Type RQ73 Series

Key Features

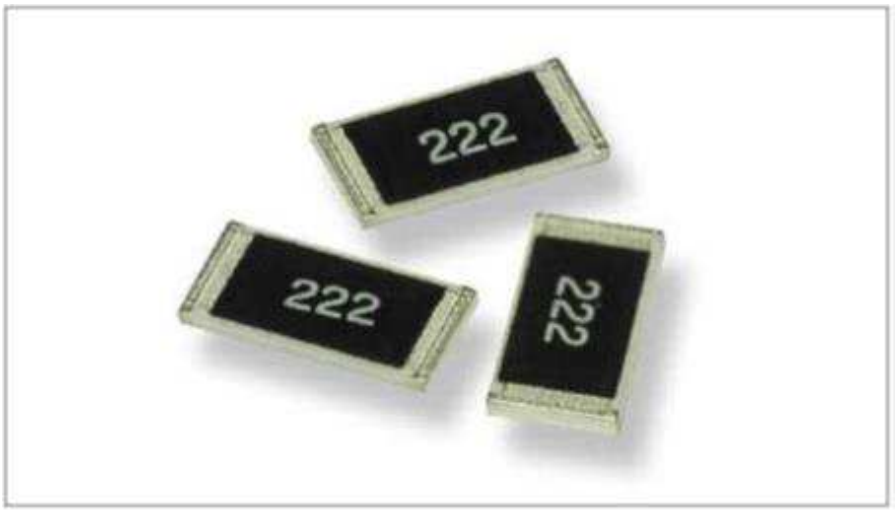
SMD TaN Thin film resistor

Special passivation layer on resistive element

AEC-Q200 qualified

Sulfur resistant

RoHS Compliant



TE Connectivity is proud to introduce this automotive grade thin film precision chip resistor, a sister to our highly successful RN73 range. The resistors are constructed in a high grade raw materials and laser trimmed to give precise tolerance figures. This, coupled with the tight TCR and anti-corrosive protectior layer gives us a range of resistors which are ideal not just for automotive applications, but also for medical equipment, measuring instruments and industrial applications.

Characteristics – Electrical

Type	RQ73 1E	RQ73 1J	RQ73 2A	RQ73 2B
Size	0402	0603	0805	1206
Resistance tolerance	±0.1%			
Resistance Range	40R ~ 35K	40R ~ 130K	10R ~ 350K	10R ~1M0
TCR (ppm/°C)	±10PPM/°C			
Power rating @ 85°C	0.0625W	0.15W	0.2W	0.4W
Max. Working Voltage (DC or RMS)[1 2]	50V	75V	100V	200V
Max. Overload Voltage (DC or RMS)	100V	150V	200V	400V
Operating Temperature	-55 ~ 155°C			

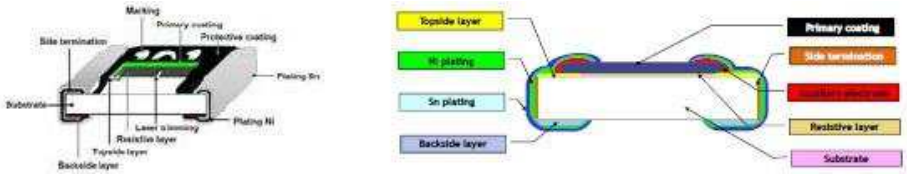
Notes:

1. This is the maximum voltage that may be continuously supplied to the resistor element, see “IEC publication 60115-8”

2. Max. Operation Voltage : So called RCWV (Rated Continuous Working Voltage) determined by

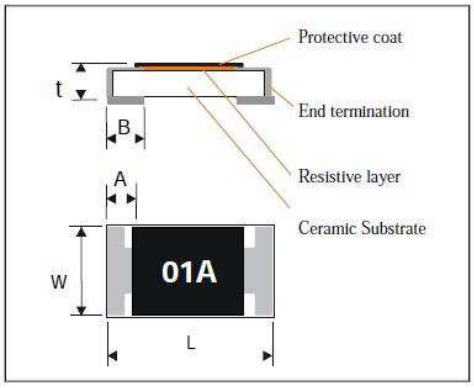
$$RCWV = \sqrt{\text{Rated Power x Resistance Value}}$$ or Max. RCWV listed above, whichever is lower.

Construction

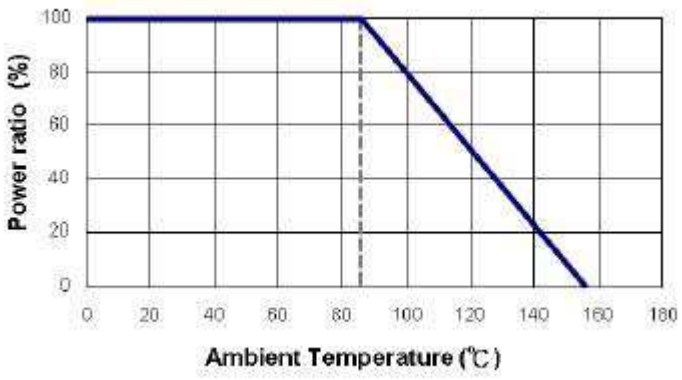


Dimensions: (mm)

Type	RQ73 1E	RQ73 1J	RQ73 2A	RQ73 2B
L	1.00 ± 0.05	1.55 ± 0.10	2.00 ± 0.15	3.05 ± 0.15
W	0.50 ± 0.05	0.80 ± 0.10	1.25 ± 0.15	1.55 ± 0.15
A	0.20 ± 0.10	0.30 ± 0.20	0.30 ± 0.20	0.42 ± 0.20
B	0.20 ± 0.10	0.30 ± 0.20	0.40 ± 0.20	0.35 ± 0.25
t	0.30 ± 0.05	0.45 ± 0.10	0.55 ± 0.10	0.55 ± 0.10



Derating Curve



Environmental Characteristics

Test	Procedure	Requirement
Temperature Coefficient of Resistance (T.C.R.)	**JIS-C-5201-1 4.8** **IEC-60115-1 4.8** -55°C~+125°C, 25°C is the reference temperature	As Spec.
Short time overload	**JIS-C-5201-1 4.13** RCWV*2.5 or Max. overload voltage whichever is lower for 5 seconds	ΔR±0.1%
Resistance to soldering heat	**JIS-C-5201-1 4.18** **IEC-60115-1 4.18** 260±5°Cfor 10 seconds	ΔR±0.1%
Solderability	**JIS-C-5201-1 4.17** **IEC-60115-1 4.17** 245±5°C for 3 seconds	95% min. coverage
Temperature Cycling	**JESD22 Method JA-104** -55°C to +125°C, 1000cycles	ΔR±0.1%for 125℃
	JESD22 Method JA-104 -55°C to +155°C, 1000cycles	ΔR±0.2%for 155
Bias Humidity	**MIL-STD-202 Method 103** 1000 hrs 85°C/85%RH 10% of operating power.	ΔR±0.1%
Load Life	**IEC60115-1 4.25** 1000 +48/-0 hours, loaded with RCWV or Vmax in chamber controller 85 ±2ºC, 1.5 hours on and 0.5 hours off	ΔR±0.1%
Operational Life	**MIL-STD-202 Method 108** Condition D Steady State TA=125°C at derated power. Measurement at 24±4 hours after test conclusion.	ΔR±0.1%
High Temperature Exposure	**MIL-STD-202 Method 108** at +155°C for 1000 hrs	ΔR±0.1%
Moisture Resistance	**MIL-STD-202 Method106** 65±2°C, 80~100% RH, 10 cycles, 24 hours/cycle	ΔR±0.1%
Mechanical Shock	**MIL-STD-202 Method 213** Wave Form: Tolerance for half sine shock pulse. Peak value is 100g's. Normal duration(D) is 6.	ΔR±0.1%
Vibration	**MIL-STD-202 Method 204** 5 g's for 20 min., 12 cycles each of 3 orientations, 10-2000 Hz	ΔR±0.1%
Terminal strength	**AEC-Q200-006** Force of 1kg for 60 seconds.	No Damage
Board flex	**JIS-C-5201-1 4.33** Bending 2mm for 60seconds	ΔR±0.1%
Flower of sulfur test	**EIA-977(Conditions B)** 105±2 °C no power rating for 750 hrs.	ΔR±1%
ESD	**AEC-Q200-002** Human body model RQ0402、RQ0603 0.2KV RQ0805、RQ1206 1KV	ΔR±0.1%
Resistance to solvents	**MIL-STD-202Method 215** Add Aqueous wash chemical -OKEM Clean or equivalent. Do not use banned solvents.	Marking Unsmeared
Flammability	**UL-94** V-0 or V-1 are acceptable. Electrical test not required.	No ignition of the tissue paper or scorching or the pinewood board

Marking:

0603 E24 series 3 Digits – first two digits denote significant figures of resistance and third digit denotes number of zeros thereafter. EG

	222		=	2K2

0603 E96 series 3 Digits - The 1st two digit codes are referring to the CODE in the table, the 3rd code is the index of resistance value :

$Y=10^{-2}$, $X=10^{-1}$, $A=10^{0}$, $B=10^{1}$, $C=10^{2}$, $D=10^{3}$, $E=10^{4}$, $F=10^{5}$

EX : 17.8Ω=25X, 178Ω=25A, 1K78 =25B

17K8=25C, 178K=25D, 1M78=25E

CODE	R_value	CODE	R_value	CODE	R_Value	CODE	R_value	CODE	R_value	CODE	R_value	CODE	R_value	CODE	R_value
01	100	13	133	25	178	37	237	49	316	61	422	73	562	85	750
02	102	14	137	26	182	38	243	50	324	62	432	74	576	86	768
03	105	15	140	27	187	39	249	51	332	63	442	75	590	87	787
04	107	16	143	28	191	40	255	52	340	64	453	76	604	88	806
05	110	17	147	29	196	41	261	53	348	65	464	77	619	89	825
06	113	18	150	30	200	42	267	54	357	66	475	78	634	90	845
07	115	19	154	31	205	43	274	55	365	67	487	79	649	91	866
08	118	20	158	32	210	44	280	56	374	68	499	80	665	92	887
09	121	21	162	33	215	45	287	57	383	69	511	81	681	93	909
10	124	22	165	34	221	46	294	58	392	70	523	82	698	94	931
11	127	23	169	35	226	47	301	59	402	71	536	83	715	95	953
12	130	24	174	36	232	48	309	60	412	72	549	84	732	96	976

0805 & 1206 E24 and E96 4 digits – Where value is below 100R use R as decimal, otherwise three significant figures plus number of following zeros.

E.G.

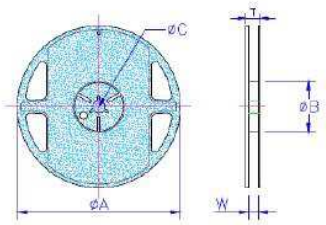
Resistance	10Ω	12Ω	100Ω	6K8	47K
4 digit marking	10R0	12R0	1000	6801	4702

Notes:

1. No marking for non-E24/E96 resistance values.
2. No marking for 0402 size resistors

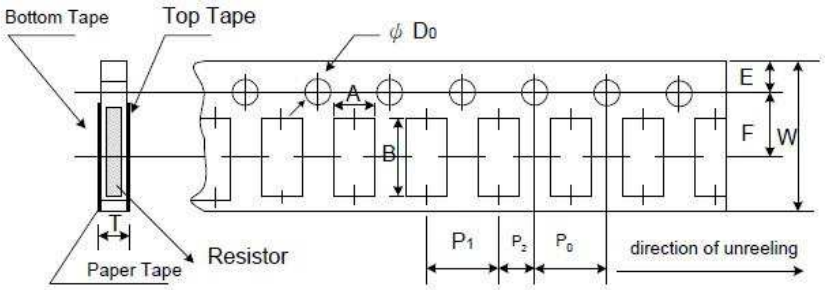
Packaging

Reel Dimensions (mm)



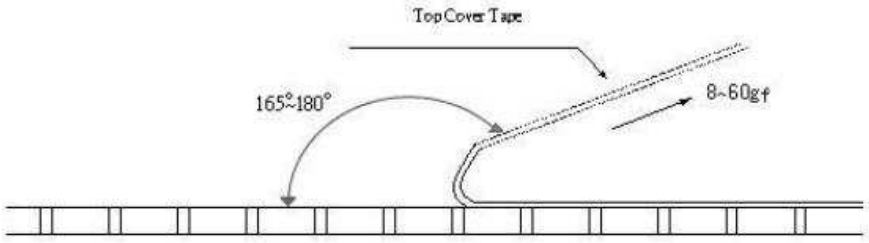
ØA	ØB	ØC	W	T	QTY
178.0 ±1.0	60.0 +1.0	13.5 ±0.7	9.5 ±1.0	1.5 ±1.0	1000 / 5000

Paper Tape Specification (mm)



	A	B	W	E	F	P_0	P_1	P_2	$ØD_0$	T
0402	1.16 ±0.05	1.16 ±0.05	8.00 ±0.10	1.75 ±0.05	3.5 ±0.05	4.00 ±0.10	2.00 ±0.05	2.00 ±0.05	1.55 ±0.05	0.40 ±0.03
0603	1.10 ±0.05	1.90 ±0.05	8.00 ±0.10	1.75 ±0.05	3.5 ±0.05	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	1.55 ±0.05	0.60 ±0.03
0805	1.60 ±0.05	2.37 ±0.05	8.00 ±0.10	1.75 ±0.05	3.5 ±0.05	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	1.55 ±0.05	0.75 ±0.05
1206	2.00 ±0.05	3.55 ±0.05	8.00 ±0.10	1.75 ±0.05	3.5 ±0.05	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	1.55 ±0.05	0.75 ±0.05

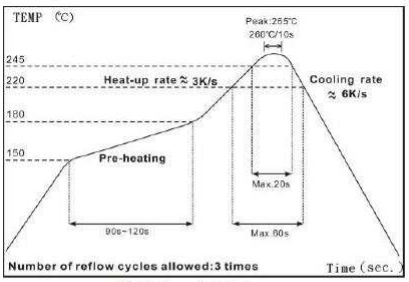
- Peel force of top cover tape
- The peel speed shall be about 300mm/min±5%
- The peel force of top cover tape shall be between 8gf to 60gf



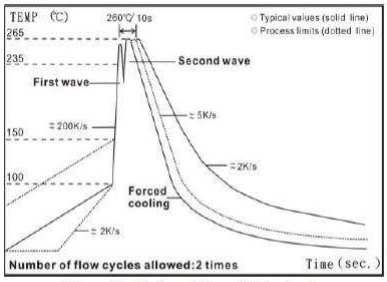
Storage and Handling Condition:

1. Products are recommended to be used up within two years. Check solderability in case shelf life extension is needed.
2. To store products with following condition:
   Temperature : 5 to 40℃
   Humidity : 20 to 70% relative humidity
3. Caution:
   a. Don't store products in a corrosive environment such as sulfide, chloride gas, or acid. It may cause oxidation of electrode, which easily be resulted in poor soldering.
   b. To store products on the shelf and avoid exposure to moisture.
   c. Don't expose products to excessive shock, vibration, direct sunlight etc.

Soldering Profile



IR Reflow Soldering



Wave Soldering (Flow Soldering)

(1) Time of IR reflow soldering at maximum temperature point 260°C : 10s
(2) Time of wave soldering at maximum temperature point 260°C : 10s
(3) Time of soldering iron at maximum temperature point 410°C : 5s

How To Order

RQ73 C 1E 40R2 B TDF

Common Part	TCR	Size Code	Resistance Value	Tolerance	Packaging Spec.
RQ73	C = 10PPM/°C	1E = 0402 1J = 0603 2A = 0805 2B = 1206	100R (100Ω) 1K0 (1000Ω) 100K (100,000Ω)	B = .1%	TD = Reel 5000 TDF = Reel 1000

Dimensions in millimetres unless otherwise specified

Dimensions Shown for reference purposes only. Specifications subject to change

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