



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

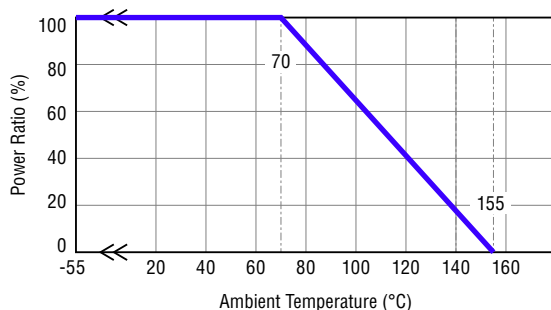
CWM-Q Series Wide Terminal Automotive Grade Resistor

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:



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.

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Performance Characteristics

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: $\Delta R \leq \pm(2 \% +0.5 \Omega)$ F: $\Delta R \leq \pm(1 \% +0.5 \Omega)$
High Temperature Exposure	1000 hours @ +155 °C	AEC-Q200-REV E-Test 3 MIL-STD-202 Method 108	J: $\Delta R \leq \pm(3 \% +0.1 \Omega)$ F: $\Delta R \leq \pm(1 \% +0.1 \Omega)$
Temperature Cycling	1000 cycles (-55 °C to +125 °C)	AEC-Q200-REV E-Test 4 JESD22 Method JA-104	J: $\Delta R \leq \pm(1 \% +0.05 \Omega)$ F: $\Delta R \leq \pm(0.5 \% +0.05 \Omega)$
Moisture Resistance	65/80 ~ 100 % RH 10 cycles	AEC-Q200 Table 7.6	J: $\Delta R \leq \pm(1 \% +0.05 \Omega)$ F: $\Delta R \leq \pm(0.5 \% +0.05 \Omega)$
Bias Humidity	+85 °C, 85 % RH, 10 % bias, 1000 hours	AEC-Q200-REV E-Test 7 MIL-STD-202 Method 103	J: $\Delta R \leq \pm(3 \% +0.1 \Omega)$ F: $\Delta R \leq \pm(1 \% +0.1 \Omega)$
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: $\Delta R \leq \pm(3 \% +0.1 \Omega)$ F: $\Delta R \leq \pm(1 \% +0.1 \Omega)$
Resistance to Solder Heat	+260 $\pm$ 5 °C, 10 $\pm$ 1 second dwell	AEC-Q200-REV E-Test 15 MIL-STD-202 Method 210	J: $\Delta R \leq \pm(1 \% +0.05 \Omega)$ F: $\Delta R \leq \pm(0.5 \% +0.05 \Omega)$
ESD	Human Body Model, 2 kV	AEC-Q200-REV E-Test 17 AEC-Q200-002 ISO/DIS 10605	$\Delta R \leq \pm 5 \%$
Solderability	235 $\pm$ 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: $\Delta R \leq \pm(1 \% +0.05 \Omega)$ F: $\Delta R \leq \pm(0.5 \% +0.05 \Omega)$
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

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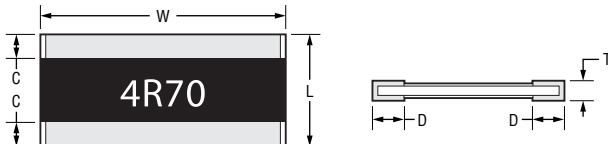
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Product Dimensions



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: $\frac{\text{MM}}{(\text{INCHES})}$

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)

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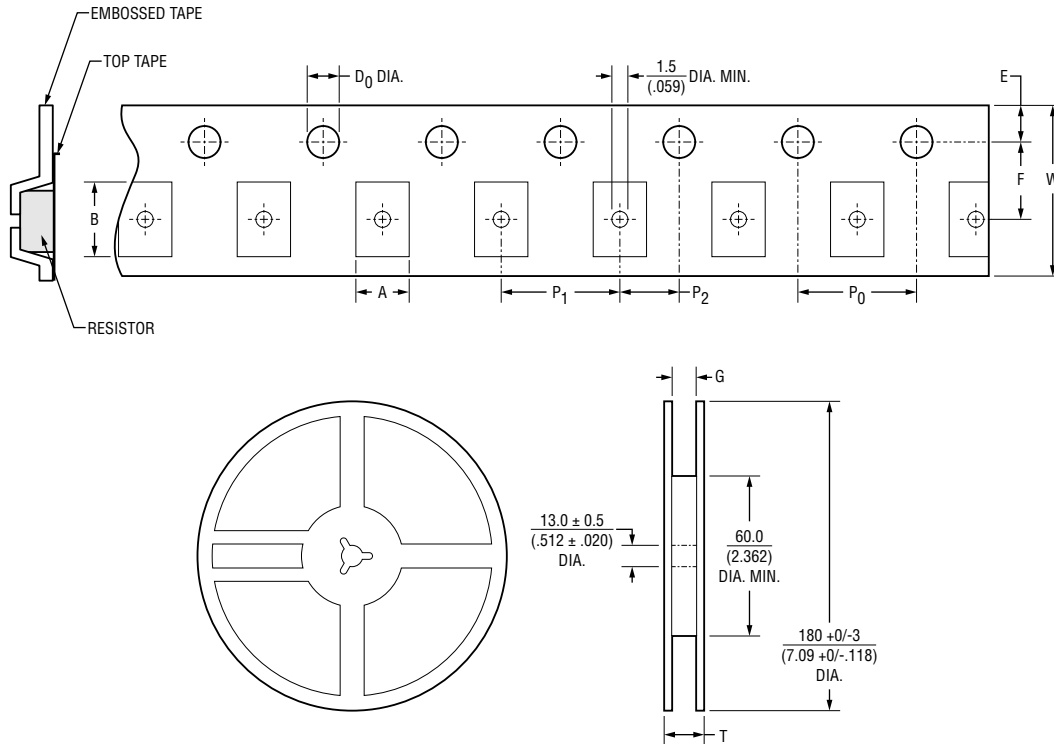
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Packaging Dimensions (Conforms to EIA RS-481A)



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: $\frac{\text{MM}}{(\text{INCHES})}$

REV. 08/25

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