

SINLOON®

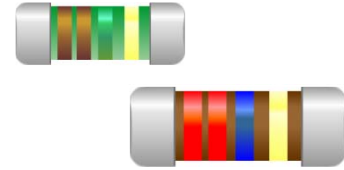
玻璃釉高壓晶圓電阻  
Voltage Range: 3KV ~ 10KV

MELF - MMG Series  
MELF Metal Glaze Resistor

□ FEATURES

- ◆ SMD enabled structure
- ◆ Excellent Solderability Termination
- ◆ Lead (Pb)-free and **RoHS** compliant .
- ◆ Pure Sn termination on Ni barrier layer.
- ◆ Small in dimension and broad range in high resistor
- ◆ Excellent in absorption of electric shock (Pulse, surge voltage)
- ◆ Compatible with lead (Pb)-free and lead containing soldering processes.
- ◆ Metal glaze resistor elements provide high stable performance against environmental conditions and overload.  
(MMG 金屬釉膜超小型尺寸有較高的額定功率及比一般電阻有更高的工作電壓,高脈衝負載能力,抗高溫及抗濕度。)

Figure



□ APPLICATIONS

- ◆ Overload and high voltage pulse hazard circuits (TV-sets, Monitors), high power electronic ballasts.

□ ORDERING INFORMATION

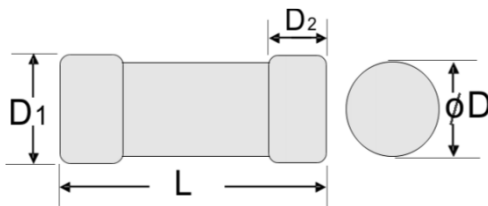
Example: V-MMG07G105FTR (1/4W 1M Tol. ±1% TCR ±100ppm T/Reel)

| Power<br>功率 | Size<br>型號 | Type<br>型號 | T.C.R<br>(ppm/°C) | Resistance Code |           | Tolerance<br>誤差值 | Package<br>包裝           | Quantity  |
|-------------|------------|------------|-------------------|-----------------|-----------|------------------|-------------------------|-----------|
|             |            |            |                   | E24             | E96       |                  |                         | Tape Reel |
| 1/4W        | 0207       | V-MMG07    | E=±50ppm          | 10K=103         | 10K=1002  | F= ±1%           | TR = T/Reel<br>B = Bulk | 2K Pcs    |
| 1/2WS       | 0207       | U-MMG07    | F=±75ppm          | 100K=104        | 100K=1003 | G= ±2%           |                         | 2K Pcs    |
| 1WS         | 0207       | S-MMG07    | G=±100ppm         | 1M=105          | 1M=1004   | J= ±5%           |                         | 2K Pcs    |
| 1W          | 0309       | S-MMG09    | H=±200ppm         | 10M=106         | 10M=1005  | K= ±10%          |                         | 1K Pcs    |
| 2W          | 0411       | Q-MMG11    | I=±300ppm         | 100M=107        | 100M=1006 |                  |                         | 500 Pcs   |
| 3W          | 0515       | N-MMG15    | K=±500ppm         |                 |           |                  |                         | 250 Pcs   |

□ DIMENSION

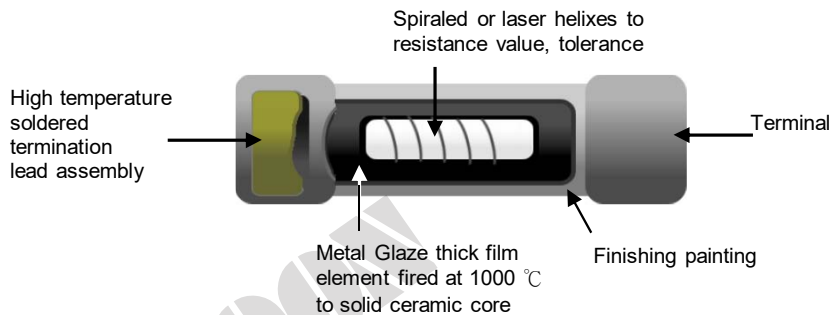
Unit: mm

| Power | Size | Type    | L        | ΦD      | D <sub>1</sub> | D <sub>2</sub> |
|-------|------|---------|----------|---------|----------------|----------------|
| 1/4W  | 0207 | V-MMG07 | 5.7±0.2  | 2.2±0.1 | 2.4±0.3        | 0.80±0.2       |
| 1/2WS | 0207 | U-MMG07 | 5.7±0.2  | 2.2±0.1 | 2.4±0.3        | 0.80±0.2       |
| 1WS   | 0207 | S-MMG07 | 5.7±0.2  | 2.2±0.1 | 2.4±0.3        | 0.80±0.2       |
| 1W    | 0309 | S-MMG09 | 8.5±0.3  | 3.0±0.3 | 3.3±0.3        | 1.70±0.2       |
| 2W    | 0411 | Q-MMG11 | 10.5±0.3 | 4.0±0.3 | 4.3±0.2        | 2.30±0.2       |
| 3W    | 0515 | N-MMG15 | 14.5±0.3 | 4.5±0.3 | 4.8±0.2        | 2.30±0.2       |



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□ STRUCTURE DIAGRAM





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Voltage Range: 3KV ~ 10KV

MELF - MMG Series  
MELF Metal Glaze Resistor

RATED SPECIFICATION ( Permissible Pulse Voltage)

| Type    | Size | Rating Power | Resistance Range (Ω) |         |         |         |         |      |      |      |
|---------|------|--------------|----------------------|---------|---------|---------|---------|------|------|------|
|         |      |              | 3KV                  | 4KV     | 5KV     | 6KV     | 7KV     | 8KV  | 9KV  | 10KV |
| V-MMG07 | 0207 | 1/4W         | 100K~1M              | 1M1~6M2 | ≥6M8    | ---     | ---     | ---  | ---  | ---  |
| U-MMG07 | 0207 | 1/2WS        | 100K~1M              | 1M1~6M2 | ---     | ≥6M8    | ---     | ---  | ---  | ---  |
| S-MMG07 | 0207 | 1WS          | 100K~1M              | 1M1~6M2 | ---     | ---     | ≥6M8    | ---  | ---  | ---  |
| S-MMG09 | 0309 | 1W           | ---                  | 100K~1M | 1M1~6M2 | ---     | ---     | ≥6M8 | ---  | ---  |
| Q-MMG11 | 0411 | 2W           | ---                  | ---     | 100K~1M | 1M1~6M2 | ---     | ---  | ≥6M8 | ---  |
| N-MMG15 | 0515 | 3W           | ---                  | ---     | ---     | 100K~1M | 1M1~6M2 | ---  | ---  | ≥6M8 |

Rated continuous Working Voltage (RCWV) =  $\sqrt{POWER \text{ RATING} * RESISTANCE \text{ VALUE}}$

※ The products value range for standard resistance, below or over this resistance on request please contact us.

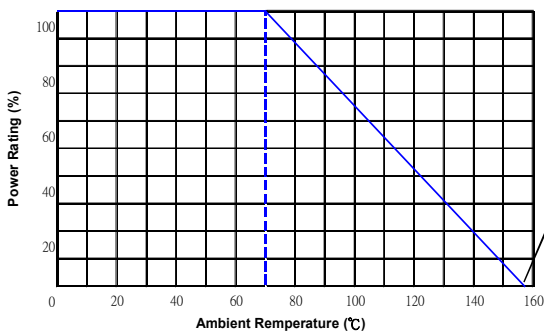
CHARACTERISTICS

| Items                        | Test Method   | Characteristics     |
|------------------------------|---|---------------------|
| Temperature Coefficient      | JIS-C5202 5.2   | ±200ppm/°C          |
| Short Time Overload          | Rating voltage * 2.5 or Max.overload voltage for 5 sec  | ±1%                 |
| Overload-ability             | Condition at 40°C, 95% RH for 21 days. Charged to capacitor (0.01uF) for 2.5 seconds. According to following and discharge for 2.5 seconds, total of 10 cycles. | ±20%                |
| Temperature Cycling          | -55°C (30min.) / +85°C (30min.) for 5 cycle   | ±1%                 |
| Load Life Humidity           | 40°C ±2°C, 90%~95% RH. 1000h, 1.5h [ON] 0.5h [OFF] cycle.   | ±5%                 |
| Load Life                    | 70°C ±2°C, 1000h, 1.5h [ON] 0.5h [OFF] cycle.   | ±(1%+0.05%)         |
| Resistance to Soldering Heat | 260°C ±5°C, 5sec±1sec.  | ±2%                 |
| Solderability                | 235°C ±5°C, 2sec±0.5sec.  | 90% Coverage / Min. |
| Non-Combustibility           | The resistor shall withstand overload test in accordance with article UL-94, V-0 without producing a fire hazard.   |                     |
| Operating Temperature Range: | -55 ~ +155°C  |                     |

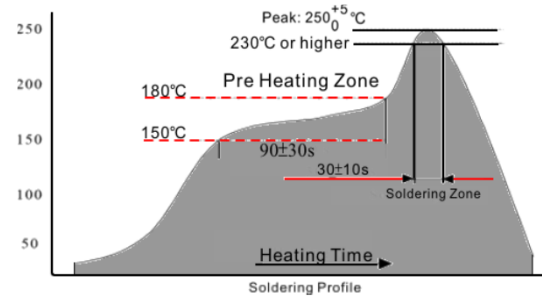
\* Rated power is maximum power which can continuously loaded at specified ambient determined 70 °C, however when the ambient temperature exceeds 70 °C, rated power should be determined from the derating curve of below

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POWER DERATING CURVE



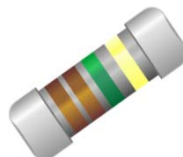
IR Reflow



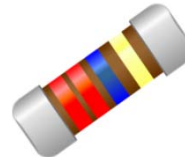
Body Coating Color



Pink: Small Size



Standard: Grey or Brown



From the specification of data sheet choose one of our Ship topics, and then select an FAQ to read. If you have a question which is not in this section, please contact us.


在本章規格書裡,如果你未能找到或參數指標未能達到你的應用要求,即未在本規格書裡表現出來,請與美隆聯系。

**SINLOON®**

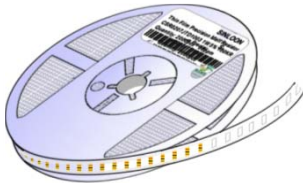
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□ PACKAGE SPECIFICATION

| Part Number<br>Type | Rated<br>Power | Quantity (ea) |           |          | <b>SINLOON®</b> |   |
|---------------------|----------------|---------------|-----------|----------|-----------------|---|
|                     |                | Tape Reel     | Inner Box | Carton   |                 |   |
| V-MMG07             | 1/4W(0207)     | Φ178mm        | 2000 pcs  | 20K Pcs  | 100K Pcs        |  |
| U-MMG07             | 1/2WS(0207)    |               | 2000 pcs  | 20K Pcs  | 100K Pcs        |   |
| S-MMG07             | 1WS(0207)      |               | 2000 pcs  | 20K Pcs  | 100K Pcs        |   |
| S-MMG09             | 1W(0309)       | Φ330mm        | 1000 pcs  | 10K Pcs  | 50K Pcs         |   |
| Q-MMG11             | 2W(0411)       |               | 500 pcs   | 5K Pcs   | 25K pcs         |   |
| N-MMG15             | 3W(0515)       |               | 250 pcs   | 2.5K Pcs | 12.5K Pcs       |   |

Φ178mm Tape Reel



Inner Box

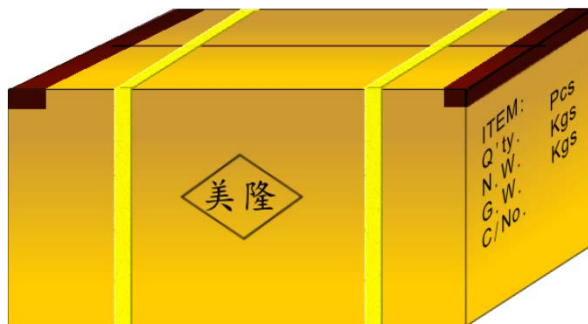


Φ330mm Tape Reel

Figure



Carton Package



SINLOON®

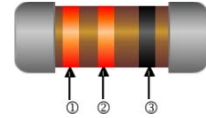
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Standard Resistor Color Code E24 Series ( 4 band code)

| Color  | 1st digit | 2nd digit | 3rd Multiplier | 4 Tolerance      |
|--------|-----------|-----------|----------------|------------------|
| Black  | 0         | 0         | $\times 10^0$  |                  |
| Brown  | 1         | 1         | $\times 10^1$  | $\pm 1\%$ (F)    |
| Red    | 2         | 2         | $\times 10^2$  | $\pm 2\%$ (G)    |
| Orange | 3         | 3         | $\times 10^3$  |                  |
| Yellow | 4         | 4         | $\times 10^4$  |                  |
| Green  | 5         | 5         | $\times 10^5$  | $\pm 0.5\%$ (D)  |
| Blue   | 6         | 6         | $\times 10^6$  | $\pm 0.25\%$ (C) |
| Violet | 7         | 7         | $\times 10^7$  | $\pm 0.1\%$ (B)  |
| Gray   | 8         | 8         | $\times 10^8$  | $\pm 0.05\%$ (A) |
| White  | 9         | 9         | $\times 10^9$  |                  |
| Gold   |           |           | $\times 0.1$   | $\pm 5\%$ (J)    |
| Silver |           |           | $\times 0.01$  | $\pm 10\%$ (K)   |
| None   |           |           |                | $\pm 20\%$ (M)   |

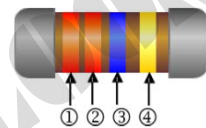
Example : Value : 22R  $\Omega$   $\pm 5\%$



Standard Resistor Color Code E96 Series ( 5 band code)

| Color  | 1st digit | 2nd digit | 3rd digit | 4 Multiplier  | 5 Tolerance      |
|--------|-----------|-----------|-----------|---------------|------------------|
| Black  | 0         | 0         | 0         | $\times 10^0$ |                  |
| Brown  | 1         | 1         | 1         | $\times 10^1$ | $\pm 1\%$ (F)    |
| Red    | 2         | 2         | 2         | $\times 10^2$ | $\pm 2\%$ (G)    |
| Orange | 3         | 3         | 3         | $\times 10^3$ |                  |
| Yellow | 4         | 4         | 4         | $\times 10^4$ |                  |
| Green  | 5         | 5         | 5         | $\times 10^5$ | $\pm 0.5\%$ (D)  |
| Blue   | 6         | 6         | 6         | $\times 10^6$ | $\pm 0.25\%$ (C) |
| Violet | 7         | 7         | 7         | $\times 10^7$ | $\pm 0.1\%$ (B)  |
| Gray   | 8         | 8         | 8         | $\times 10^8$ | $\pm 0.05\%$ (A) |
| White  | 9         | 9         | 9         | $\times 10^9$ |                  |
| Gold   |           |           |           | $\times 0.1$  | $\pm 5\%$ (J)    |
| Silver |           |           |           | $\times 0.01$ | $\pm 10\%$ (K)   |
| None   |           |           |           |               | $\pm 20\%$ (M)   |

Example : Value : 226K  $\Omega$   $\pm 1\%$



STANDARD RESISTANCE VALUE IN A DECARD

For Resistance According to IEC Publication 63

| E24 | E96 |     |     |     | Example :   |
|-----|-----|-----|-----|-----|---|
| 10  | 100 | 178 | 316 | 562 | E24 Series: 10<br>Resistance: 0.1R; 1R0; 10R; 100R;<br>1K; 10K; 100K; 1M; 100M.                         |
| 11  | 102 | 182 | 324 | 576 |   |
| 12  | 105 | 187 | 332 | 590 | E26 Series: 102<br>Resistance: 0.102R; 1.02R; 10.2R;<br>102R; 1K02; 10K2;<br>102K; 1M02; 10M2;<br>102M. |
| 13  | 107 | 191 | 340 | 604 |   |
| 15  | 110 | 196 | 348 | 619 |   |
| 16  | 113 | 200 | 357 | 634 |   |
| 18  | 115 | 205 | 365 | 649 |   |
| 20  | 118 | 210 | 374 | 665 |   |
| 22  | 121 | 215 | 383 | 681 |   |
| 24  | 124 | 221 | 392 | 698 |   |
| 27  | 127 | 226 | 402 | 715 |   |
| 30  | 130 | 232 | 412 | 732 |   |
| 33  | 133 | 237 | 422 | 750 |   |
| 36  | 137 | 243 | 432 | 768 |   |
| 39  | 140 | 249 | 442 | 787 |   |
| 43  | 143 | 255 | 453 | 806 |   |
| 47  | 147 | 261 | 464 | 825 |   |
| 51  | 150 | 267 | 475 | 845 |   |
| 56  | 154 | 274 | 487 | 866 |   |
| 62  | 158 | 280 | 499 | 887 |   |
| 68  | 162 | 287 | 511 | 909 |   |
| 75  | 165 | 294 | 523 | 931 |   |
| 82  | 169 | 301 | 536 | 953 |   |
| 91  | 174 | 309 | 549 | 976 |   |

ORDERING RESISTANCE CODE

| E96 ( $\pm 1\%$ )            |             | E24 ( $\pm 5\%$ )            |            |
|------------------------------|-------------|------------------------------|------------|
| Resistance ( $\Omega$ ) Code |             | Resistance ( $\Omega$ ) Code |            |
| m5=R0005 $\Omega$            | 1K = 1001   | m5 = R0005 $\Omega$          | 1K = 102   |
| 5m=R005 $\Omega$             | 10K = 1002  | 5m = R005 $\Omega$           | 10K = 103  |
| 50m=R05 $\Omega$             | 100K = 1003 | 50m = R05 $\Omega$           | 100K = 104 |
| 100m=R1 $\Omega$             | 1M = 1004   | 100m = R1 $\Omega$           | 1M = 105   |
| 1000m=1 $\Omega$             | 10M = 1005  | 1000m = 1 $\Omega$           | 10M = 106  |
| 1R = 1R00                    | 100M = 1006 | 1R = 1R0                     | 100M = 107 |
| 10R=10R0                     | 1G = 1007   | 10R = 100                    | 1G = 108   |
| 100R=100R                    | 10G = 1008  | 100R = 101                   | 10G = 109  |

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