Features

- High power rating up to 2 W
- Wide terminal thick film
- Resistance range 1 Ω to 1M Ω
- AEC-Q200 compliant
- RoHS compliant*

Applications

- Power supplies
- Industrial controllers
- Digital meters
- LED lighting
- Automotive

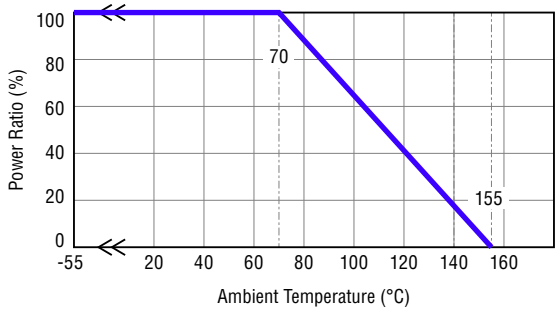
CWM-Q Series Wide Terminal Automotive Grade Resistor

Electrical Characteristics

Model	Power Rating @ 70 °C	Max. Voltage		Resistance Range (Ω)	Tolerance	TCR[1] (PPM)	Standard Resistance Values
		Working	Overload				
CWM0612Q	1 W	200 V	400 V	1 to 4.64	±1 %	±200	E24 & E96
				4.7 to 1M	±1 %	±100	E24 & E96
				1 to 4.3	±5 %	±200	E24
				4.7 to 1M	±5 %	±100	E24
CWM1225Q	2 W			1 to 4.64	±1 %	±200	E24 & E96
				4.7 to 1M	±1 %	±100	E24 & E96
				1 to 4.3	±5 %	±200	E24
				4.7 to 1M	±5 %	±100	E24

1 TCR 25 ~ -55 °C: Below 4.7 ohm is ±250 PPM

Current Rating Thermal Derating Curve



Additional Information

Click these links for more information:

PRODUCT | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

Environmental Characteristics

Operating Temperature
..... -55 °C to +155 °C
Storage Conditions
Temperature ..... +5 °C to +35 °C
Humidity ..... 40 % to 70 %
Moisture Sensitivity Level 1
ESD Classification
(per AEC-Q200, HBM) 1C

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CALIFORNIA WARNING: Can expose you to lead, a carcinogen and reproductive toxicant.
See www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
Specifications are subject to change without notice.

Performance Charcteristics

Test	Conditions	Specification	
		Reference	Limit
Temperature Coefficient of Resistance	+25 ~ 155 °C	IEC 60115-1 4.8	Refer to TCR
Short Time Overload	5x rated power for 5 seconds	IEC 60115-1 4.13	J: ΔR ≤ ±(2 % +0.5 Ω) F: ΔR ≤ ±(1 % +0.5 Ω)
High Temperature Exposure	1000 hours @ +155 °C	AEC-Q200-REV E-Test 3 MIL-STD-202 Method 108	J: ΔR ≤ ±(3 % +0.1 Ω) F: ΔR ≤ ±(1 % +0.1 Ω)
Temperature Cycling	1000 cycles (-55 °C to +125 °C)	AEC-Q200-REV E-Test 4 JESD22 Method JA-104	J: ΔR ≤ ±(1 % +0.05 Ω) F: ΔR ≤ ±(0.5 % +0.05 Ω)
Moisture Resistance	65/80 ~ 100 % RH 10 cycles	AEC-Q200 Table 7.6	J: ΔR ≤ ±(1 % +0.05 Ω) F: ΔR ≤ ±(0.5 % +0.05 Ω)
Bias Humidity	+85 °C, 85 % RH, 10 % bias, 1000 hours	AEC-Q200-REV E-Test 7 MIL-STD-202 Method 103	J: ΔR ≤ ±(3 % +0.1 Ω) F: ΔR ≤ ±(1 % +0.1 Ω)
Mechanical Shock	100 g for 6 ms, half sine shock pulse	AEC-Q200-REV E-Test 13 MIL-STD-202 Method 213	Within product specification tolerance and no visible damage
Vibration	5 g's for 20 min., 10-2 kHz 12 cycles	AEC-Q200-REV E-Test 14 MIL-STD-202 Method 204	No mechanical damage
Operational Life	1000 hours at rated power at +125 °C	AEC-Q200-REV E-Test 8 MIL-STD-202 Method 108	J: ΔR ≤ ±(3 % +0.1 Ω) F: ΔR ≤ ±(1 % +0.1 Ω)
Resistance to Solder Heat	+260 ±5 °C, 10±1 second dwell	AEC-Q200-REV E-Test 15 MIL-STD-202 Method 210	J: ΔR ≤ ±(1 % +0.05 Ω) F: ΔR ≤ ±(0.5 % +0.05 Ω)
ESD	Human Body Model, 2 kV	AEC-Q200-REV E-Test 17 AEC-Q200-002 ISO/DIS 10605	ΔR ≤ ±5 %
Solderability	235 ±3 °C dipping time: 5 seconds	AEC-Q200-REV E-Test 18 J-STD-002	>95 % tin coverage
Board Flex (SMD)	2 mm deflection	AEC-Q200-REV E-Test 21 AEC-Q200-005	J: ΔR ≤ ±(1 % +0.05 Ω) F: ΔR ≤ ±(0.5 % +0.05 Ω)
Shear (SMD)	Force of 1.8 kg for 60 sec.	AEC-Q200-REV E-Test 22 AEC-Q200-006	No mechanical damage
Flammability	Refer UL-94	Per AEC-Q200 - Electrical test not required	V-0 or V-1 is acceptable

CWM-Q Series Wide Terminal Automotive Grade Resistor

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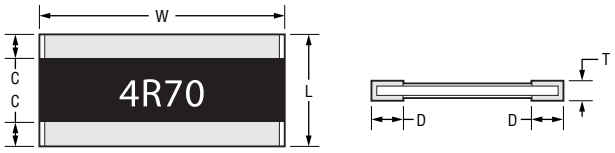
Product Dimensions



Dim.	L	W	C	D	T
CWM0612Q	1.60 ± 0.20 (.063 ± .008)	3.20 ± 0.20 (.126 ± .008)	0.25 ± 0.20 (.010 ± .008)	0.40 ± 0.20 (.016 ± .008)	0.60 ± 0.15 (.024 ± .006)
CWM1225Q	3.10 ± 0.20 (.122 ± .008)	6.30 ± 0.20 (.248 ± .008)	0.45 ± 0.20 (.018 ± .008)	0.75 ± 0.20 (.030 ± .008)	

DIMENSIONS: MM / (INCHES)

How to Order

CWM 1225 Q F X - 4R70 E LF

Model
- CWM = Wide Terminal Chip Resistor

Size
- 0612 = 0612 (1632)
- 1225 = 1225 (3264)

Feature
- Q = AEC-Q200 Compliant

Resistance Tolerance
- F = ±1 %
- J = ±5 %

TCR
- W = ±200 PPM/°C
- X = ±100 PPM/°C

Resistance Value Code

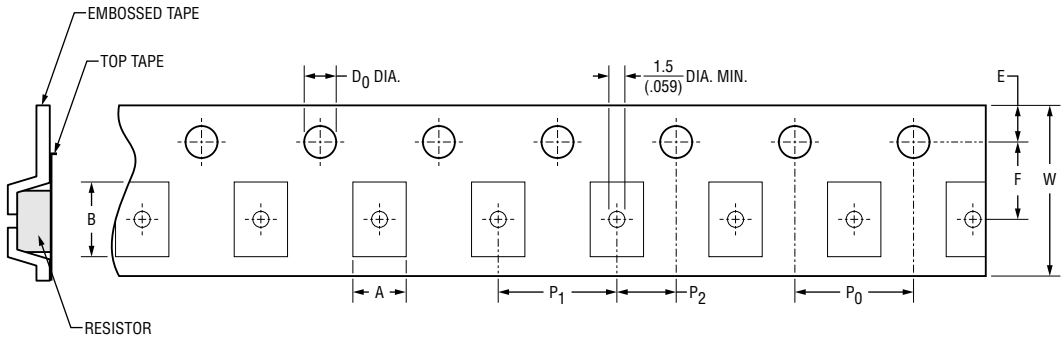
1 % Tolerance
- <100 Ω: "R" represents decimal point (example: 24R3 = 24.3 Ω)
- >100 Ω: First three digits are significant, fourth digit represents number of zeros to follow (example: 8252 = 82.5K Ω)

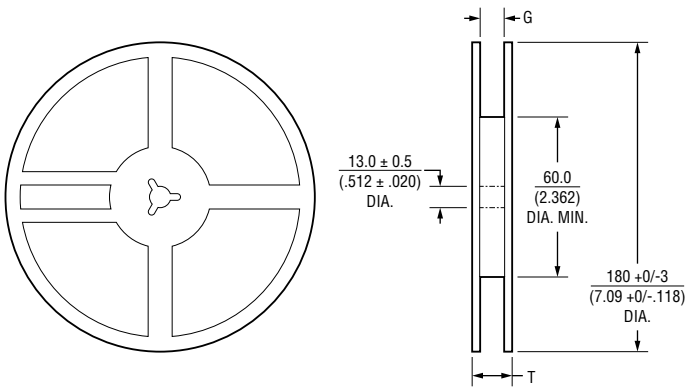
5 % Tolerance
- <10 Ω: "R" represents decimal point (example: 4R7 = 4.7 ohms)
- >10 Ω: First two digits are significant, third digit represents number of zeros to follow (example: 474 = 470K Ω)

Packaging
- E = Tape and Reel
  - CWM0612Q: 5,000 pcs. / 7-inch reel;
  - CWM1225Q: 4,000 pcs. / 7-inch reel

Termination
- LF = Tin-plated (RoHS compliant)

Packaging Dimensions (Conforms to EIA RS-481A)





Model	A	B	W	F	E	P_1	P_2	P_0	D_0	T	G
CWM0612Q (paper tape)	2.0 ± 0.20 (.079 ± .008)	3.6 ± 0.20 (.142 ± .008)	8.0 ± 0.30 (.315 ± .012)	3.5 ± 0.05 (.138 ± .002)	1.75 ± 0.10 (.069 ± .004)	4.0 ± 0.10 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	4.0 ± 0.10 (.157 ± .004)	1.5 +0.1/-0 (.059 +.004/-0)	14.3 (.587) MAX.	10.0 ± 1.5 (.394 ± .059)
CWM1225Q (plastic tape)	3.5 ± 0.20 (.138 ± .008)	6.7 ± 0.20 (.264 ± .008)	12.0 ± 0.30 (.472 ± .012)	5.5 ± 0.05 (.217 ± .002)						16.7 (.657) MAX.	13.8 ± 1.5 (.543 ± .059)

DIMENSIONS: MM (INCHES)

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