



APPROVAL SHEET

Product Name : Thick Film AEC-Q200 Chip Resistor

_Long Terminal

Part No. : TWQ

Description : Size 0612 / 1225

Thick Film AEC-Q200 Chip Resistor_Long Terminal - 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

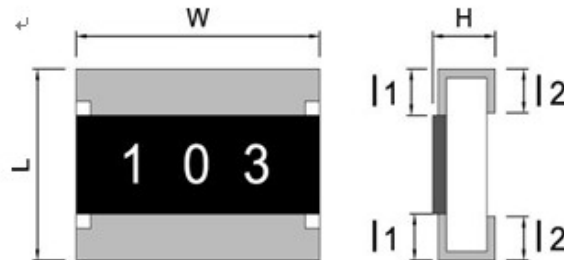
TWQ	0612	F	10R0	T	S
Product	Size (Inch)	Tolerance	Resistance	Packaging	Functional
Thick Film AEC-Q200 Chip Resistor _Long Terminal	0612 1225	F = $\pm 1\%$ J = $\pm 5\%$	1R00=1 Ω 10R0=10 Ω 100R :100 Ω 1K00 :1K Ω 1M00=1M Ω	T=Tape & Reel	S= Standard Type

Standard Electrical Specifications

Type	Power Rating at 70°C	Max. RCWV	Max Overload Voltage	Temperature Coefficient (TCR; ppm/°C)	Resistance Range	
					F(± 1%)	J(± 5%)
TWQ0612	1 W	200V	400V	±200	$1\Omega\leq R\leq 4.64\Omega$	$1\Omega\leq R\leq 4.3\Omega$
				±100	$4.7\Omega\leq R\leq 1M\Omega$	$4.7\Omega\leq R\leq 1M\Omega$
TWQ1225	2 W			±200	$1\Omega\leq R\leq 4.64\Omega$	$1\Omega\leq R\leq 4.3\Omega$
				±100	$4.7\Omega\leq R\leq 1M\Omega$	$4.7\Omega\leq R\leq 1M\Omega$

- Functional code: S
- Beyond the above specification also can meet the special requirements. For detail questions, please contact us freely.

Dimension

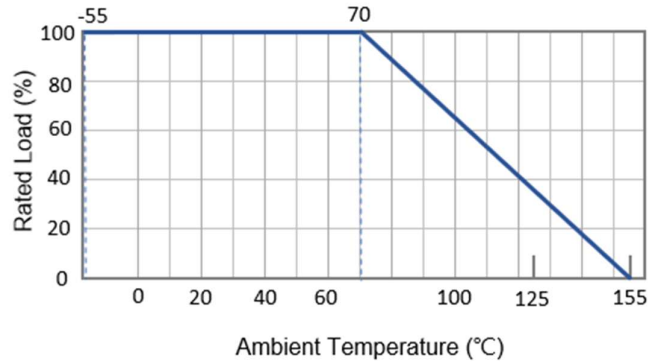


Unit: mm

Size	L	W	l ₁	l ₂	H
TWQ0612	1.60 ±0.20	3.20 ±0.20	0.25 ± 0.20	0.40 ± 0.20	0.60 ±0.15
TWQ1225	3.10 ±0.20	6.30 ±0.20	0.45 ± 0.20	0.75 ± 0.20	0.60 ± 0.15

■ Derating Curve

Operating Temperature Range: -55 to +155°C



■ Voltage Rating or Current Rating

The direct or alternating voltage for the rated power can be calculated from the following formula but must not exceed the maximum voltage.

$$V = \sqrt{P \times R}$$

E=Rated voltage(V)

P=Power rating(W)

R=Nominal resistance(Ω)

■ Recommended Customer Soldering Parameters

■ Recommended IR Reflow Soldering Conditions

Preliminary heating: 150°C~180°C, 120s max

Soldering: 220°C, 60s max

Peak temperature: 245°C, 15s max

■ Recommended WAVE Soldering Conditions

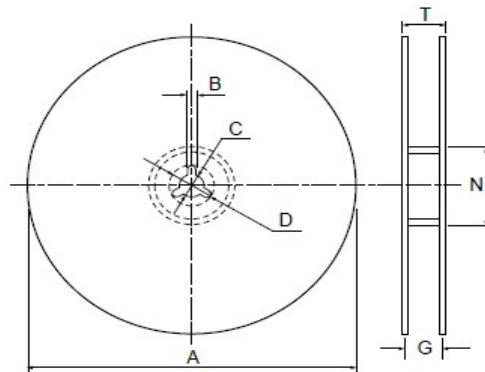
Reservoir Temperature: 260°C, 10s max

Number of times: two times max

■ Reliability Test and Requirement

Test Item	Test Method	Procedure	Requirements
Temperature Cycling	AEC-Q200 TABLE 7.4	1000 Cycles (-55°C to +125°C) Measurement at 24± 4 hours after test conclusion.	J : $\Delta R \leq \pm(1\%+0.05\Omega)$ F : $\Delta R \leq \pm(0.5\%+0.05\Omega)$ No mechanical damage.
Resistance to Solder Heat	AEC-Q200 TABLE 7.15	Solder dipping @ 260°C±5°C for 10sec.±1sec.	J : $\Delta R \leq \pm(1\%+0.05\Omega)$ F : $\Delta R \leq \pm(0.5\%+0.05\Omega)$ No mechanical damage.
Biased Humidity	AEC-Q200 TABLE 7.7	1000 hours 85°C/85%RH. 10% of operation power. Measure at 24 ±2 hours after test end.	J : $\Delta R \leq \pm(3\%+0.1\Omega)$ F : $\Delta R \leq \pm(1\%+0.1\Omega)$
High Temperature Exposure (Storage)	AEC-Q200 TABLE 7.3	1000 hrs. T=155°C Unpowered. Measure at 24 ±2 hours after test end.	J : $\Delta R \leq \pm(3\%+0.1\Omega)$ F : $\Delta R \leq \pm(1\%+0.1\Omega)$
Operation Life	AEC-Q200 TABLE 7.8	Test 1000hr @ TA=125°C at specified rated power. Measurement at 24±2 hours after test end.	J : $\Delta R \leq \pm(3\%+0.1\Omega)$ F : $\Delta R \leq \pm(1\%+0.1\Omega)$
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.	$\Delta R \leq \pm 5\%$ No mechanical damage.
Solderability	AEC-Q200 TABLE 7.18	a) Baking 155°C 4H, dipping 235°C 5s b) Steam 1H, dipping 215°C 5s c) Steam 1H, dipping 260°C 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 : $\Delta R \leq \pm(1\%+0.05\Omega)$ F : $\Delta R \leq \pm(0.5\%+0.05\Omega)$ No mechanical damage.
Short Time Overload	IEC 60115 1, Clause 4. 13	5 × Rated power for 5 seconds	J: $\Delta R \leq \pm(2\% + 0.5m\Omega)$ F: $\Delta R \leq \pm(1\% + 0.5m\Omega)$

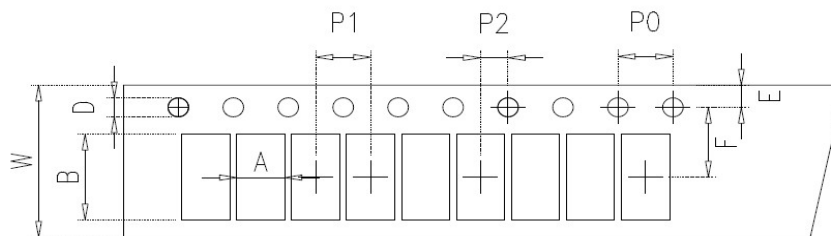
■ Packaging Information



Unit:mm

Size	Packaging Q'ty	A	N	C	D	B	G	T
0612	5Kpcs/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	4Kpcs/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

Size	A	B	W	E	F	P0	P1	P2	D
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
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