MODELS CCF-55 and CCF-60
Metal Film Resistors
Industrial, ± 1% Tolerance

ELECTRICAL SPECIFICATIONS
Resistance Range:  CCF-55 = 10 ohm to 3.01 Megohm.
CCF-60 = 10 ohm to 1 Megohm.
Resistance Tolerance:  ± 1%.
Temperature Coefficient: (-65°C to +165°C) ± 100PPM/°C.
Power Rating:
CCF-55 = 1/4 watt, 1/2 watt;
CCF-60 = 1/2 watt, 3/4 watt, at +70°C.
Maximum Working Voltage:
250 V RMS for CCF-55.
350 V RMS for CCF-60.
Insulation Resistance:  10,000 Megohm.
Operating Temperature Range:  -65°C to +165°C.

ENVIRONMENTAL PERFORMANCE
POWER RATING @ +70°C
CCF-55  1/4 watt  1/2 watt
CCF-60  1/2 watt  3/4 watt
TEST*  MAXIMUM ΔR  MAXIMUM ΔR
Thermal Shock  ± 0.5%  —
Short Time Overload  ± 0.5%  —
Low Temperature Operation  ± 0.5%  —
Moisture Resistance  ± 1.5%  —
Resistance to Soldering Heat  ± 0.5%  —
Shock  ± 0.5%  —
Vibration  ± 0.5%  —
Life  ± 0.5%  ± 1.0%
Terminal Strength  ± 0.2%  —
Dielectric Withstanding Voltage  ± 0.5%  —

RESISTANCE VALUES
Dale® Models CCF-55 and CCF-60 are available in the standard 96 resistance values per decade. Values are obtained from the following decade table by multiplying by powers of 10. As an example: 30.1 can represent 30.1 ohm, 301 ohm, 3.01 kilohm, 30.1 kilohm or 301 kilohm.

<table>
<thead>
<tr>
<th>Resistance (°C)</th>
<th>30.1</th>
<th>301</th>
<th>3.01</th>
<th>30.1K</th>
<th>301K</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0</td>
<td>12.1</td>
<td>14.7</td>
<td>17.8</td>
<td>21.5</td>
<td>26.1</td>
</tr>
<tr>
<td>10.2</td>
<td>12.4</td>
<td>15.0</td>
<td>18.2</td>
<td>22.1</td>
<td>26.7</td>
</tr>
<tr>
<td>10.5</td>
<td>12.7</td>
<td>15.4</td>
<td>18.7</td>
<td>22.6</td>
<td>27.4</td>
</tr>
<tr>
<td>10.7</td>
<td>13.0</td>
<td>15.8</td>
<td>19.1</td>
<td>23.2</td>
<td>28.0</td>
</tr>
<tr>
<td>11.0</td>
<td>13.3</td>
<td>16.2</td>
<td>19.6</td>
<td>23.7</td>
<td>28.7</td>
</tr>
<tr>
<td>11.3</td>
<td>13.7</td>
<td>16.5</td>
<td>20.0</td>
<td>24.3</td>
<td>29.4</td>
</tr>
<tr>
<td>11.5</td>
<td>14.0</td>
<td>16.9</td>
<td>20.5</td>
<td>24.9</td>
<td>30.1</td>
</tr>
<tr>
<td>11.8</td>
<td>14.3</td>
<td>17.4</td>
<td>21.0</td>
<td>25.5</td>
<td>30.9</td>
</tr>
</tbody>
</table>

FEATURES
- Power Ratings: 1/4, 1/2 and 3/4 watt at +70°C
- ± 100PPM/°C temperature coefficient
- Superior electrical performance
- Flame retardant epoxy conformal coating
- Standard 5 band color code marking for ease of identification after mounting
- Tape and reel packaging for automatic insertion

DIMENSIONAL CONFIGURATIONS
[Numbers in brackets indicate millimeters]

<table>
<thead>
<tr>
<th>MODEL</th>
<th>A</th>
<th>B</th>
<th>C (Max.)</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCF-60</td>
<td>.344 ± .031 [.874 ± .787]</td>
<td>.139 ± .009 [.353 ± .229]</td>
<td>.400 [.1016 ± .051]</td>
<td>.025 ± .002 [.635 ± .051]</td>
<td>1.0 ± .040 [25.4 ± 1.02]</td>
</tr>
</tbody>
</table>

DERATING

PART MARKING
— Color band

HOW TO ORDER

<table>
<thead>
<tr>
<th>CCF MODEL</th>
<th>3010 RESISTANCE</th>
<th>F TOLERANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCF-55</td>
<td>First three digits are significant figures. Last digit specifies the number of zeros to follow.</td>
<td></td>
</tr>
<tr>
<td>CCF-60</td>
<td>—</td>
<td>F = ± 1%</td>
</tr>
</tbody>
</table>

Note: Four digit figure examples: 49R9 = 49.9 ohm, 1000 = 100 ohm, 1001 = 1 kilohm, 1004 = 1 Megohm.
Example: CCF-55 3010F = Model CCF-55 metal film resistor with ±100PPM/°C TC, resistance of 301 ohm and tolerance of ±1%.