



Product Change Notification

TE Connectivity

Product Change Notification: P-22-023716

PCN Date: 02-DEC-22

TE would like to inform you of the following change(s) to the listed TE Connectivity Product. In case of any further questions about this change(s), please contact your TE Connectivity Sales Engineer. Affected part, drawing and/or specification numbers are listed on the attached sheet(s).

General Product Description:

Carbon Composition Resistors - Type CBT series 5% tolerance

Description of Changes

As a result of manufacturing equipment and process constraints, as well as the corresponding level of production efficiency linked to our CBT series, we will cease production of this product line at 5% tolerance configuration in 2023. PCN-22-159961 also refers.

Other attachments:

[CBT 5% Document](#)

[New Data Sheet](#)

Reason for Changes:

Part status change.

Estimated Dates:

Last Order Date (Obsolete Parts Only):

22-DEC-2022

First Date To Ship (Changed Parts Only):

Last Ship Date (Obsolete Parts Only):

31-MAR-2023

Last Date for Mixed Shipments: (Changed Parts Only):

No Mixed Shipments

Part Number(s) being Modified:

Part Number	Part Discontinued per PCN	Customer Drawing	Customer Part Number	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
2-1625876-9	YES			"CBT50J100R"			
1-1625875-2	YES			"CBT25J1K0"	7-1625875-1		Tolerance 10%
1-1625875-6	YES			"CBT25J1R0"	5-1625875-6		Tolerance 10%
1-1625876-8	YES			"CBT50J1K0"	2-2176547-1		Tolerance 10%
1625875-5	YES			"CBT25J100R"	6-1625875-5		Tolerance 10%
1625875-6	YES			"CBT25J10K"	7-1625875-7		Tolerance 10%
2-1625875-6	YES			"CBT25J330R"	6-1625875-8		Tolerance 10%
3-1625875-6	YES			"CBT25J4K7"	7-1625875-5		Tolerance 10%

Part Number(s) being Modified:

Part Number	Part Discontinued per PCN	Customer Drawing	Customer Part Number	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1-1625875-6	YES			"CBT25J1R0"	5-1625875-6		Tolerance 10%

Part Number(s) being Modified:

Part Number	Part Discontinued per PCN	Customer Drawing	Customer Part Number	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1-1625875-2	YES			"CBT25J1K0"	7-1625875-1		Tolerance 10%

Part Number	Part Discontinued per PCN	Customer Drawing	Customer Part Number	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1-1625876-8	YES			"CBT50J1K0"	2-2176547-1		Tolerance 10%
1625875-5	YES			"CBT25J100R"	6-1625875-5		Tolerance 10%
1625875-6	YES			"CBT25J10K"	7-1625875-7		Tolerance 10%
2-1625875-6	YES			"CBT25J330R"	6-1625875-8		Tolerance 10%
2-1625876-9	YES			"CBT50J100R"			
3-1625875-6	YES			"CBT25J4K7"	7-1625875-5		Tolerance 10%

Discontinuance 5% tolerance versions

As a result of manufacturing equipment and process constraints, as well as the corresponding level of production efficiency linked to our CBT series, we will cease production of this product line at 5% tolerance configuration in 2023.

In an effort to enable our customers to keep their projects running we will continue to produce the 10% tolerance configuration, and would recommend those as direct replacements for the discontinued 5% tolerance models. Please refer to the table below for a detailed list of discontinued vs replacement parts.

CBT25

Current Part			Replacement Part		
TCPN	Part Description	Alias	Alias	Description	TCPN
2-1625875-0	CBT 1/4 5% 22K	CBT25J22K	CBT25K22K	CBT 1/4 10% 22K	7-1625875-9
3-1625875-5	CBT 1/4 5% 47R	CBT25J47R	CBT25K47R	CBT 1/4 10% 47R	6-1625875-3
2-1625875-2	CBT 1/4 5% 2K2	CBT25J2K2	CBT25K2K2	CBT 1/4 10% 2K2	7-1625875-3
2-1625875-4	CBT 1/4 5% 2R2	CBT25J2R2	CBT25K2R2	CBT 1/4 10% 2R2	5-1625875-8
2-1625875-7	CBT 1/4 5% 33K	CBT25J33K	CBT25K33K	CBT 1/4 10% 33K	8-1625875-0
3-1625875-3	CBT 1/4 5% 470R	CBT25J470R	CBT25K470R	CBT 1/4 10% 470R	6-1625875-9
1-1625875-0	CBT 1/4 5% 15K	CBT25J15K	CBT25K15K	CBT 1/4 10% 15K	7-1625875-8
1625875-5	CBT 1/4 5% 100R	CBT25J100R	CBT25K100R	CBT 1/4 10% 100R	6-1625875-5
1625875-7	CBT 1/4 5% 10R	CBT25J10R	CBT25K10R	CBT 1/4 10% 10R	1625875-2
3-1625875-9	CBT 1/4 5% 680R	CBT25J680R	CBT25K680R	CBT 1/4 10% 680R	7-1625875-0
4-1625875-2	CBT 1/4 5% 6K8	CBT25J6K8	CBT25K6K8	CBT 1/4 10% 6K8	7-1625875-6
1-1625875-9	CBT 1/4 5% 220R	CBT25J220R	CBT25K220R	CBT 1/4 10% 220R	6-1625875-7
1625875-6	CBT 1/4 5% 10K	CBT25J10K	CBT25K10K	CBT 1/4 10% 10K	7-1625875-7
2-1625875-8	CBT 1/4 5% 33R	CBT25J33R	CBT25K33R	CBT 1/4 10% 33R	6-1625875-2
3-1625875-4	CBT 1/4 5% 47K	CBT25J47K	CBT25K47K	CBT 1/4 10% 47K	8-1625875-1
1-1625875-7	CBT 1/4 5% 1R5	CBT25J1R5	CBT25K1R5	CBT 1/4 10% 1R5	5-1625875-7
2-1625875-1	CBT 1/4 5% 22R	CBT25J22R	CBT25K22R	CBT 1/4 10% 22R	6-1625875-1
2-1625875-9	CBT 1/4 5% 3K3	CBT25J3K3	CBT25K3K3	CBT 1/4 10% 3K3	7-1625875-4
3-1625875-1	CBT 1/4 5% 3R3	CBT25J3R3	CBT25K3R3	CBT 1/4 10% 3R3	5-1625875-9
1-1625875-3	CBT 1/4 5% 1K5	CBT25J1K5	CBT25K1K5	CBT 1/4 10% 1K5	7-1625875-2
1625875-9	CBT 1/4 5% 150R	CBT25J150R	CBT25K150R	CBT 1/4 10% 150R	6-1625875-6
3-1625875-6	CBT 1/4 5% 4K7	CBT25J4K7	CBT25K4K7	CBT 1/4 10% 4K7	7-1625875-5
4-1625875-0	CBT 1/4 5% 68K	CBT25J68K	CBT25K68K	CBT 1/4 10% 68K	8-1625875-2
4-1625875-1	CBT 1/4 5% 68R	CBT25J68R	CBT25K68R	CBT 1/4 10% 68R	6-1625875-4
1-1625875-6	CBT 1/4 5% 1R0	CBT25J1R0	CBT25K1R0	CBT 1/4 10% 1R0	5-1625875-6
2-1625875-6	CBT 1/4 5% 330R	CBT25J330R	CBT25K330R	CBT 1/4 10% 330R	6-1625875-8

4-1625875-3	CBT 1/4 5% 6R8	CBT25J6R8		CBT25K6R8	CBT 1/4 10% 6R8	6-1625875-0
1-1625875-2	CBT 1/4 5% 1K0	CBT25J1K0		CBT25K1K0	CBT 1/4 10% 1K0	7-1625875-1

CBT50

Current Part				Replacement Part		
TCPN	Part Description	Alias		Alias	Part Description	TCPN
1-1625876-8	CBT 1/2 5% 1K0	CBT50J1K0		CBT50K1K0	CBT 1/2 10% 1K0	2-2176547-1
4-1625876-3	CBT 1/2 5% 1R5	CBT50J1R5		CBT50K1R5	CBT 1/2 10% 1R5	2176547-2
5-1625876-1	CBT 1/2 5% 330R	CBT50J330R		CBT50K330R	CBT 1/2 10% 330R	1-2176547-7
5-1625876-8	CBT 1/2 5% 4K7	CBT50J4K7		CBT50K4K7	CBT 1/2 10% 4K7	2-2176547-4
6-1625876-1	CBT 1/2 5% 68K	CBT50J68K		CBT50K68K	CBT 1/2 10% 68K	3-2176547-0
6-1625876-3	CBT 1/2 5% 6K8	CBT50J6K8		CBT50K6K8	CBT 1/2 10% 6K8	2-2176547-5
2-1625876-1	CBT 1/2 5% 4R7	CBT50J4R7		CBT50K4R7	CBT 1/2 10% 4R7	2176547-5
2-1625876-3	CBT 1/2 5% 680R	CBT50J680R		CBT50K680R	CBT 1/2 10% 680R	1-1625876-6
7-1625876-6	CBT 1/2 5% 220R BULK	CBT50J220RB		CBT50K220RB	CBT 1/2 10% 220R BULK	1-2176547-6
1625876-4	CBT 1/2 5% 3R3	CBT50J3R3		CBT50K3R3	CBT 1/2 10% 3R3	2176547-4
2-1625876-6	CBT 1/2 5% 2R2	CBT50J2R2		CBT50K2R2	CBT 1/2 10% 2R2	2176547-3
2-1625876-0	CBT 1/2 5% 27R	CBT50J27R		CBT50K27R	CBT 1/2 10% 27R	1-2176547-0
4-1625876-5	CBT 1/2 5% 220R	CBT50J220R		CBT50K220R	CBT 1/2 10% 220R	1-1625876-0
5-1625876-2	CBT 1/2 5% 33K	CBT50J33K		CBT50K33K	CBT 1/2 10% 33K	2-2176547-8
5-1625876-7	CBT 1/2 5% 47K	CBT50J47K		CBT50K47K	CBT 1/2 10% 47K	2-2176547-9
4-1625876-8	CBT 1/2 5% 2K2	CBT50J2K2		CBT50K2K2	CBT 1/2 10% 2K2	2-2176547-3
1625876-2	CBT 1/2 5% 22R	CBT50J22R		CBT50K22R	CBT 1/2 10% 22R	2176547-9
3-1625876-9	CBT 1/2 5% 15R	CBT50J15R		CBT50K15R	CBT 1/2 10% 15R	2176547-8
6-1625876-2	CBT 1/2 5% 68R	CBT50J68R		CBT50K68R	CBT 1/2 10% 68R	1-2176547-4
6-1625876-5	CBT 1/2 5% 6R8	CBT50J6R8		CBT50K6R8	CBT 1/2 10% 6R8	2176547-6
6-1625876-9	CBT 1/2 5% 56R	CBT50J56R		CBT50K56R	CBT 1/2 10% 56R	1-2176547-3
7-1625876-2	CBT 1/2 5% 820R	CBT50J820R		CBT50K820R	CBT 1/2 10% 820R	2-2176547-0
1-1625876-7	CBT 1/2 5% 1R0	CBT50J1R0		CBT50K1R0	CBT 1/2 10% 1R0	2176547-1
1625876-5	CBT 1/2 5% 47R	CBT50J47R		CBT50K47R	CBT 1/2 10% 47R	1-2176547-2
2-1625876-9	CBT 1/2 5% 100R	CBT50J100R		CBT50K100R	CBT 1/2 10% 100R	1625876-7
3-1625876-2	CBT 1/2 5% 10K	CBT50J10K		CBT50K10K	CBT 1/2 10% 10K	2-2176547-6
3-1625876-4	CBT 1/2 5% 10R	CBT50J10R		CBT50K10R	CBT 1/2 10% 10R	2176547-7
3-1625876-6	CBT 1/2 5% 150R	CBT50J150R		CBT50K150R	CBT 1/2 10% 150R	1-2176547-5
4-1625876-0	CBT 1/2 5% 1K5	CBT50J1K5		CBT50K1K5	CBT 1/2 10% 1K5	2-2176547-2
4-1625876-6	CBT 1/2 5% 22K	CBT50J22K		CBT50K22K	CBT 1/2 10% 22K	2-2176547-7
5-1625876-3	CBT 1/2 5% 33R	CBT50J33R		CBT50K33R	CBT 1/2 10% 33R	1-2176547-1
5-1625876-6	CBT 1/2 5% 470R	CBT50J470R		CBT50K470R	CBT 1/2 10% 470R	1-2176547-9
7-1625876-4	CBT 1/2 5% 360R	CBT50J360R		CBT50K390R	CBT 1/2 10% 390R	1-2176547-8

Key Features

Solid Carbon Composition

Designed for Pulse Withstand

Low Cost, High Performance

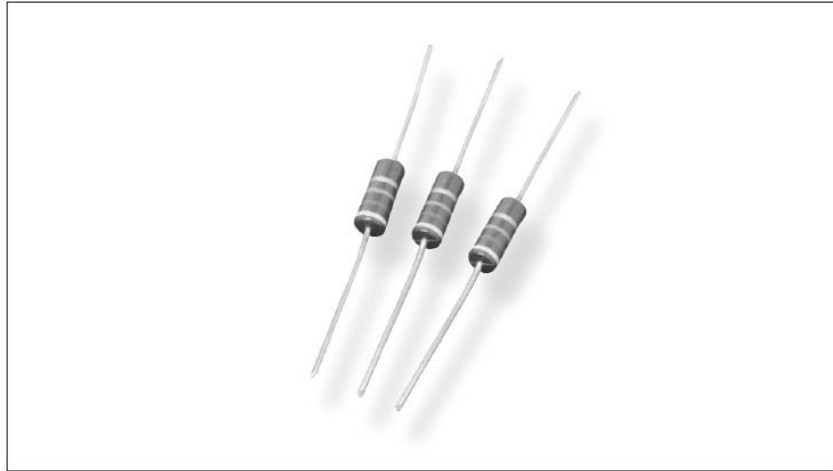
Two Sizes Available

Supplied Ammo Pack in boxes of 2000

NOTE:

5% Tolerance Version Discontinued From 31/12/2022

Type CBT Series



The CBT series of resistors is constructed utilising solid carbon composition, which is the traditional medium for absorbing high energy pulses, in cases of high inrush current. These resistors have evolved over many years to have excellent pulse withstand capabilities, whilst remaining very stable. These improved characteristics have been achieved by prudent selection of materials of optimum physical properties and by advances in the manufacturing process.

Characteristics – Electrical

	CBT25			CBT50		
Power @ 70°C	0.25W (~0 @ 125°C)			0.5W (~0 @ 125°C)		
Maximum Voltage	250V			350V		
Tolerance	10%	10%	20%	10%	10%	20%
Selection Series	E24	E12	E6	E24	E12	E6
Resistance values Ω	100K – 5M6	1R – 5M6		100K – 22M	1R – 22M	
Limiting Element Voltage	250v			350v		
Maximum Overload Voltage	500v			700v		
Insulation Resistance	1000M minimum					
Operating Temperature	-55 ~ +125					

Climatic Category

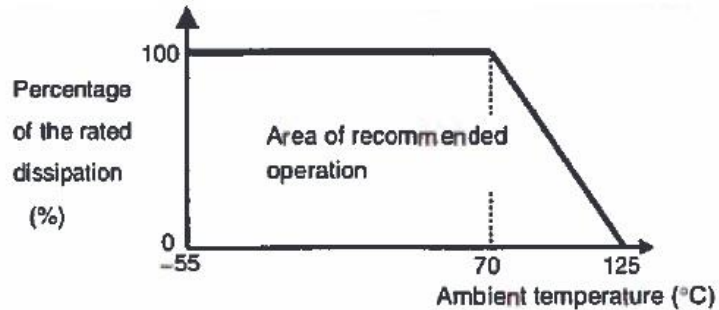
55/125/56	Lower Category Temperature	-55°C
	Upper Category Temperature	+125°C
	Damp Heat Steady State Duration	56 Days

Stability Class

10%	Limits For Change of Resistance For Long Term Tests	±(10%+0.5Ω)
	For Short Term Tests	±(2%+0.1Ω)

Derating

At ambient temperatures in excess of 70°C the resistor shall be derated in accordance with the following curve:



Rated Voltage

D.C. or A.C. rms voltage calculated from the square root of the product of the rated resistance and the rated dissipation.

$$E = \sqrt{P \cdot R}$$

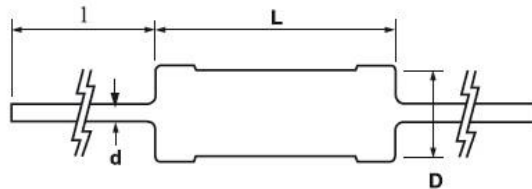
E : Rated voltage (V)

P : Rated dissipation (W)

R : Rated resistance (Ω)

Where the calculated rated voltage is higher than the limiting element voltage, the limiting element voltage must be applied.

Dimensions



	L	ØD	l	Ød
CBT25	6.3±0.7	2.4±0.1	30±3	0.6±0.05
CBT50	9.5 ^{+0.8} _{-0.7}	3.6±0.2	25±3	0.7 ^{+0.07} _{-0.05}

Performance Characteristics

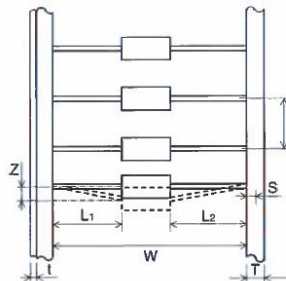
Test Item	Condition of Test (JIS C 5201-1)	Performance Requirement
Visual Examination	Sub-clause 4.4.1 Checked by visual examination	As per 4.4.1 Marking shall be legible as checked visually
Dimension	Sub-clause 4.4.2	As specified
Resistance	Sub-clause 4.5	As specified Resistance value shall correspond to the rated resistance value taking into account the specified tolerance
Voltage Proof	Sub-clause 4.7 Method: V-Block Method Test Voltage: Alternating voltage with a peak value of 1.42 times the insulation voltage. Duration 60s \pm 5s	No breakdown or flashover
Solderability	Sub-clause 4.17 Without ageing Method 1 (solder bath method) Bath Temperature: 235°C \pm 5°C Immersion time: 5s \pm 0.5s Immersion depth: A point within about 4mm from the resistor body.	Good tinning as evidenced by free flowing of the solder with wetting of the terminations
Overload (mounted)	Sub-clause 4.13 The applied voltage shall be 2.5 times RCWV or 2 times limiting element voltage, whichever is lower. Duration: 5s Visual Examination Resistance test	No Visible Damage Legible Marking $\Delta R \leq \pm(2\% + 0.1\Omega)$
Terminal strength	Sub-clause 4.16	No visible damage $\Delta R \leq \pm(2\% + 0.1\Omega)$
Tensile	Sub-clause 4.16.2 Force: 10N Duration: 10s \pm 1s	
Bending	Sub-clause 4.16.3 Method 1 Bending times: 2 times Bending force: 5N	
Torsion	Sub-clause 4.16.4 Method A, Severity 2 (2 successive rotations of 180°)	

Resistance to soldering heat	Sub-clause 4.18 Method 1B Solder Temperature: CBT25: 300°C±10°C CBT50: 350°C±10°C Immersion time: 3.5s±0.5s Immersion depth: A point within 4.0±0.8mm from the resistor body.	No Visible Damage Legible marking $\Delta R \leq \pm(3\%+0.1\Omega)$
Rapid Temperature change	Sub-clause 4.19 Lower category temperature: -55°C Upper category temperature: 125°C Duration of exposure at each temperature: 30 min. Number of cycles: 5	No visible damage $\Delta R \leq \pm(2\%+0.1\Omega)$
Vibration	Sub-Clause 4.22 Endurance by sweeping Frequency range: 10Hz – 500Hz Amplitude: 0.75mm or acceleration 98m/s ² (whichever is less severe) Total Duration: 6h	No visible damage $\Delta R \leq \pm(2\%+0.1\Omega)$
Climatic sequence	Sub-clause 4.23	No Visible Damage Legible marking $\Delta R \leq \pm(10\%+0.5\Omega)$ Insulation Resistance: $R \geq 100 \text{ M}\Omega$
Dry Heat	Sub-clause 4.23.2 Test temperature: 125°C Duration 16h	
Damp Heat, cycle (12 + 12h cycle First Cycle)	Sub-clause 4.23.3 Test Method: 2 Test temperature: 55°C (Severity (2))	
Cold	Sub-clause 4.23.4 Test temperature: -55°C Duration: 2h	
Low air pressure	8kPa	
Damp heat, cycle (12 + 12h cycle) Remaining cycle	Sub-clause 4.23.6 Test method: 2 Test temperature: 55°C (Severity (2)) Number of cycles: 5	
D.C. load	Sub-clause 4.23.7 The applied voltage shall be the rated voltage or the limiting element voltage, whichever is smaller. Duration: 1 min.	
Endurance @ 70°C	Sub-clause 4.25.1 Ambient temperature: 70°C±2°C Duration: 1000h Voltage applied 1.5h on and 0.5h off The applied voltage shall be the rated voltage or the limiting element voltage, whichever is smaller Examination at 48h, 500h and 1000h	

Variation of Resistance with Temperature	Sub-clause 4.8 -55°C / +20°C +20°C / +125°C	At -55°C	
		Resistance Range	Temp. Coefficient
		R≤1KΩ	+6.5-0(%)
		R≤10KΩ	+10-0(%)
		R≤100KΩ	+13-0(%)
		R≤1MΩ	+15-0(%)
		R>1MΩ	+20-0%
		At +125°C	
		Resistance Range	Temp. Coefficient
		R≤1KΩ	+1-5(%)
		R≤10KΩ	0-6(%)
R≤100KΩ	0-7.5(%)		
R≤1MΩ	0-10(%)		
R>1MΩ	0-15(%)		
Damp Heat, Steady State	Sub-clause 4.24 Ambient Temperature: 40°C±2°C Relative Humidity: 93 ⁺² / ₋₃ % a) 1 st group: without voltage applied b) 2 nd group: DC voltage applied continuously in accordance with sub-clause 4.24.2.1b c) 3 rd group: DC voltage – 20v±2v shall be applied continuously.	No Visible Damage Legible marking ΔR≤±(10%+0.5Ω) Insulation resistance ≥100MΩ	
Endurance at upper category temperature	Sub-clause 4.25.3 Ambient temperature: 125°C±2°C Duration: 1000h Examination at 48h, 500h and 1000h Visual examination Resistance At 1000h only: Insulation Resistance	No Visible Damage ΔR≤±(10%+0.5Ω) Insulation Resistance ≥1GΩ	

Packaging

Taping in accordance with JIS C 0806-1:1999



	W	P	L ₁ - L ₂	Z	S	T	t
CBT25	52.4	+1.6	1.0 max	1.0 max	3.2 min	6.0±0.5	0.5 max
CBT50	-1.4	5.08±0.38					

Packaging

Notes:

The direction of the color codes should be unified.

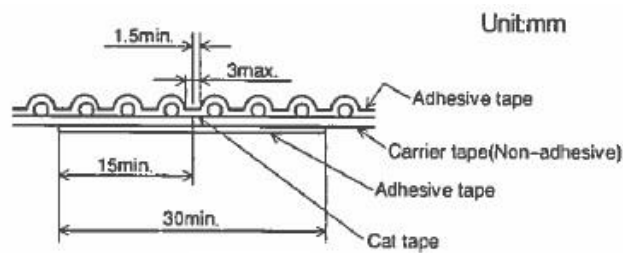
No component shall be missed.

Wire leads shall be free from kinks and bends.

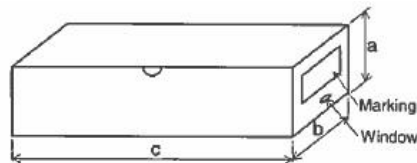
Pitch tolerance is 2mm for 20 pitches (100±2mm).

The edge waving on tape shall not be more than ±1.0mm through a length of 300mm.

The reinforcement of the tape cutting should be reinforced by a new tape (30mm min) in 3mm limits and ensuring 1 pitch dimension as shown below.



Tape in Box (Ammo Pack)



	Code	Qty per Box	a	b	C
CBT25	No Code	2000	60±5	75±5	275±5
CBT50		2000	65±5	75±5	455±5

How To Order

CBT	25	J	10K
Common Part	Size	Tolerance	Resistance Value
CBT – Carbon Composition Resistor	25 – 0.25W 50 – 0.5W	J – 5% K – 10% M – 20%	1Ω - 1R0 100Ω - 100R 1000Ω (1KΩ) - 1K0 100000Ω (100KΩ) - 100K 1000000Ω (1MΩ) - 1M0