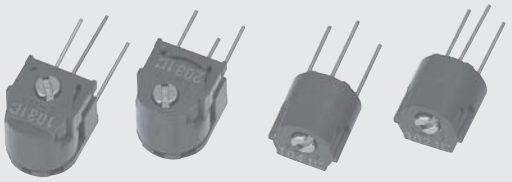
3 TURNS CERMET TRIMMERS TM-7

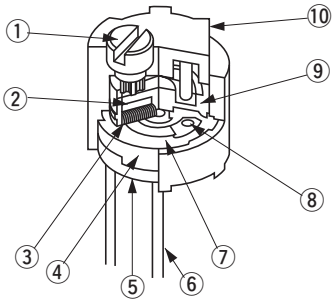
RoHS compliant



■ FEATURES

- RoHS compliant
- Fine setting is possible
- Extremely small backlash (In house comparison)

INTERNAL STRUCTURE



	Part name	Material	Flammability
①	Shaft	Zinc alloy, Nickel-plated	—
②	Rubber cushion	Silicone rubber	
③	Wiper	Multi metal alloy	
④	Base element	Ceramic	
⑤	Adhesive	Epoxy	UL94V-0
⑥	Terminal pin	Copper, Tin-plated	—
⑦	Resistive element	RuO_2 cermet	
⑧	Electrode	Ag-Pd cermet	
⑨	Rotor gear	Polyamide	UL94HB
⑩	Housing	Polybutyleneterephthalate	UL94V-0

■ PART NUMBER DESIGNATION

T M - 7 E P 5 0 k Ω (5 0 3)

Series name

Terminal pin
E : Sn (Lead-free)

Product shape
P : Top adjustment S : Side adjustment
W : Top adjustment X : Side adjustment

Resistance code

Resistance value

※ Please refer to the LIST OF PART NUMBERS when placing orders.

TM-7
CERMET TRIMMERS

■ LIST OF PART NUMBERS

Adjustment position	Shape of terminal (Top view)	Form of packaging: Plastic bag	Pieces in package
Top adjustment		TM-7EP	50 pcs./pack
		TM-7EW	
Side adjustment (↑ Adjustment direction)		TM-7ES	
		TM-7EX	

<Nominal resistance values>

50 Ω	100 Ω	200 Ω	500 Ω	1 kΩ	2 kΩ	5 kΩ	10 kΩ
20 kΩ	50 kΩ	100 kΩ	200 kΩ	500 kΩ	1 MΩ	2 MΩ	

Fig. 1

※ The above part numbers are all available as the standard item respectively with the combination of <Nominal resistance values> (Fig. 1).
※ Verify the above part numbers when placing orders.

■ ELECTRICAL CHARACTERISTICS

Nominal resistance range	50 Ω ~ 2 MΩ
Resistance tolerance	± 10 %
Power ratings	0.5 W (70 °C) 0 W (120 °C)
Resistance law	(B) Linear law
Maximum input voltage	DC300 V or power rating, whichever is smaller
Maximum wiper current	100 mA or power rating, whichever is smaller
Effective electrical turn	2.5 turns
End resistance	1 % or 2 Ω, whichever is greater
C.R.V.	1 % or 3 Ω, whichever is greater
Operating temp. range	−55 ~ 120 °C
Temp. coefficient	± 100 10^{-6}/°C maximum
Insulation resistance	1000 MΩ minimum (DC500 V)
Dielectric strength	AC900 V, 60 s
Net weight	Approx. 0.50 g (TM-7EP, EW) Approx. 0.69 g (TM-7ES, EX)

■ MECHANICAL CHARACTERISTICS

Mechanical turn	3 turns
Operating torque	20 mN·m {204 gf·cm} maximum
Mechanical stop	Clutch action
Rotational life	200 cycles ΔR/R ≦ ± (2 Ω +3 %)
Terminal strength	10 N {1.02 kgf} minimum (Tensile strength)
Thrust to shaft	10 N {1.02 kgf} minimum
Solderability	245 ± 3 °C, 2 ~ 3 s

{ } : Reference only

■ ENVIRONMENTAL CHARACTERISTICS

Test item	Test conditions	Specifications
Thermal shock	−65 ~ 125 °C (0.5 h), 5 cycles	[ΔR/R ≦ 1 %] [S.S. ≦ 1 %]
Humidity	−10 ~ 65 °C (80 ~ 98 %), 10 cycles, 240 h	[ΔR/R ≦ 2 %]
Shock	981 m/s², 6 ms 6 directions for 3 times each	[ΔR/R ≦ 1 %] [S.S. ≦ 1 %]
Vibration	(Amplitude) 1.52 mm or (Acceleration) 196 m/s², 10 ~ 2000 Hz, 3 directions, 12 times each	
Load life	70 °C, 0.5 W, 1000 h	[ΔR/R ≦ 3 %] [S.S. ≦ 1 %]
Low temp. operation	−55 °C, 2 h	[ΔR/R ≦ 2 %] [S.S. ≦ 2 %]
High temp. exposure	120 °C, 250 h	[ΔR/R ≦ 3 %] [S.S. ≦ 2 %]
Immersion seal	85 °C, 60 s	No leaks (No continuous bubbles)
Soldering heat	Flow 260 ± 3 °C, 5 ~ 6 s, two times maximum Manual soldering 380 ± 10 °C, 3 ~ 4 s	[ΔR/R ≦ 1 %]

ΔR/R : Change in total resistance
S.S. : Setting stability

TM-7
CERMET TRIMMERS

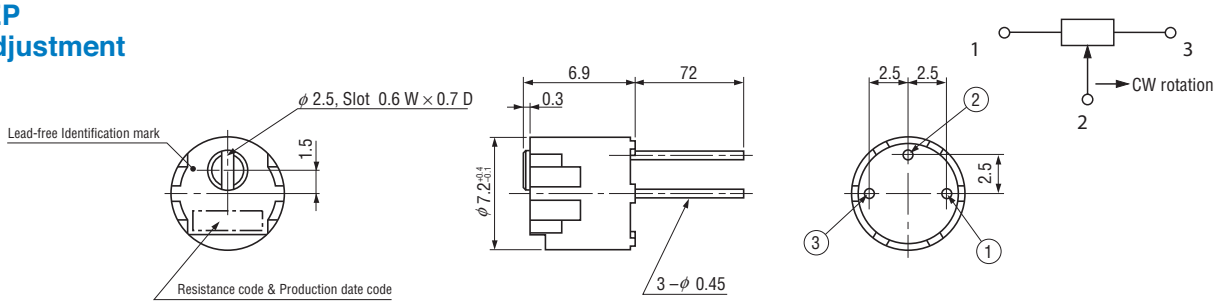
■ MAXIMUM INPUT RATINGS

Nominal resistance values (Ω)	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
50 100 200 500	500 101 201 501	5.00 7.07 10.0 15.8	100 70.7 50.0 31.6
1 k 2 k 5 k 10 k 20 k 50 k	102 202 502 103 203 503	22.4 31.6 50.0 70.7 100 158	22.4 15.8 10.0 7.07 5.00 3.16
100 k 200 k 500 k 1 M 2 M	104 204 504 105 205	224 300 300 300 300	2.24 1.50 0.60 0.30 0.15

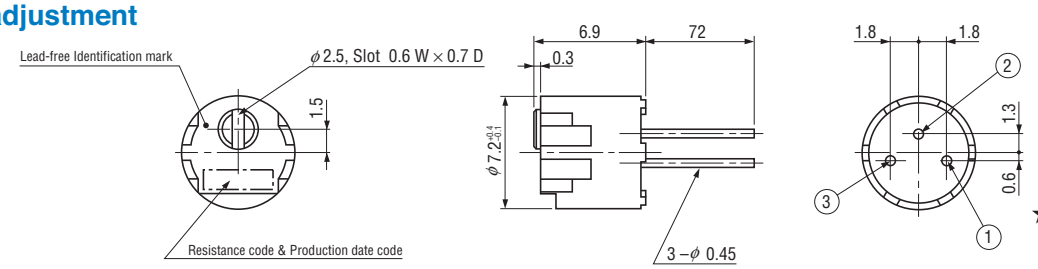
■ OUTLINE DIMENSIONS

Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

● TM-7EP
Top adjustment

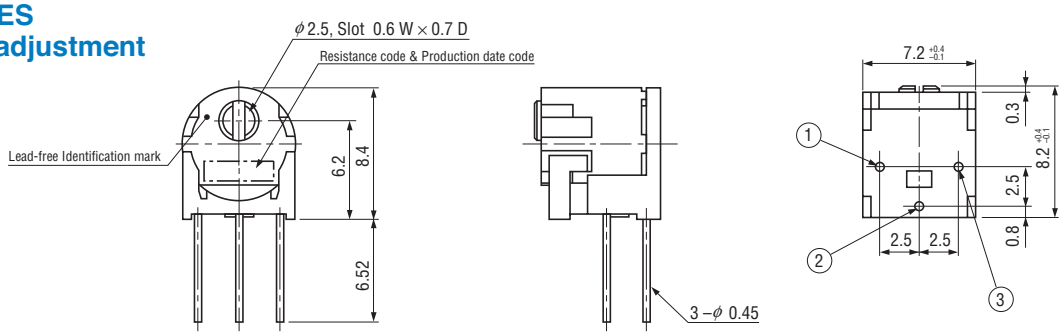


● TM-7EW
Top adjustment



★ Pin pitch in W type is different from P type.

● TM-7ES
Side adjustment

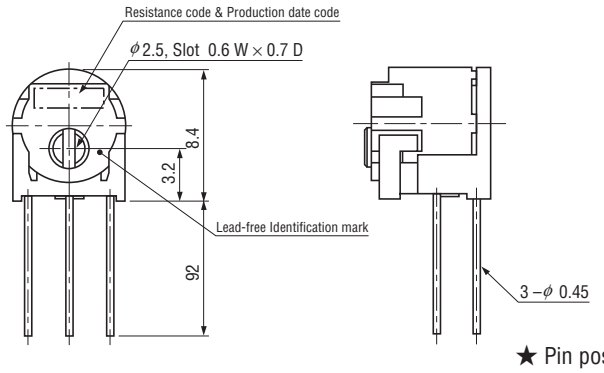


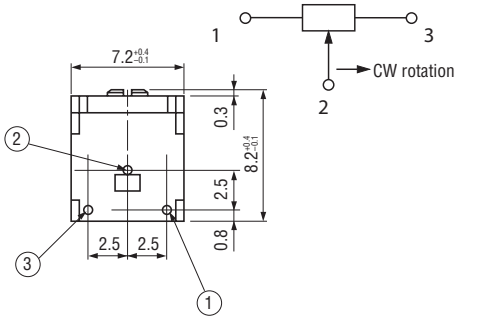
TM-7
CERMET TRIMMERS

■ OUTLINE DIMENSIONS

Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

● TM-7EX
Side adjustment





★ Pin position & shaft position of X type are different from S type.

■ PACKAGING SPECIFICATIONS

<Bulk pack specifications>

- Unit of bulk in a plastic bag is 50 pcs. per pack.
- Boxing of bulk in a plastic bag is performed with 200 pcs. per box.