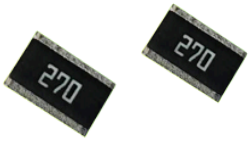
APPROVAL SHEET

Product Name	**: Thick Film AEC-Q200 Long Terminal Chip Resistor**
Part No.	**: TWQ**
Description	**: Size 0612 / 1225**

Thick Film AEC-Q200 Long Terminal Chip Resistor－TWQ Series

■ Applications

- — Automotive electronics
- — Power supply
- — Industry controller
- — LED Lighting.



■ Features

- — AEC-Q200 compliant
- — Small size 0612 (1.6x3.2cm) with 1W
- — Wide resistance range and tight tolerance

■ Part Number Explanation

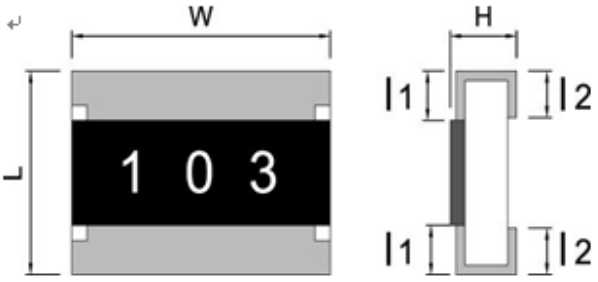
TWQ	0612	F	10R0	T	S
Product	**Size (Inch)**	**Tolerance**	**Resistance**	**Packaging**	**Functional**
Thick Film AEC-Q200 Long Terminal Chip Resistor	0612 1225	F = ±1% J = ±5%	1R00=1Ω 10R0=10Ω 100R :100Ω 1K00 :1KΩ 1M00=1MΩ	T=Tape & Reel	S= Standard Type

■ Standard Electrical Specifications

Item / Type	Rated Power at 70℃	Max Working Voltage	Max Overload Voltage	T.C.R. (PPM/℃)	Resistance Range	
					F(± 1%)	J(± 5%)
TWQ 0612	1 W	200V	400V	±200	1Ω≦R≦4.64Ω	1Ω≦R≦4.3Ω
				±100	4.7Ω≦R≦1MΩ	4.7Ω≦R≦1MΩ
TWQ 1225	2 W			±200	1Ω≦R≦4.64Ω	1Ω≦R≦4.3Ω
				±100	4.7Ω≦R≦1MΩ	4.7Ω≦R≦1MΩ

- Beyond the above specification also can meet the special requirements. For detailed questions, please contact us freely.

■ Dimension



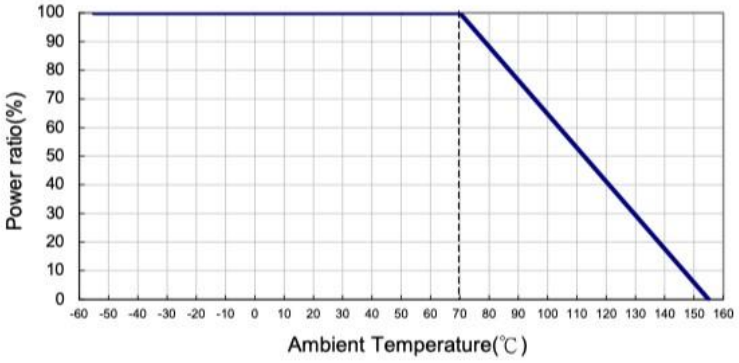
Unit: mm

Size	L	W	H	l_1	l_2
0612	1.60 ±0.20	3.20 ±0.20	0.60 ±0.15	0.25 ± 0.20	0.40 ± 0.20
1225	3.10 ±0.20	6.30 ±0.20	0.60 ± 0.15	0.45 ± 0.20	0.75 ± 0.20

■ Performance Characteristics

■ Power Derating Curve

Operating Temperature Range: -55 to +155℃



■ Voltage Rating or Current Rating

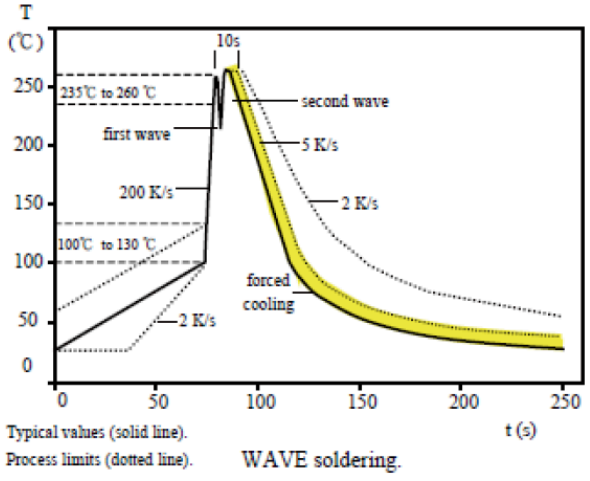
Resistance Range: ≧1Ω

Rated Voltage: The resistor shall have a DC continuous working voltage or a RMS AC continuous working voltage at commercial-line frequency and wave form corresponding to the power rating, as determined formula as following:

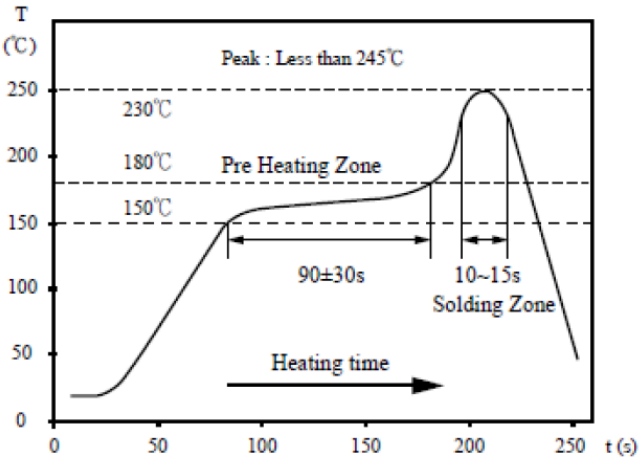
E(RCWV)=√P×R

E=Rated voltage(V)
P=Power rating(W)
R=Nominal resistance(Ω)

■ Soldering Conditions



WAVE soldering.

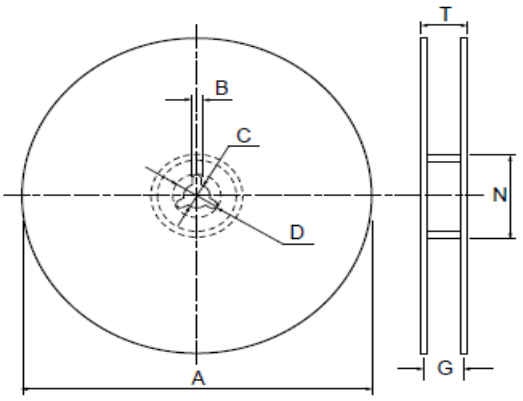


IR Reflow soldering.

■ Reliability Test and Requirement

Test Item	Test Method	Procedure	Requirements
Temperature Cycling	AEC-Q200 TABLE 7.4	1000 Cycles (-55℃ to +125℃) Measurement at 24± 4 hours after test conclusion.	J：ΔR≦ ±(1%+0.05Ω) F：ΔR≦ ±(0.5%+0.05Ω) No mechanical damage.
Resistance to Solder Heat	AEC-Q200 TABLE 7.15	Solder dipping @ 260℃±5℃ for 10sec.±1sec.	J：ΔR≦ ±(1%+0.05Ω) F：ΔR≦ ±(0.5%+0.05Ω) No mechanical damage.
Biased Humidity	AEC-Q200 TABLE 7.7	1000 hours 85℃/85%RH. 10% of operation power. Measure at 24 ±2 hours after test end.	J：△R≦ ±(3%+0.1Ω) F：△R≦ ±(1%+0.1Ω)
High Temperature Exposure (Storage)	AEC-Q200 TABLE 7.3	1000 hrs. T=155℃ Unpowered. Measure at 24 ±2 hours after test end.	J：△R≦ ±(3%+0.1Ω) F：△R≦ ±(1%+0.1Ω)
Operation Life	AEC-Q200 TABLE 7.8	Test 1000hr @ TA=125℃ at specified rated power. Measurement at 24±2 hours after test end.	J：△R≦ ±(3%+0.1Ω) F：△R≦ ±(1%+0.1Ω)
External Visual	AEC-Q200 TABLE 7.9	Inspect appearance, marking and workmanship.	No visual damage and refer Ridee marking code.
Mechanical Shock	AEC-Q200 TABLE 7.13	Test Peak value: 100g's, Wave: Half-sine, Duration: 6ms, Velocity: 12.3ft/sec.	Within product specification tolerance and no visible damage.
Vibration	AEC-Q200 TABLE 7.14	5 g's for 20 min., 12 cycles each of 3 orientations. Test from 10-2000 Hz.	No mechanical damage.
ESD	AEC-Q200-002	330Ω/150pF, Test contact min. 2KV.	ΔR≦ ±5% No mechanical damage.
Solderability	AEC-Q200 TABLE 7.18	a) Baking 155℃ 4H, dipping 235℃ 5s b) Steam 1H, dipping 215℃ 5s c) Steam 1H, dipping 260℃ 7s	Over 95% of termination must be covered with solder.
Terminal Strength	AEC-Q200 TABLE 7.22	Force 1.8 Kg for 60 seconds	No mechanical damage
Board Flex	AEC-Q200 TABLE 7.21	Bending 2mm.	J：ΔR≦ ±(1%+0.05Ω) F：ΔR≦ ±(0.5%+0.05Ω) No mechanical damage.
Short Time Overload	IEC 60115 1, Clause 4. 13	5 × Rated power for 5 seconds	J: ΔR ≦ ±(2% + 0.5mΩ) F: ΔR ≦ ±(1% + 0.5m Ω)

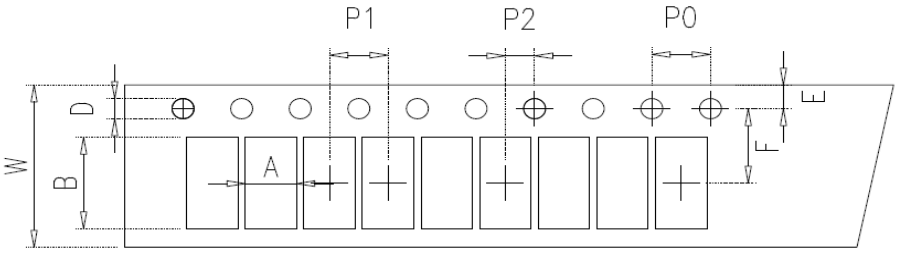
■ Packaging Information



Unit:mm

Size	Packaging Q'ty	A	N	C	D	B	G	T
0612	5K/Reel	178±2.0	60.0±0.5	13.0±0.5	20(Min.)	2.0±0.5	10.0±1.5	14.9max
1225	4K/Reel	178.0±2.0	60.0±0.5	13.0±0.5	20(Min.)	2.0±0.5	13.8±1.5	16.7max.

■ Tapping Specification



Unit:mm

Packaging	Size	A	B	W	E	F	P0	P1	P2	D
Paper Type	0612	2.00±0.2	3.60±0.2	8.0±0.3	1.75±0.1	3.5±0.05	4.0±0.1	4.0±0.1	2.0±0.05	1.50+0.10/-0
Embossed Type	1225	3.50±0.2	6.70±0.2	12±0.3	1.75±0.1	5.5±0.05	4.0±0.1	4.00±0.10	2.0±0.05	1.50+0.10/-0

■ Marking

■ 4 digits marking to identify the resistance value

Resistance	100Ω	4.7Ω
4 digits code	1000	4R70