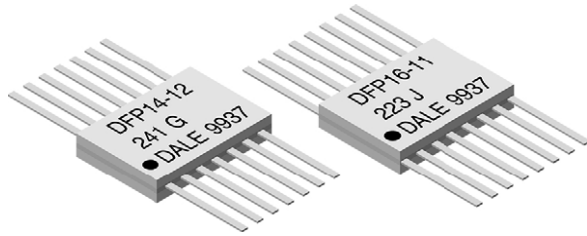


# Thick Film Resistor Networks, Flat Pack



## FEATURES

- Isolated and bussed schematics available
- 0.065" (1.65 mm) height for high density packaging
- Low temperature coefficient (-55 °C to +125 °C) ± 100 ppm/°C
- Hot solder dipped leads
- Highly stable thick film
- Wide resistance range
- All devices are capable of passing the MIL-STD-202, method 210, condition C "Resistance to Soldering Heat" test

| STANDARD ELECTRICAL SPECIFICATIONS |  |  |                   |  |  |                                     |                              |                              |
|------------------------------------|--|--|-------------------|--|--|-------------------------------------|------------------------------|------------------------------|
| GLOBAL MODEL                       | POWER RATING ELEMENT<br>$P_{25^{\circ}\text{C}}$ W | POWER RATING PACKAGE<br>$P_{25^{\circ}\text{C}}$ W | CIRCUIT SCHEMATIC | MAXIMUM WORKING VOLTAGE <sup>(3)</sup><br>$V_{DC}$ | TEMPERATURE COEFFICIENT <sup>(1)</sup><br>$\pm$ ppm/°C | TOLERANCE <sup>(2)</sup><br>$\pm$ % | RESISTANCE RANGE<br>$\Omega$ | TCR TRACKING<br>$\pm$ ppm/°C |
| DFP                                | 0.25   | 0.65   | 11                | 75   | 100  | 1, 2, 5                             | 10 to 1M                     | 50                           |
|                                    | 0.15   | 0.65   | 12                | 75   | 100  | 1, 2, 5                             | 10 to 1M                     | 50                           |

### Notes

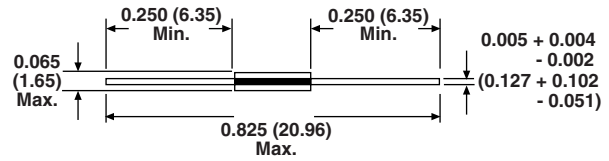
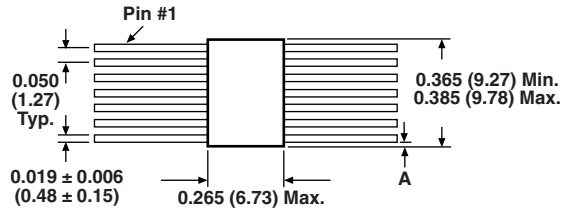
- Consult factory for stocked values
- (1) Temperature range: -55 °C to +125 °C
- (2) ± 2 % standard, ± 1 % and ± 5 % available
- (3) Continuous working voltage shall be  $\sqrt{P \times R}$  or maximum working voltage, whichever is less

| TECHNICAL SPECIFICATIONS   |  |
|----------------------------|--|
| <p><b>11 Schematic</b></p> | <p>7 or 8 isolated resistors</p> <p>The DFPxx11 provides the user with 7 or 8 nominally equal resistors with each resistor isolated from all others. Commonly used in the following applications:</p> <ul style="list-style-type: none"> <li>• "Wired OR" pull-up</li> <li>• Power driven pull-up</li> <li>• Power gate pull-up</li> <li>• Line termination</li> <li>• Long-line impedance balancing</li> <li>• LED current limiting</li> <li>• ECL output pull-down</li> <li>• TTL input pull-down</li> </ul>   |
| <p><b>12 Schematic</b></p> | <p>13 or 15 resistors with one pin common</p> <p>The DFPxx12 provides the user with a choice of 13 or 15 nominally equal resistors, each connected to a common pin (14 or 16). Commonly used in the following applications:</p> <ul style="list-style-type: none"> <li>• MOS/ROM pull-up/pull-down</li> <li>• Open collector pull-up</li> <li>• "Wired OR" pull-up</li> <li>• Power driven pull-up</li> <li>• TTL input pull-down</li> <li>• Digital pulse squaring</li> <li>• TTL unused gate pull-up</li> <li>• High speed parallel pull-up</li> </ul> |

| GLOBAL PART NUMBER INFORMATION   |           |           |                              |   |  |                |           |   |   |                 |   |   |   |   |  |  |  |
|--|-----------|-----------|------------------------------|---|--|----------------|-----------|---|---|-----------------|---|---|---|---|--|--|--|
| New Global Part Numbering: DFP14121K00GT05 (preferred part number information) |           |           |                              |   |  |                |           |   |   |                 |   |   |   |   |  |  |  |
| D  | F         | P         | 1                            | 4 | 1  | 2              | 1         | K   | 0 | 0               | G | T   | 0 | 5 |  |  |  |
| GLOBAL MODEL   | PIN COUNT |           | SCHEMATIC                    |   | RESISTANCE VALUE   |                |           | TOLERANCE CODE                                  |   | PACKAGING       |   | SPECIAL   |   |   |  |  |  |
| DFP  | 14<br>16  |           | 11 = isolated<br>12 = bussed |   | $R = \Omega$<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>$J = \pm 5\%$ |   | T05 = tray pack |   | Blank = standard (dash number) (up to 3 digits) from 1 to 999 as applicable |   |   |  |  |  |
| Historical Part Number Example: DFP1412102G (will continue to be accepted)     |           |           |                              |   |  |                |           |   |   |                 |   |   |   |   |  |  |  |
| DFP  | 14        | 12        | 102                          |   |  | G              | T05       |   |   |                 |   |   |   |   |  |  |  |
| HISTORICAL MODEL   | PIN COUNT | SCHEMATIC | RESISTANCE VALUE             |   |  | TOLERANCE CODE | PACKAGING |   |   |                 |   |   |   |   |  |  |  |

### Note

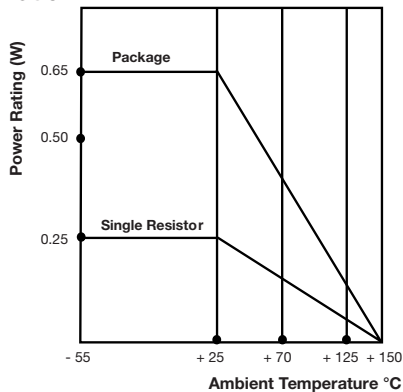
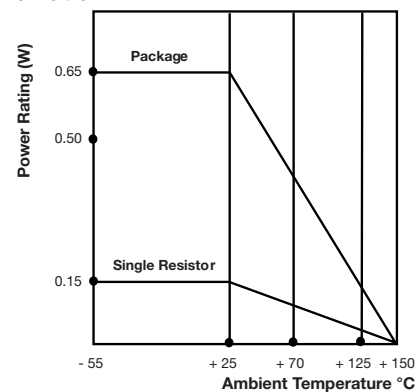
- For additional information on packaging, refer to the Surface Mount Network Packaging document ([www.vishay.com/doc?31540](http://www.vishay.com/doc?31540))

**DIMENSIONS** in inches (millimeters)


| GLOBAL MODEL | DIMENSION A                 |
|--------------|-----------------------------|
| DFP14        | 0.037 ± 0.010 (0.94 ± 0.25) |
| DFP16        | 0.012 ± 0.010 (0.30 ± 0.25) |

| TECHNICAL SPECIFICATIONS          |                 |               |
|-----------------------------------|-----------------|---------------|
| PARAMETER                         | UNIT            | DFP14 / DFP16 |
| Isolation resistance 11 schematic | MΩ              | > 100         |
| Voltage coefficient of resistance | ppm/V           | < 50 typical  |
| Maximum operating voltage         | V <sub>DC</sub> | 75            |
| Operating temperature range       | °C              | -55 to +125   |
| Storage temperature range         | °C              | -55 to +150   |

| MECHANICAL SPECIFICATIONS      |  |
|--------------------------------|--|
| Marking                        | Model number, schematic number, value tolerance, pin 1 indicator, date code  |
| Marking resistance to solvents | Permanency testing per MIL-STD-202, method 215   |
| Solderability                  | Per MIL-STD-202, method 208E   |
| Terminals                      | Per MIL-STD-1276 DFPxx11, DFPxx12 = type G (hot solder dipped). Hot solder dipped leads supplied as standard finish. |
| Body                           | Epoxy filled ceramic sandwich  |

**11 Schematic**

**Derating**
**12 Schematic**

**Derating**

| PERFORMANCE                     |   |                             |
|---------------------------------|---|-----------------------------|
| TEST                            | CONDITIONS  | MAX. ΔR (TYPICAL TEST LOTS) |
| Power conditioning              | 1.5 x rated power, applied 1.5 h "ON" and 0.5 h "OFF" for 100 h ± 4 h at +25 °C ambient temperature                   | ± 0.50 % ΔR                 |
| Thermal shock                   | 5 cycles between -65 °C and +125 °C   | ± 0.50 % ΔR                 |
| Short time overload             | 2.5 x rated working voltage, 5 s  | ± 0.25 % ΔR                 |
| Low temperature operation       | 45 min at full rated working voltage at -65 °C  | ± 0.25 % ΔR                 |
| Moisture resistance             | 240 h with humidity ranging from 80 % RH to 98 % RH   | ± 0.50 % ΔR                 |
| Resistance to soldering heat    | Leads immersed in +260° ΔC solder to within 1/16" of body for 10 s  | ± 0.25 % ΔR                 |
| Shock                           | Total of 18 shocks at 100 g's   | ± 0.25 % ΔR                 |
| Vibration                       | 12 h at maximum of 20 g's between 10 Hz and 2000 Hz   | ± 0.25 % ΔR                 |
| Load life                       | 1000 h at +70 °C, rated power applied 1.5 h "ON", 0.5 h "OFF" for full 1000 h period. Derated according to the curve. | ± 0.50 % ΔR                 |
| Terminal strength               | 1.5 pound pull for 30 s   | ± 0.25 % ΔR                 |
| Insulation resistance           | 10 000 MΩ (minimum)   | -                           |
| Dielectric withstanding voltage | No evidence of arcing or damage (200 V <sub>RMS</sub> for 1 min)  | -                           |



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