

# Thick Film Resistor Networks, Dual-In-Line, Medium Body, Small Outline, Molded DIP, Surface Mount



## FEATURES

- Isolated, bussed and dual terminator schematics available
- 14, 16 or 20 terminal package
- Molded case construction
- Thick film resistive elements
- Reflow solderable
- Compatible with automatic surface mounting equipment
- Reduces total assembly costs
- For wave flow soldering contact factory
- Compliant to RoHS directive 2002/95/EC



Available


**RoHS\***  
COMPLIANT

## STANDARD ELECTRICAL SPECIFICATIONS

| GLOBAL<br>MODEL | POWER RATING                           |                                        |      |      | CIRCUIT | MAXIMUM<br>WORKING<br>VOLTAGE <sup>(2)</sup><br>V <sub>DC</sub> | TEMPERATURE<br>COEFFICIENT <sup>(1)</sup><br>± ppm/°C | TOLERANCE <sup>(3)</sup><br>± % | RESISTANCE<br>RANGE<br>Ω | E-SERIES |
|-----------------|----------------------------------------|----------------------------------------|------|------|---------|-----------------------------------------------------------------|-------------------------------------------------------|---------------------------------|--------------------------|----------|
|                 | ELEMENT<br><br>P <sub>70 °C</sub><br>W | PACKAGE<br><br>P <sub>70 °C</sub><br>W |      |      |         |                                                                 |                                                       |                                 |                          |          |
|                 |                                        | 14                                     | 16   | 20   |         |                                                                 |                                                       |                                 |                          |          |
| SOMC            | 0.08                                   | 1.05                                   | 1.20 | 1.52 | 01      | 50                                                              | 100                                                   | 1, 2, 5                         | 10 to 1M                 | 24       |
|                 | 0.16                                   | 1.125                                  | 1.28 | 1.60 | 03      |                                                                 |                                                       |                                 |                          |          |
|                 | 0.08                                   | 1.05                                   | 1.20 | 1.52 | 05      |                                                                 |                                                       |                                 |                          |          |

## Notes

- DSCC has created series of drawings to support the need for a surface mount gull wing resistor network product. Vishay Dale is listed as a resource on this drawing as follows:

| DSCC DRAWING NUMBER | VISHAY DALE MODEL | CIRCUIT | POWER RATING                       |                                    | RESISTANCE RANGE<br>Ω | TOLERANCE<br>± % | TEMPERATURE COEFFICIENT<br>(0 °C to 70 °C)<br>± ppm/°C | MAXIMUM WORKING VOLTAGE <sup>(2)</sup><br>V <sub>DC</sub> |
|---------------------|-------------------|---------|------------------------------------|------------------------------------|-----------------------|------------------|--------------------------------------------------------|-----------------------------------------------------------|
|                     |                   |         | ELEMENT<br>P <sub>70 °C</sub><br>W | PACKAGE<br>P <sub>70 °C</sub><br>W |                       |                  |                                                        |                                                           |
| 87012               | SOMC1601..16      | 01 (B)  | 0.08                               | 1.20                               | 10 to 2.2M            | 1, 2, 5          | 100, 300                                               | 50                                                        |
|                     | SOMC1603..17      | 03 (A)  | 0.16                               |                                    |                       |                  |                                                        |                                                           |
|                     | SOMC1605..48      | 05 (J)  | 0.08                               |                                    |                       |                  |                                                        |                                                           |
| 87013               | SOMC1401..6       | 01 (B)  | 0.08                               | 1.00                               | 10 to 2.2M            | 1, 2, 5          | 100, 300                                               | 50                                                        |
|                     | SOMC1403..13      | 03 (A)  | 0.16                               |                                    |                       |                  |                                                        |                                                           |
|                     | SOMC1405..22      | 05 (J)  | 0.08                               |                                    |                       |                  |                                                        |                                                           |

These drawings can be viewed at: [www.dscclia.mil/Programs/milSpec/ListDwgs.asp?DocType=DSCCdwg](http://www.dscclia.mil/Programs/milSpec/ListDwgs.asp?DocType=DSCCdwg).

- Power rating depends on the max. temperature at the solder point, the component placement density and the substrate material.
- Jumper: 0 Ω-resistor on request (100 mΩ).
- Packaging: According to EIA; see appropriate catalog or web page.

<sup>(1)</sup> Temperature range: - 55 °C to + 125 °C.

<sup>(2)</sup> Continuous working voltage shall be  $\sqrt{P \times R}$  or maximum working voltage, whichever is less.

<sup>(3)</sup> ± 2 % standard, ± 1 % and ± 5 % available.

## TECHNICAL SPECIFICATIONS

| PARAMETER                               | UNIT                    | 01 CIRCUIT         | 03 CIRCUIT | 05 CIRCUIT |
|-----------------------------------------|-------------------------|--------------------|------------|------------|
| Rated dissipation at 70 °C per element  | W                       | 0.08               | 0.16       | 0.08       |
| Limiting element voltage <sup>(4)</sup> | V <sub>DC</sub>         | 50                 |            |            |
| Voltage coefficient                     | ppm/V                   | < 50               |            |            |
| Insulation voltage (1 min)              | V <sub>DC/AC</sub> peak | 200                |            |            |
| Category temperature range              | °C                      | - 55/+ 150         |            |            |
| Insulation resistance                   | Ω                       | > 10 <sup>10</sup> |            |            |
| TC tracking (- 55 °C to + 125 °C)       | ppm/°C                  | 50                 |            |            |

## Note

<sup>(4)</sup> Rated voltage:  $\sqrt{P \times R}$ .

\* Pb containing terminations are not RoHS compliant, exemptions may apply

## GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: SOMC16011K00GDC (preferred part numbering format)

|                 |                |                                              |                                                                                                                          |                                                                |                                                                                                                        |   |   |                                                                             |   |   |   |   |   |   |  |  |  |
|-----------------|----------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---|---|-----------------------------------------------------------------------------|---|---|---|---|---|---|--|--|--|
| S               | O              | M                                            | C                                                                                                                        | 1                                                              | 6                                                                                                                      | 0 | 1 | 1                                                                           | K | 0 | 0 | G | D | C |  |  |  |
| GLOBAL<br>MODEL | PIN COUNT      | SCHEMATIC                                    | RESISTANCE<br>VALUE                                                                                                      | TOLERANCE<br>CODE                                              | PACKAGING                                                                                                              |   |   | SPECIAL                                                                     |   |   |   |   |   |   |  |  |  |
| SOMC            | 14<br>16<br>20 | 01 = Bussed<br>03 = Isolated<br>00 = Special | R = $\Omega$<br>K = k $\Omega$<br>M = M $\Omega$<br>10R0 = 10 $\Omega$<br>680K = 680 k $\Omega$<br>1M00 = 1.0 M $\Omega$ | F = $\pm 1\%$<br>G = $\pm 2\%$<br>J = $\pm 5\%$<br>S = Special | EJ = Lead (Pb)-free, tube<br>EA = Lead (Pb)-free, tape and reel<br>DC = Tin/lead, tube<br>RZ = Tin/lead, tape and reel |   |   | Blank = Standard (Dash number) (Up to 3 digits) From 1 to 999 as applicable |   |   |   |   |   |   |  |  |  |

Historical Part Number Example: SOMC1601102G (will continue to be accepted)

|                     |           |           |                     |                   |           |
|---------------------|-----------|-----------|---------------------|-------------------|-----------|
| SOMC                | 16        | 01        | 102                 | G                 | D02       |
| HISTORICAL<br>MODEL | PIN COUNT | SCHEMATIC | RESISTANCE<br>VALUE | TOLERANCE<br>CODE | PACKAGING |

New Global Part Numbering: SOMC2005500BGRZ (preferred part numbering format)

|                 |                |                      |                                                                          |                                                 |                                                                                                                        |   |   |                                                                           |   |   |   |   |   |   |  |  |  |
|-----------------|----------------|----------------------|--------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---|---|---------------------------------------------------------------------------|---|---|---|---|---|---|--|--|--|
| S               | O              | M                    | C                                                                        | 2                                               | 0                                                                                                                      | 0 | 5 | 5                                                                         | 0 | 0 | B | G | R | Z |  |  |  |
| GLOBAL<br>MODEL | PIN COUNT      | SCHEMATIC            | RESISTANCE<br>VALUE                                                      | TOLERANCE<br>CODE                               | PACKAGING                                                                                                              |   |   | SPECIAL                                                                   |   |   |   |   |   |   |  |  |  |
| SOMC            | 14<br>16<br>20 | 05 = Dual terminator | 3 digit impedance code, followed by alpha modifier (see Impedance table) | F = $\pm 1\%$<br>G = $\pm 2\%$<br>J = $\pm 5\%$ | EJ = Lead (Pb)-free, tube<br>EA = Lead (Pb)-free, tape and reel<br>DC = Tin/lead, tube<br>RZ = Tin/lead, tape and reel |   |   | Blank = Standard (Dash number) Up to 3 digits From 1 to 999 as applicable |   |   |   |   |   |   |  |  |  |

Historical Part Number Example: SOMC2005820131G (will continue to be accepted)

|                     |           |           |                       |                       |                   |           |
|---------------------|-----------|-----------|-----------------------|-----------------------|-------------------|-----------|
| SOMC                | 20        | 05        | 820                   | 131                   | G                 | R61       |
| HISTORICAL<br>MODEL | PIN COUNT | SCHEMATIC | RESISTANCE<br>VALUE 1 | RESISTANCE<br>VALUE 2 | TOLERANCE<br>CODE | PACKAGING |

## CIRCUIT SCHEMATICS



## DIMENSIONS



### SOLDER PAD DIMENSIONS in millimeters

|        | a    | b    | c    | I    | p    | w    |
|--------|------|------|------|------|------|------|
| WAVE   | 0.64 | 1.91 | 5.34 | 9.53 | 1.27 | 9.15 |
| REFLOW | 0.64 | 1.91 | 5.34 | 9.53 | 1.27 | 9.15 |

#### Notes

- The dimension shown are for a 16 pin part. For parts with different pin numbers use the same pitch and add or subtract pads as required.
- Maximum solder reflow temperature + 255 °C.

### DIMENSIONS in millimeters

| PIN NO# | L       | W       | B       | E       | F       | G       | H       | K     | R     | S       | T    |
|---------|---------|---------|---------|---------|---------|---------|---------|-------|-------|---------|------|
| 14      | 9.91    | 7.62    | 7.62    | 6.20    | 5.59    | 2.16    | 2.03    | 0.914 | 0.457 | 1.27    | 1.14 |
| 16      | 11.18   | 7.62    | 8.89    | 6.20    | 5.59    | 2.16    | 2.03    | 0.914 | 0.457 | 1.27    | 1.14 |
| 20      | 13.72   | 7.62    | 11.43   | 6.20    | 5.59    | 2.16    | 2.03    | 0.914 | 0.457 | 1.27    | 1.14 |
| Tol.    | ± 0.254 | ± 0.381 | ± 0.254 | ± 0.381 | ± 0.127 | ± 0.127 | ± 0.127 |       |       | ± 0.254 |      |

### IMPEDANCE CODES

| CODE | R <sub>1</sub> (Ω) | R <sub>2</sub> (Ω) | CODE | R <sub>1</sub> (Ω) | R <sub>2</sub> (Ω) |
|------|--------------------|--------------------|------|--------------------|--------------------|
| 500B | 82                 | 130                | 141A | 270                | 270                |
| 750B | 120                | 200                | 181A | 330                | 390                |
| 800C | 130                | 210                | 191A | 330                | 470                |
| 990A | 160                | 260                | 221B | 330                | 680                |
| 101C | 180                | 240                | 281B | 560                | 560                |
| 111C | 180                | 270                | 381B | 560                | 1.2K               |
| 121B | 180                | 390                | 501C | 620                | 2.7K               |
| 121C | 220                | 270                | 102A | 1.5K               | 3.3K               |
| 131A | 220                | 330                | 202B | 3K                 | 6.2K               |

### PERFORMANCE

| TEST                         | CONDITIONS OF TEST | TEST RESULTS<br>(TYPICAL TEST LOTS) |
|------------------------------|--------------------|-------------------------------------|
| Power conditioning           | MIL-STD-202        | ± 0.5 %                             |
| Load life at 70 °C           | MIL-STD-202        | ± 0.5 %                             |
| Short time overload          | MIL-STD-202        | ± 0.25 %                            |
| Thermal shock                | MIL-STD-202        | ± 0.5 %                             |
| Moisure resistance           | MIL-STD-202        | ± 0.5 %                             |
| Resistance to soldering heat | MIL-STD-202        | ± 0.25 %                            |
| Low temperature operation    | MIL-STD-202        | ± 0.25 %                            |
| Vibration                    | MIL-STD-202        | ± 0.25 %                            |
| Shock                        | MIL-STD-202        | ± 0.25 %                            |
| Terminal strength            | MIL-STD-202        | ± 0.25 %                            |



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