

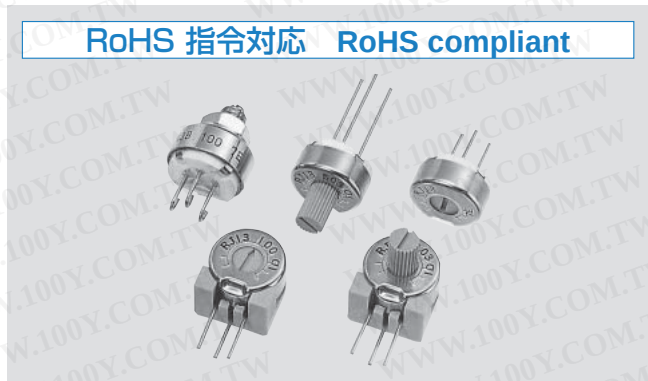
貴金属合金多接点ワイパ採用により、信頼性に優れるRJシリーズ

1回転型サーメットリマ SINGLE TURN CERMET TRIMMERS

RJ-13

勝特力材料 886-3-5753170
胜特力电子(上海) 86-21-34970699
胜特力电子(深圳) 86-755-83298787
Http://www.100y.com.tw

RoHS 指令対応 RoHS compliant

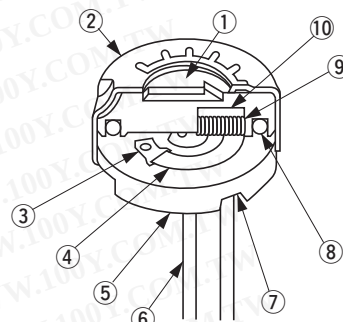


トリマポテンショメータ

■特長 FEATURES

- RoHS指令対応
- 10 Ω ~ 5 MΩの幅広い抵抗値
- 貴金属合金多接点ワイパ採用
- RoHS compliant
- Wide resistance range from 10 Ω to 5 MΩ
- Precious metal alloy wiper

内部構造図 INTERNAL STRUCTURE



名称 Part name	材料 Material	燃焼性 Flammability
① ロータ Rotor	PBT (ポリブチレンテレフタレート) Polybutyleneterephthalate	UL-94HB
② カバー Cover	ステンレス Stainless steel	—
③ 電極体 Electrode	Ag-Pd サーメット Ag-Pd cermet	
④ 抵抗体 Resistive element	RuO ₂ サーメット RuO ₂ cermet	
⑤ ベースエレメント Base element	セラミック Ceramic	
⑥ 端子 Terminal pin	ニッケル、金めっき Nickel, Gold-plated	UL-94HB
⑦ 接着剤 Adhesive	エポキシ Epoxy	
⑧ Oリング "O" ring	シリコンゴム Silicone rubber	
⑨ ワイパ(摺動子) Wiper	多元合金 Multi metal alloy	
⑩ ゴム板 Rubber cushion	シリコンゴム Silicone rubber	—

■型式表示 PART NUMBER DESIGNATION

R J - 1 3 P 2 0 k Ω (2 0 3)

シリーズ名 Series name

抵抗値記号 Resistance code

製品形状 Product shape

抵抗値 Resistance value

P : 上面調整 Top adjustment PR : つまみ付き上面調整 Top adjustment with knob
B : パネル実装 Panel mount SR : つまみ付き側面調整 Side adjustment with knob
S : 側面調整 Side adjustment

※ご注文に際しては、型式一覧表をご確認ください。
Please refer to the LIST OF PART NUMBERS when placing orders.

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RJ-13 CERMET TRIMMERS

型式一覧表 LIST OF PART NUMBERS

調整方向 Adjustment position	端子形状 (上面図) Shape of terminal (Top view)	包装形態 Form of packaging ポリ袋 Plastic bag	包装数量 Pieces in package
上面調整 Top adjustment		RJ-13P	50 pcs./pack
		RJ-13B	25 pcs./pack
		RJ-13PR	
側面調整 (↑調整面) (↑ Adjustment direction)		RJ-13S	
		RJ-13SR	

＜公称抵抗値 Nominal resistance values＞

10 Ω	20 Ω	50 Ω	100 Ω	200 Ω	500 Ω	1 kΩ	2 kΩ	5 kΩ	10 kΩ
20 kΩ	25 kΩ	50 kΩ	100 kΩ	200 kΩ	250 kΩ	500 kΩ	1 MΩ	2 MΩ	5 MΩ

Fig. 1

※ご注文に際しては、＜公称抵抗値＞(Fig. 1)について上記すべての組み合わせを用意しています。

※ご注文に際しては、上記型式をご確認ください。

※The above part numbers are all available with the respective combination of <Nominal resistance values> (Fig. 1).

※Verify the above part numbers when placing orders.

➡印の公称抵抗値は受注生産となります。

The products indicated by ➡ mark are manufactured upon receipt of order basis.

電気的特性 ELECTRICAL CHARACTERISTICS

公称抵抗値範囲 Nominal resistance range	10 Ω ~ 5 MΩ
抵抗値許容差 Resistance tolerance	± 10 %
定格電力 Power ratings	0.75 W (70 °C) 0 W (120 °C)
抵抗変化特性 Resistance law	直線性 (B) Linear law
最大入力電圧 Maximum input voltage	DC300 V 又は 定格電力の何れか小さい方 DC300 V or power rating, whichever is smaller
最大ワイパ電流 Maximum wiper current	100 mA 又は 定格電力の何れか小さい方 100 mA or power rating, whichever is smaller
有効電気的回転角度 Effective electrical angle	230 ° (1 turn)
残留抵抗値 End resistance	1 % 又は 2 Ω の何れか大きい方以下 1 % or 2 Ω, whichever is greater
接触抵抗変化 C.R.V.	1 % 又は 3 Ω の何れか大きい方以下 1 % or 3 Ω, whichever is greater
使用温度範囲 Operating temp. range	-55 ~ 120 °C
抵抗温度係数 Temp. coefficient	10 Ω, 20 Ω, 5 MΩ : ± 250 10 ⁻⁶ /°C maximum 50 Ω ~ 2 MΩ : ± 100 10 ⁻⁶ /°C maximum
絶縁抵抗 Insulation resistance	1000 MΩ minimum (DC500 V)
絶縁耐圧 Dielectric strength	AC900 V, 60 s
質量 Net weight	Approx. 1.90 g (RJ-13P) Approx. 4.50 g (RJ-13B) Approx. 2.15 g (RJ-13PR) Approx. 2.50 g (RJ-13S) Approx. 2.78 g (RJ-13SR)

機械的特性 MECHANICAL CHARACTERISTICS

機械的回転角度 Mechanical angle	270 ° (1 turn)
回転トルク Operating torque	3 ~ 35 mN·m {30.6~357 gf·cm}
回転止強度 Stop strength	100 mN·m {1.02 kgf·cm}
回転寿命 Rotational life	200 cycles 10 Ω ~ 200 Ω [ΔR/R ≤ ± (0.5 Ω + 3 %)] 500 Ω ~ 5 MΩ [ΔR/R ≤ ± (0.5 Ω + 2 %)]
端子強度 Terminal to strength	20 N {2.04 kgf} minimum (引張り強さ Tensile strength)
操作部の押し強さ Thrust to rotor	10 N {1.02 kgf} minimum
はんだ付け性 Solderability	245 ± 3 °C, 2 ~ 3 s

{ } : 参考値 Reference only

環境特性 ENVIRONMENTAL CHARACTERISTICS

試験項目 Test item	試験条件 Test conditions	仕様 Specifications
熱衝撃 Thermal shock	-65 ~ 125 °C (0.5 h), 5 cycles	[ΔR/R ≤ 1 %] [S.S. ≤ 1 %]
耐湿性 Humidity	-10 ~ 65 °C (相対湿度80 ~ 98 %), 10 cycles, 240 h	[ΔR/R ≤ 1 %]
耐衝撃性 Shock	981 m/s ² , 6 ms 6 directions for 3 times each	[ΔR/R ≤ 1 %] [S.S. ≤ 1 %]
耐振動性 Vibration	振幅 (Amplitude) 1.52 mm or 加速度 (Acceleration) 196 m/s ² , 10 ~ 2000 Hz, 3 directions, 12 times each	
負荷寿命 Load life	70 °C, 0.75 W, 1000 h	[ΔR/R ≤ 2 %] [S.S. ≤ 1 %]
低温動作 Low temp. operation	-55 °C, 2 h	[ΔR/R ≤ 1 %] [S.S. ≤ 2 %]
高温放置 High temp. exposure	120 °C, 250 h	[ΔR/R ≤ 2 %] [S.S. ≤ 2 %]
耐水・密閉性 Immersion seal	85 °C, 60 s	もれ無し (連続気泡無し) No leaks (No continuous bubbles)
はんだ耐熱性 Soldering heat	フロー Flow soldering : 260 ± 3 °C, 5 ~ 6 s, two times maximum こてによるはんだ付け Manual soldering : 380 ± 10 °C, 3 ~ 4 s	[ΔR/R ≤ 1 %]

ΔR/R : 全抵抗値変化 Change in total resistance
S.S. : 設定安定度 Setting stability

RJ-13

CERMET TRIMMERS

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最大入力定格 MAXIMUM INPUT RATINGS

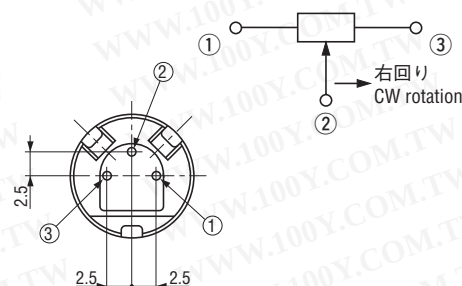
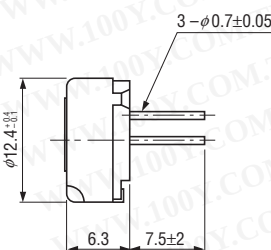
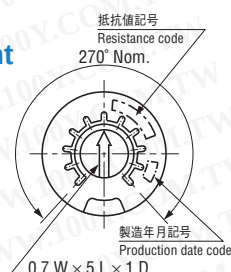
公称抵抗値 Nominal resistance value (Ω)	抵抗値記号 Resistance code	最大入力電圧 Maximum input voltage (V)	最大ワイパ電流 Maximum wiper current (mA)
10 20 50 100 200 500	100 200 500 101 201 501	1.00 2.00 5.00 8.66 12.2 19.4	100 100 100 86.6 61.0 38.8
1 k 2 k 5 k 10 k 20 k 25 k 50 k	102 202 502 103 203 253 503	27.4 38.7 61.2 86.6 122 137 194	27.4 19.3 12.2 8.66 6.10 5.48 3.88
100 k 200 k 250 k 500 k 1 M 2 M 5 M	104 204 254 504 105 205 505	274 300 300 300 300 300 300	2.74 1.50 1.20 0.60 0.30 0.15 0.06

➡印の公称抵抗値は受注生産となります。
 The products indicated by ➡ mark are manufactured upon receipt of order basis.

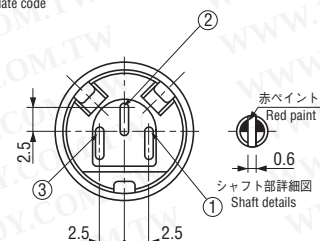
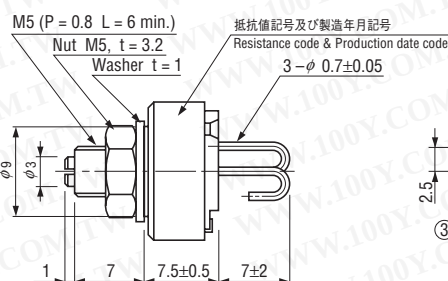
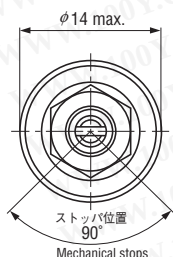
外形寸法図 OUTLINE DIMENSIONS

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

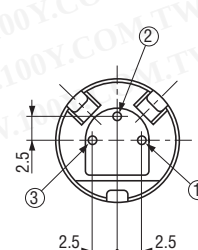
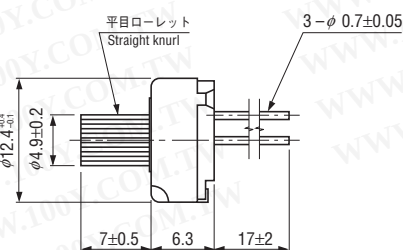
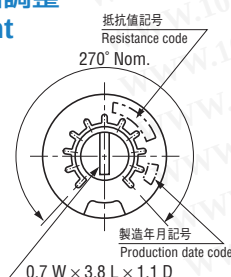
● RJ-13P 上面調整 Top adjustment



● RJ-13B パネル実装 Panel mount



● RJ-13PR つまみ付き上面調整 Top adjustment with knob



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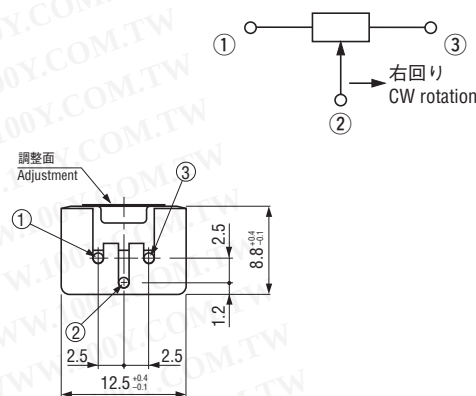
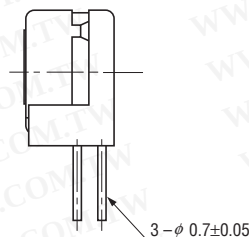
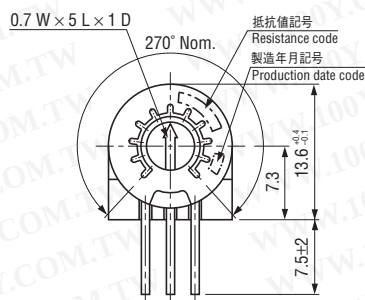
RJ-13

CERMET TRIMMERS

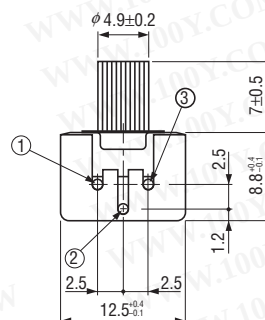
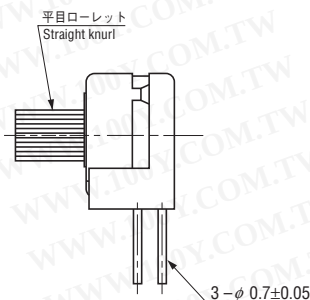
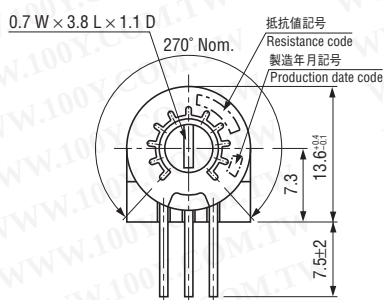
外形寸法図 OUTLINE DIMENSIONS

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

● RJ-13S 側面調整 Side adjustment



● RJ-13SR つまみ付き側面調整 Side adjustment with knob



包装仕様

<ポリ袋の包装仕様>

- ポリ袋での包装は、RJ-13Pは50個/袋、それ以外の型式は25個/袋となります。
- RJ-13Pのポリ袋の箱詰めは、100個を製品箱に包装致します。また、それ以外の型式は50個を製品箱に包装致します。

PACKAGING SPECIFICATIONS

<Bulk pack specifications>

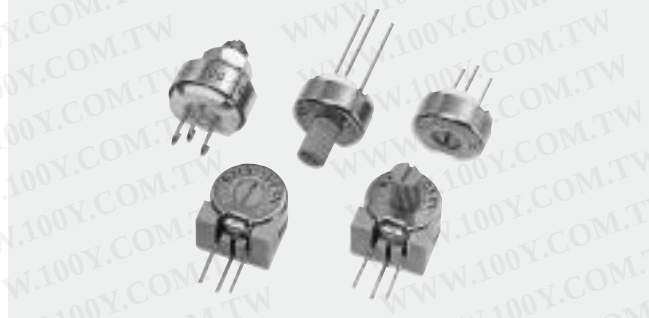
- Unit of bulk pack in a plastic bag is 25 pcs. per pack, only that RJ-13P is 50 pcs. per pack.
- Boxing of bulk in a plastic bag is performed with 50 pcs. per box, only that RJ-13P is 100 pcs. per box.

トリマポテンシオメータ

SINGLE TURN CERMET TRIMMERS

RJ-13

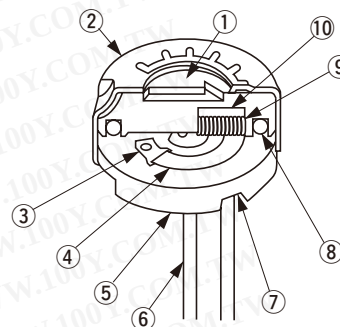
RoHS compatible



FEATURES

- Lead-free soldering
- Wide resistance range from 10 Ω to 5 M Ω
- Precious metal alloy wiper

INTERNAL STRUCTURE



	Part name	Material	Flammability
①	Rotor	PBT (Polybutyleneterephthalate)	UL-94HB
②	Cover	Stainless steel	—
③	Electrode	Ag-Pd cermet	
④	Resistive element	RuO ₂ cermet	
⑤	Base element	Ceramic	
⑥	Terminal pin	Nickel, Gold-plated	
⑦	Adhesive	Epoxy	UL-94HB
⑧	“O” ring	Silicone rubber	
⑨	Wiper	Multi metal alloy	
⑩	Rubber cushion	Silicone rubber	—

CFCs, Halon, Carbon tetrachloride and designated bromic flame retardant PBBOs and PBBs are not used in our products.

PART NUMBER DESIGNATION

R J - 1 3 P 2 0 k Ω (2 0 3)

Series name

Resistance code

Product shape

Resistance value

P : Top adjustment
B : Panel mount
S : Side adjustment

PR : Top adjustment with knob
SR : Side adjustment with knob

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

LIST OF PART NUMBERS

Adjustment position	Shape of terminal (Top view)	Form of packaging	Pieces in package
		Vinyl bag	
Top adjustment 		RJ-13P	50 pcs./pack
		RJ-13B	25 pcs./pack
		RJ-13PR	
Side adjustment (↑ Adjustment direction)		RJ-13S	
		RJ-13SR	

<Nominal resistance values>

⤵ 10 Ω	⤵ 20 Ω	50 Ω	100 Ω	200 Ω	500 Ω	1 kΩ	2 kΩ	5 kΩ	10 kΩ
20 kΩ	⤵ 25 kΩ	50 kΩ	100 kΩ	200 kΩ	⤵ 250 kΩ	500 kΩ	1 MΩ	2 MΩ	⤵ 5 MΩ

Fig. 1

The products indicated by ⤵ mark are manufactured upon receipt of order basis.

※ : The above part numbers are all available with the respective combination of <Nominal resistance values> (Fig. 1).

※ : Verify the above part numbers when placing orders.

ELECTRICAL CHARACTERISTICS

Nominal resistance range	10 Ω ~ 5 MΩ
Resistance tolerance	± 10 %
Power ratings	0.75 W (70 °C) 0 W (120 °C)
Resistance law	Linear law (B)
Maximum input voltage	DC300 V or power rating, whichever is smaller
Maximum wiper current	100 mA or power rating, whichever is smaller
Effective electrical angle	230 ° (1 turn)
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	10 Ω, 20 Ω, 5 MΩ : ± 250 10 ⁻⁶ /°C maximum 50 Ω ~ 2 MΩ : ± 100 10 ⁻⁶ /°C maximum
Insulation resistance	1000 MΩ minimum (DC500 V)
Dielectric strength	AC900 V, 60 s
Net weight	Approx. 1.90 g (RJ-13P) Approx. 4.50 g (RJ-13B) Approx. 2.15 g (RJ-13PR) Approx. 2.50 g (RJ-13S) Approx. 2.78 g (RJ-13SR)

MECHANICAL CHARACTERISTICS

Mechanical angle	270 ° (1 turn)
Operating torque	3 ~ 35 mN·m {30.6~357 gf·cm}
Stop strength	100 mN·m {1.02 kgf·cm}
Rotational life	200 cycles 10 Ω ~ 200 Ω [Δ R/R ≤ ± (0.5 Ω + 3 %)] 500 Ω ~ 5 MΩ [Δ R/R ≤ ± (0.5 Ω + 2 %)]
Terminal to strength	20 N {2.04 kgf} minimum (Tensile strength)
Thrust to rotor	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	[Δ R/R ≤ 1 %] [S.S. ≤ 1 %]
Humidity	-10 ~ 65 °C (Relative humidity 80 ~ 98 %), 10 cycles, 240 h	[Δ R/R ≤ 1 %]
Shock	981 m/s ² , 6 ms 6 directions for 3 times each	[Δ R/R ≤ 1 %] [S.S. ≤ 1 %]
Vibration	Amplitude 1.52 mm or Acceleration 196 m/s ² , 10 ~ 2000 Hz, 3 directions, 12 times each	
Load life	70 °C, 0.75 W, 1000 h	[Δ R/R ≤ 2 %] [S.S. ≤ 1 %]
Low temp. operation	-55 °C, 2 h	[Δ R/R ≤ 1 %] [S.S. ≤ 2 %]
High temp. exposure	120 °C, 250 h	[Δ R/R ≤ 2 %] [S.S. ≤ 2 %]
Immersion seal	85 °C, 60 s	No leaks (No continuous bubbles)
Soldering heat	Flow soldering : 260 ± 3 °C, 5 ~ 6 s, two times maximum	[Δ R/R ≤ 1 %]
	Manual soldering : 380 ± 10 °C, 3 ~ 4 s	

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

MAXIMUM INPUT RATINGS

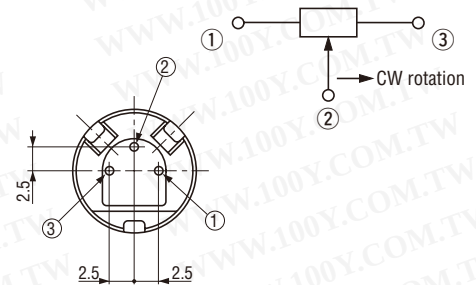
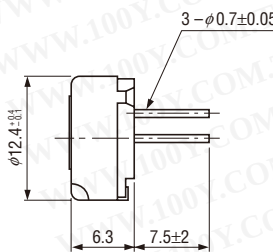
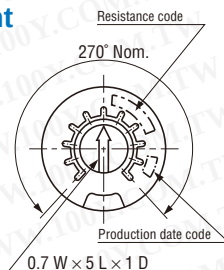
Nominal resistance value (Ω)	Resistance code	Maximum input voltage (V)	Maximum wiper current (mA)
↻ 10 ↻ 20 ↻ 50 ↻ 100 ↻ 200 ↻ 500	100 200 500 101 201 501	1.00 2.00 5.00 8.66 12.2 19.4	100 100 100 86.6 61.0 38.8
1 k 2 k 5 k 10 k 20 k ↻ 25 k 50 k	102 202 502 103 203 253 503	27.4 38.7 61.2 86.6 122 137 194	27.4 19.3 12.2 8.66 6.10 5.48 3.88
100 k ↻ 200 k ↻ 250 k ↻ 500 k 1 M 2 M ↻ 5 M	104 204 254 504 105 205 505	274 300 300 300 300 300 300	2.74 1.50 1.20 0.60 0.30 0.15 0.06

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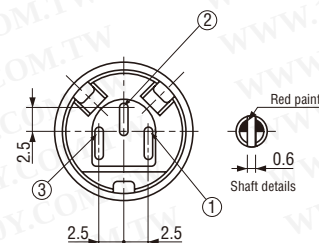
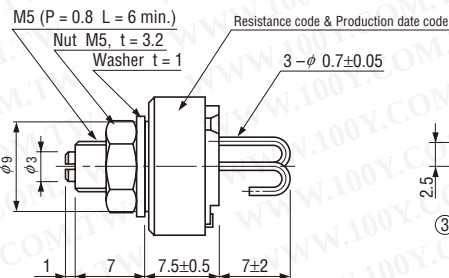
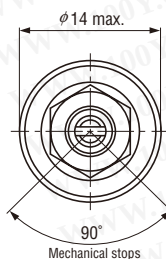
OUTLINE DIMENSIONS

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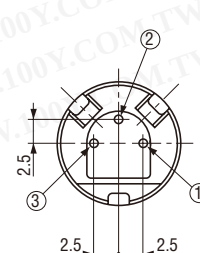
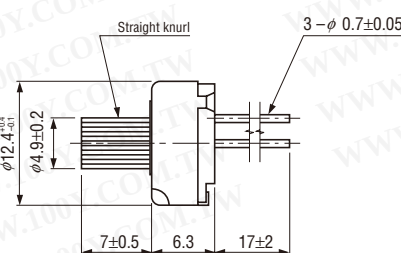
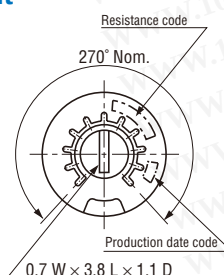
RJ-13P Top adjustment



RJ-13B Panel mount



RJ-13PR Top adjustment with knob



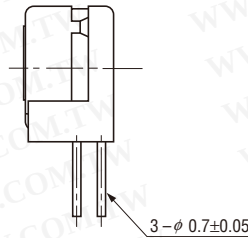
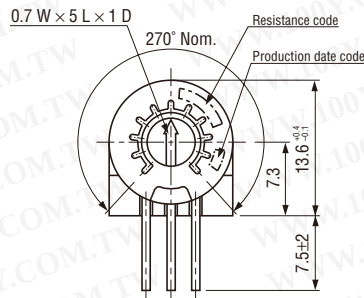
RJ-13

CERMET TRIMMERS

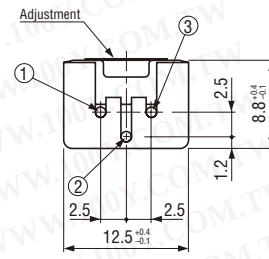
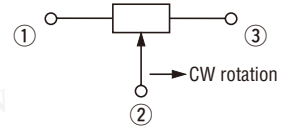
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[Http://www.100y.com.tw](http://www.100y.com.tw)

OUTLINE DIMENSIONS

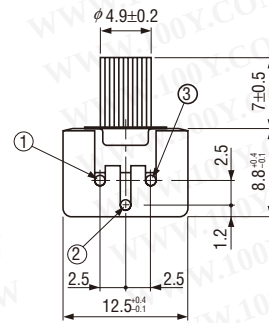
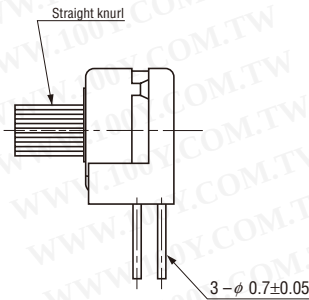
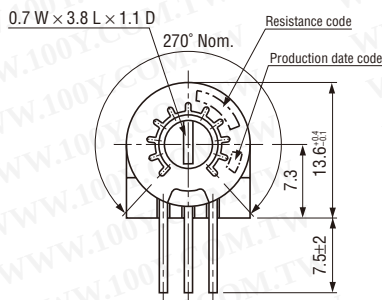
RJ-13S Side adjustment



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



RJ-13SR Side adjustment with knob



PACKAGING SPECIFICATIONS

<Vinyl bag packaging specifications>

- Unit of bulk in vinyl bag packaging is 25 pcs. per pack, only that RJ-13P is 50 pcs. per pack.
- Boxing of bulk in vinyl bags is performed with 50 pcs. per box, only that RJ-13P is 100 pcs. per box.