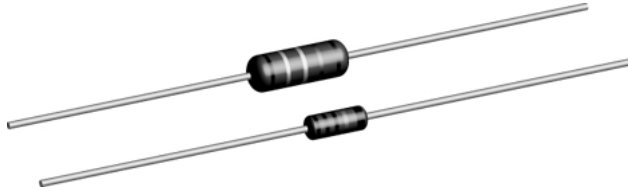


## Metal Film Resistors, Industrial, ± 1% Tolerance



### FEATURES

- Power Ratings: 1/4, 1/2, 3/4 and 1 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 (52.4mm inside tape spacing per EIA-296-E)

### STANDARD ELECTRICAL SPECIFICATIONS

MODEL	POWER RATING $P_{70^{\circ}\text{C}}$ W	LIMITING ELEMENT VOLTAGE MAX. $V_{\cong}$	TEMPERATURE COEFFICIENT ppm/°C	TOLERANCE %	RESISTANCE RANGE $\Omega$	E-SERIES
CCF-55	0.25 / 0.5	250	± 100	± 1	10R - 3.01M	96
CCF-60	0.50 / 0.75 / 1.0	500	± 100	± 1	10R - 1M	96

### TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CCF-55	CCF-60
Rated Dissipation at 70°C	W	0.25 / 0.5	0.5 / 0.75 / 1.0
Maximum Working Voltage	$V_{\cong}$	≤ 250	≤ 500
Insulation Voltage (1min)	$V_{\text{eff}}$	500	500
Dielectric Strength	VAC	450	450
Insulation Resistance	$\Omega$	≥10 <sup>11</sup>	≥10 <sup>11</sup>
Operating Temperature Range	°C	-65 / +165	-65 / +165
Terminal Strength (pull test)	lb	2	2
Weight	g	0.35 max	0.75 max

### ORDERING INFORMATION

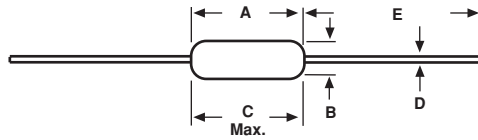
CCF MODEL	3010 RESISTANCE	F TOLERANCE
CCF-55 CCF-60	First three digits are significant figures. Last digit specifies the number of zeros to follow.	F = ± 1%

**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%.



**DIMENSIONS** in inches [millimeters]

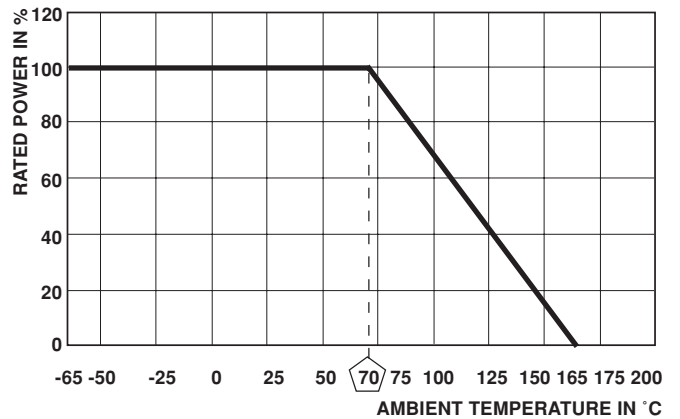


MODEL	A	B	C (Max.)	D	E
CCF-55	0.245 ± 0.020 [6.22 ± 0.51]	0.090 ± 0.008 [2.29 ± 0.20]	0.265 [6.73]	0.025 ± 0.002 [0.635 ± 0.051]	1.100 ± 0.040 [27.94 ± 1.02]
CCF-60	0.344 ± 0.031 [8.74 ± 0.79]	0.139 ± 0.009 [3.53 ± 0.23]	0.400 [10.16]	0.025 ± 0.002 [0.64 ± 0.05]	1.000 ± 0.040 [25.40 ± 1.02]

**RESISTANCE VALUES**

Vishay 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.

10.0	14.7	21.5	31.6	46.4	68.1
10.2	15.0	22.1	32.4	47.5	69.8
10.5	15.4	22.6	33.2	48.7	71.5
10.7	15.8	23.2	34.0	49.9	73.2
11.0	16.2	23.7	34.8	51.1	75.0
11.3	16.5	24.3	35.7	52.3	76.8
11.5	16.9	24.9	36.5	53.6	78.7
11.8	17.4	25.5	37.4	54.9	80.6
12.1	17.8	26.1	38.3	56.2	82.5
12.4	18.2	26.7	39.2	57.6	84.5
12.7	18.7	27.4	40.2	59.0	86.6
13.0	19.1	28.0	41.2	60.4	88.7
13.3	19.6	28.7	42.2	61.9	90.9
13.7	20.0	29.4	43.2	63.4	93.1
14.0	20.5	30.1	44.2	64.9	95.3
14.3	21.0	30.9	45.3	66.5	97.6



**DERATING**

**MARKING**

— Color band

**PERFORMANCE**

POWER RATING @ + 70°C		
CCF-55	1/4 watt	1/2 watt
CCF-60	1/2 watt	3/4 watt and 1 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%	-

\* Test Methods per MIL-R-202.