <sub>Ω</sub> - 100K | 1 <sub>Ω</sub> - 1M     | 0 <sub>Ω</sub> 22 - 2M  |                        |                     |                        |  |
|          | 0204 | 1/8W                   | 150V                 | 300V                  |                                       | 100 <sub>Ω</sub> - 56K  | 100 <sub>Ω</sub> - 100K | 1 <sub>Ω</sub> - 1M     | 0 <sub>Ω</sub> 5 - 2M  |                     |                        |  |
|          |      | 1/4W<br>0.4W           |                      |                       |                                       | 200V                    | 400V                    | 100 <sub>Ω</sub> - 100K | 10 <sub>Ω</sub> - 560K | 1 <sub>Ω</sub> - 5M | 0 <sub>Ω</sub> 22 - 5M |  |
|          | 0207 | 1/4W                   | 200V                 | 400V                  |                                       | 100 <sub>Ω</sub> - 100K | 10 <sub>Ω</sub> - 560K  | 1 <sub>Ω</sub> - 5M     | 0 <sub>Ω</sub> 22 - 5M |                     |                        |  |
|          |      | 1/2W                   |                      |                       |                                       | 300V                    | 600V                    | 100 <sub>Ω</sub> - 100K | 10 <sub>Ω</sub> - 560K | 1 <sub>Ω</sub> - 5M | 0 <sub>Ω</sub> 22 - 5M |  |
|          |      | 1W                     |                      |                       |                                       | 400V                    | 700V                    | 100 <sub>Ω</sub> - 100K | 10 <sub>Ω</sub> - 560K | 1 <sub>Ω</sub> - 5M | 0 <sub>Ω</sub> 5 - 5M  |  |
|          | 0309 | 1W                     | 500V                 | 1000V                 |                                       | -----                   | 10 <sub>Ω</sub> - 100K  | 1 <sub>Ω</sub> - 1M     | 0.1 <sub>Ω</sub> - 1M  |                     |                        |  |
|          | 0411 | 2W                     |                      |                       |                                       | -----                   | 10 <sub>Ω</sub> - 100K  | 1 <sub>Ω</sub> - 1M     | 0.1 <sub>Ω</sub> - 1M  |                     |                        |  |
|          | 0515 | 3W                     |                      |                       |                                       | -----                   | 10 <sub>Ω</sub> - 100K  | 1 <sub>Ω</sub> - 1M     | 0.1 <sub>Ω</sub> - 1M  |                     |                        |  |
| -----    |      |                        |                      |                       | 10 <sub>Ω</sub> - 100K                | 1 <sub>Ω</sub> - 1M     | 0.1 <sub>Ω</sub> - 1M   |                         |                        |                     |                        |  |

額定電壓是以， $\sqrt{\text{功率(W)} \times \text{阻值}(\Omega)}$  計算所得的值及以規格表中所列最高使用電壓兩者相較小者。

Rated-Voltage =  $\sqrt{P(W) \times R(\Omega)}$  or Max.working voltage, whichever lower.

### PATTERN STYLES FOR MELF RESISTORS



| TYPE/SIZE | WAVE SOLDERING |        |        |        | REFLOW SOLDERING |        |        |        |
|-----------|----------------|--------|--------|--------|------------------|--------|--------|--------|
|           | G (mm)         | Y (mm) | X (mm) | Z (mm) | G (mm)           | Y (mm) | X (mm) | Z (mm) |
| MMU 0102  | 0.7            | 1.2    | 1.5    | 3.1    | 1.1              | 0.8    | 1.3    | 2.7    |
| MMA 0204  | 1.5            | 1.5    | 1.8    | 4.5    | 1.7              | 1.2    | 1.6    | 4.1    |
| MMB 0207  | 2.8            | 2.1    | 2.6    | 7.0    | 3.2              | 1.7    | 2.4    | 6.6    |

#### Notes

• The given solder pad dimensions reflect the considerations for board design and assembly as outlined e.g. in standards IEC 61188-5-x<sup>(1)</sup>, or in publication IPC-7351

<sup>(1)</sup> The quoted IEC standards are also released as EN standards with the same number and identical contents

## Characteristics

| Item                                     | Characteristics  | Test Method  |
|--|--|--|
| 1. Operating Temp. Range<br>使用温度范围       | -55°C ~ 155°C  |  |
| 2. Temperature Coefficient<br>温度系数       | ±100ppm/°C ; ±50ppm/°C<br>±25ppm/°C ; ±15ppm/°C  | JIS-C-5202; 5.2  |
| 3. Short time overload<br>短时间过负载         | ±(0.5%+0.05Ω)  | Rating voltage×2.5 or Max. overload voltage for 5 sec. Whichever less  |
| 4. Pulse overload<br>断续过负载               | ±(0.5%+0.05Ω)  | Rating voltage×3 or Max. pulse overload voltage for 10,000 cycle (1 sec. "on"/25 sec. "off"), Whichever less |
| 5. Temperature cycling<br>温度周率           | ±(0.5%+0.05Ω)  | -55°C(30min.)+85°C(30min.) for 5 cycle   |
| 6. Load Life in Humidity<br>耐湿负载         | ±(1%+0.05Ω)  | 40°C±2°C, 90%~95% RH, 1000h, 1.5h "on"/0.5h "off" cycle  |
| 7. Load Life<br>寿命负载                     | ±(1%+0.05Ω)  | 70°C±2°C, 1000h, 1.5h "on"/0.5h "off" cycle  |
| 8. Resistance to soldering heat<br>焊接耐热性 | ±(0.5%+0.05Ω)  | 260°C±5°C, 5 sec±1 sec   |
| 9. Solderability<br>焊接性                  | 90% Coverage/Min   | 235°C±5°C, 2 sec±0.5 sec   |
| 10. Bending test<br>端子强度                 | ±(0.5%+0.05Ω)  | Holding point width 90mm, Bending 5mm, 1 time  |
| 11. Non-Combustibility<br>不燃性            | The resistors shall withstand Overload test in accordance With Article UL-94, V-0 without producing a fire hazard. |  |

## Classification (Part No)

MELF-MFR 0207 1/2WS 121Ω F T 50  
 STYLE SIZE POWER RESISTANCE TOLERANCE PACKING PPM

F = ±1%      T = Tape/Reel      15  
 D = ±0.5%      B = Bulk      25  
 C = ±0.25%      50  
 B = ±0.1%      100  
 J = ±5%

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