

**Features**

- An extremely compact, lightweight 2 mm open frame type for reflow soldering has been added to our lineup
- 3 mm square series has types for flow soldering and reflow soldering
- Solvent washing type is available
- Saving labor cost through sealing filmless construction (EVM 7J). Automatic adjusting (EVM 7L)
- Excellent mounting efficiency



**Product Chart**

Construction	Sealed (filmless)	Open Frame			
		2 mm	3 mm		4 mm
Type	3 mm	2 mm	3 mm		4 mm
Thickness (mm)	2.0 (7L: 2.6)	1X: 1.75 2X: 1.80	1.5 (1Y: 2.0)		1.5
Adjustable side	Upper	Upper	Upper	Upper/Bottom	Upper Upper/Bottom
2 Terminals, Inline	—	—	—	—	⊕ EVM1G
2 Terminals, Triangle	—	—	—	—	⊕ EVM1L ⊕ EVM1K
3 Terminals, Inline	—	—	—	⊖ EVM3S	⊕ EVM1E ⊕ EVM1U
3 Terminals, Triangle	⊖/⊕ EVM7J/7L	⊖ EVM1X ⊕ EVM2X	⊖ EVM1S ⊕ EVM1Y	—	⊕ EVM1D
3 Terminals, Triangle (Flow solder)	⊖/⊕ EVM7J/7L	—	—	—	—

**Explanation of Part Numbers**

**E V M**

Common code

□ □

Shape & Construction

□ □ □ 0

Packing Style

□ □ □

Resistance & Taper

6th	7th	Packing Style
G	A	Bulk
S	W	Carrier tape (7th: Direction of insertion; see "Packaging Specifications" at end of this section.)
	X	

8th	Packing Quantity
0	750
3	1000
2	2500
4	4000
1	5000
5	2000
6	10000

Soldering method	Type	Number of terminals	Part Numbers
Flow soldering	3mm	3	EVM 7J, 7L
	2mm	3	EVM 1X, 2X
Reflow soldering	3mm	3	EVM 1S, 7J, 7L, 1Y EVM 3S (both sides)
		2	EVM 1G, 1L EVM 1K (both sides)
	4mm	3	EVM 1D, 1E EVM 1U (both sides)

**Example:**

Resistance	11th	12th
500Ω	5	2
47 kΩ	Q	4
1 MΩ	1	6

10th  
Taper: B(standard)

11th  
Significant number  
of resistance

12th  
Number of zero

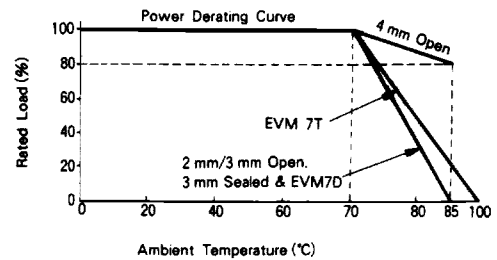
Note: When significant number is odd, letters are assigned as shown below:

Example:

11th	Significant number	11th	Significant number
E	2.2	Q	4.7
Y	3.3	s	6.8

**Specifications**

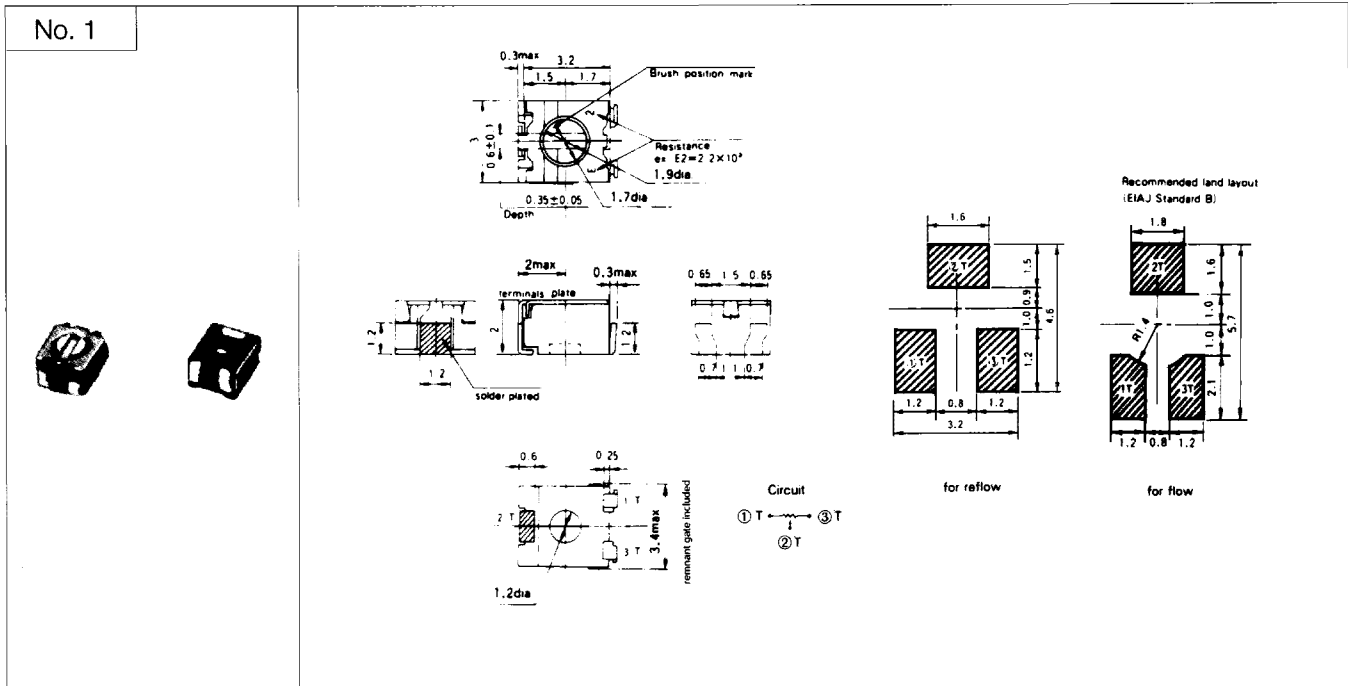
Type	3mm Sealed		2mm Open	3mm Open	4mm Open	
Applicable Part Numbers	EVM 7J		EVM 7L	EVM 1X, 2X	EVM 1S, 1Y 3S	
	0.05 W			0.15 W	0.2 W	
Electrical	Power Rating	For potentiometers operated in ambient temperatures above 70° C, Power Rating shall be derated in accordance with the figure at right.				
	Max. Operating Temperature	50 V (Voltage Rating 15 VDC)		50 V (Voltage Rating 15 VDC)		
	Voltage Rating	15VDC		15VDC		
	Resistance Range	220 Ω to 1 mΩ		200Ω to 1 MΩ	100 Ω to 1 MΩ	
	Tolerance	±25%				
	Taper	B (Linear)				
Mechanical	Effective Rotation Angle	260±20°				
	Rotation Torque	1.9 to 14.7 mN•m (20 to 150 gf•cm)	1.5 to 16.7 mN•m (15 to 170 gf•cm)	1.0 to 14.7 mN•m (10 to 150 gf•cm)	1.9 to 19.6 mN•m (20 to 200 gf•cm)	
	Soldering Strength	Horizontal: 9.8 N (1 kgf) Vertical: 4.9 N (500 gf)		Horizontal: 4.9 N (500 gf) Vertical: 2.5 N (250 gf)	Horizontal: 9.8 N (1kgf) Vertical: 4.9 N (500 gf)	
	Applicable Soldering	Flow and Reflow		Reflow		
Durability	Temperature Range	-40 to +100°C				
	Soldering Heat	250°C, 10s/260°C, 5s		260°C, 10s		
	Humidity (40±2°C 90 to 95% RH)	After 1000 hours, Total resistance change: ±5%				
	Humidity Load Life (40±2°C 90 to 95% RH)	After 1000 hours, (1.5h ON, .5h OFF) Total resistance change: ±5%				
	High Temperature (70±2°C)	After 1000 hours, Total resistance change: ±5%				
	Load Life (70±2°C)	After 1000 hours, (1.5h ON, .5h OFF) Total resistance change: ±5%				
	Temperature Coefficient	-20 to +80°C ±250 ppm/°C				
Rotation Life	After 10 turns, Total Resistance: ±15%		After 20 turns, Total Resistance: ±15%			



**3 mm Square, Sealed**  
**Dimensions in mm (not to scale)**

3 terminals

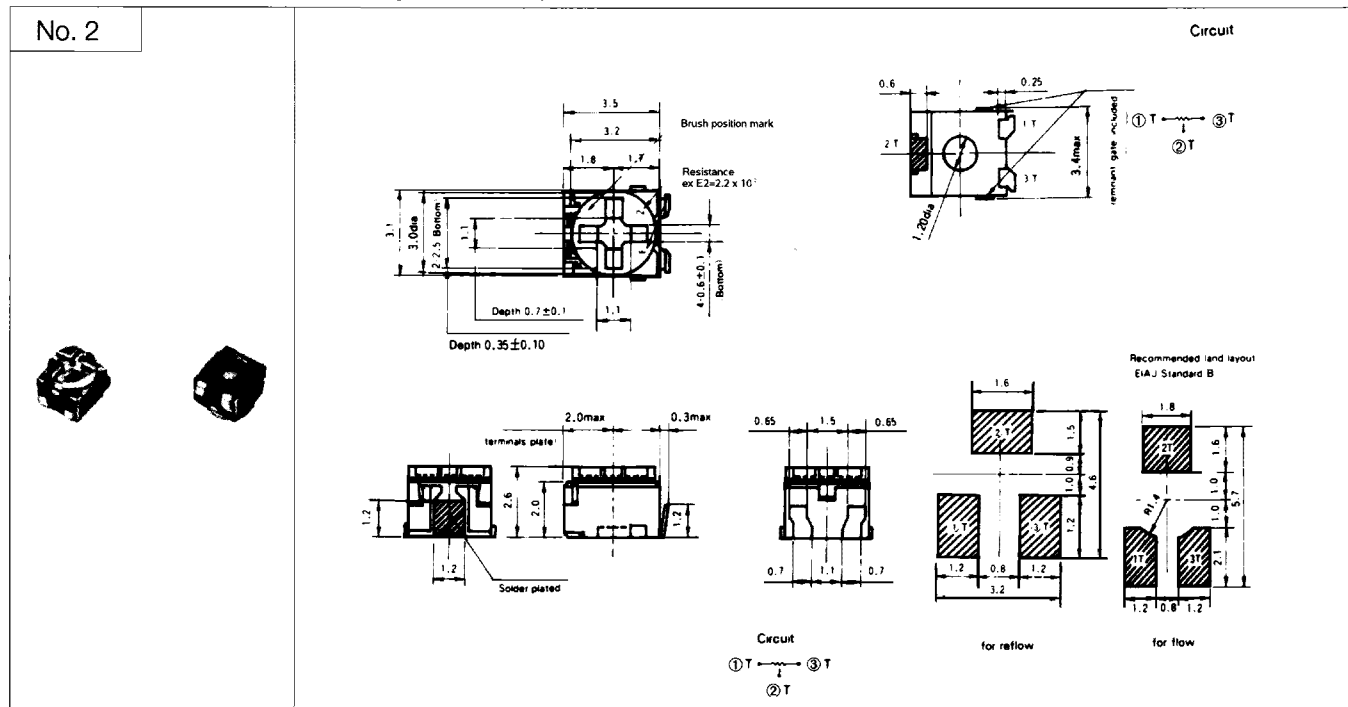
EVM 7 J



Note: PCB mounting not possible after trimming knob has been rotated

3 terminals (for automatic trimming adjustment)

EVM 7 L

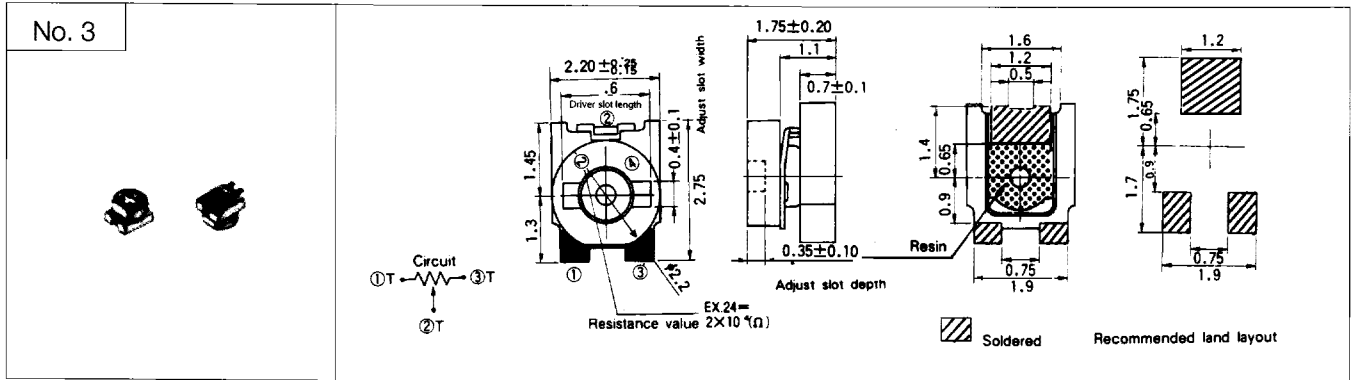


Note: PCB mounting not possible after trimming knob has been rotated

2 mm Square, Open Frame

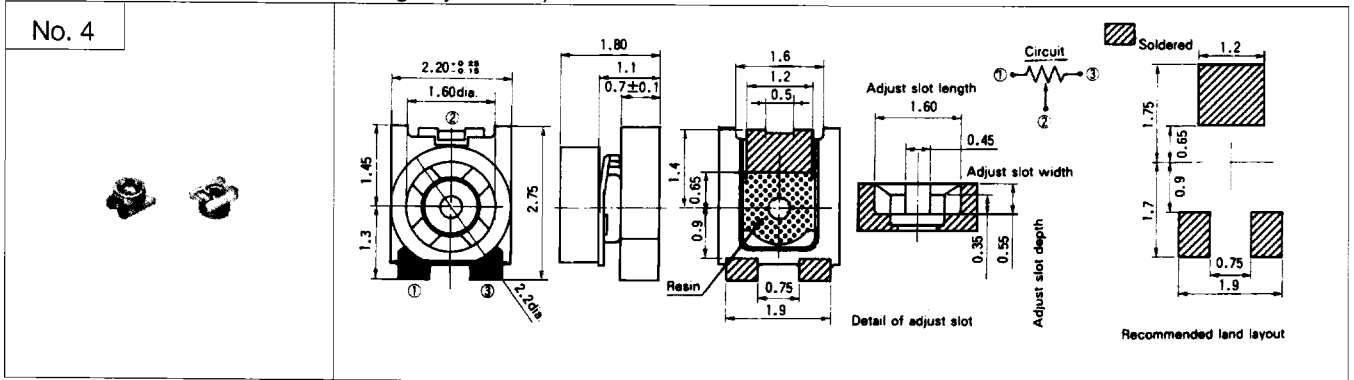
3 terminals

EVM 1X



3 terminals (for auto matic trimming adjustment)

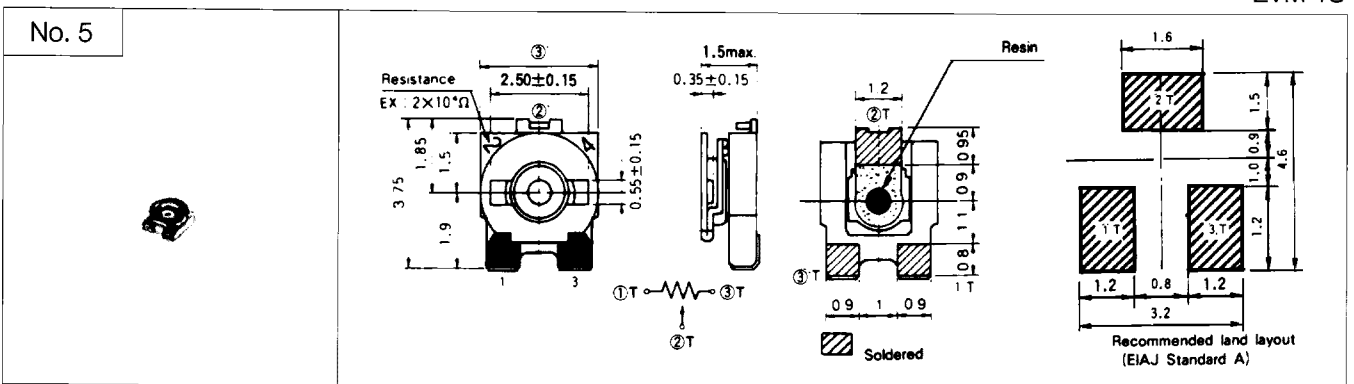
EVM 2X



3 mm Square, Open Frame

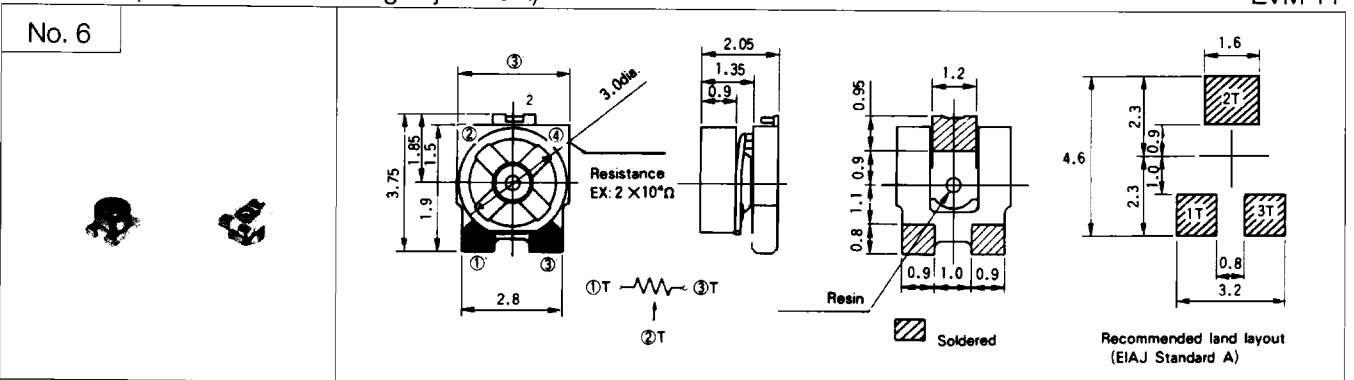
3 terminals

EVM 1S



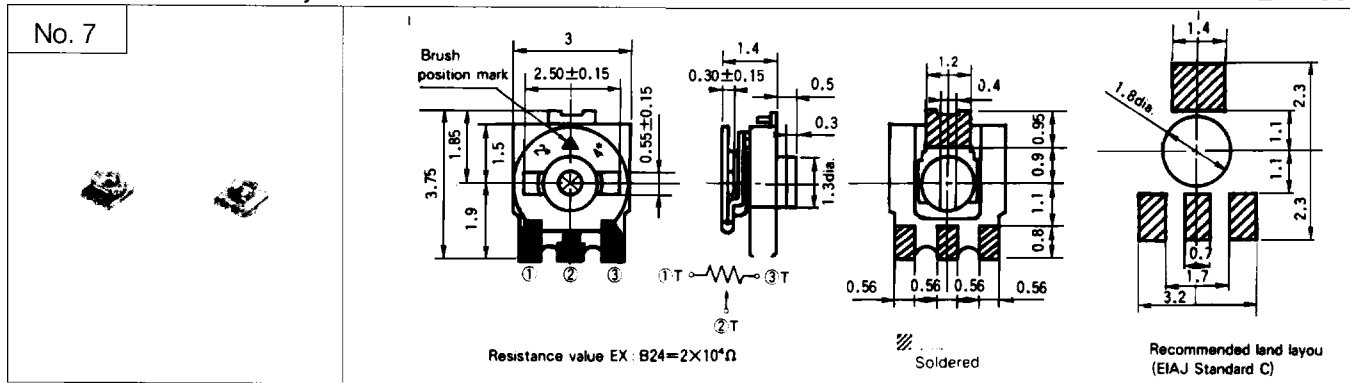
3 terminals (for automatic trimming adjustment)

EVM 1Y



2 terminals, Both sides adjust

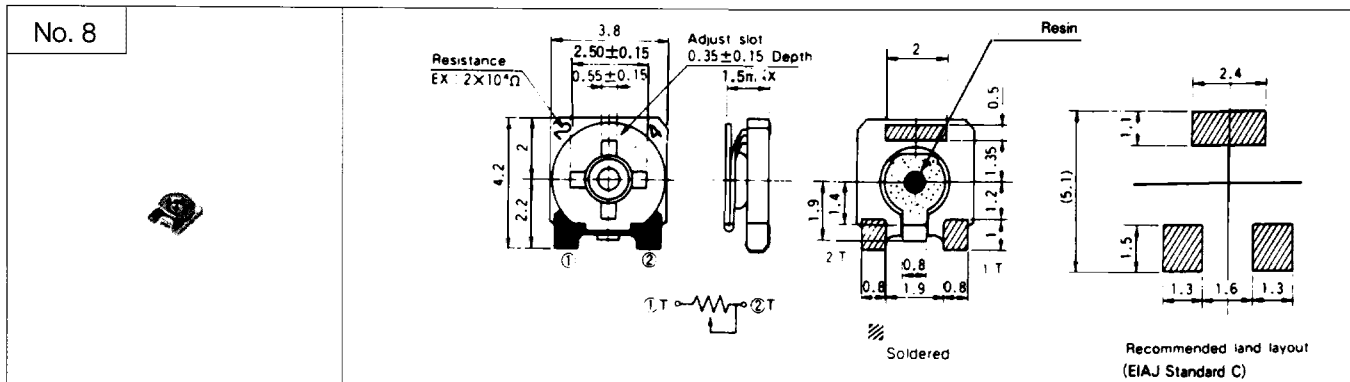
EVM 3S



4 mm Square, Open Frame

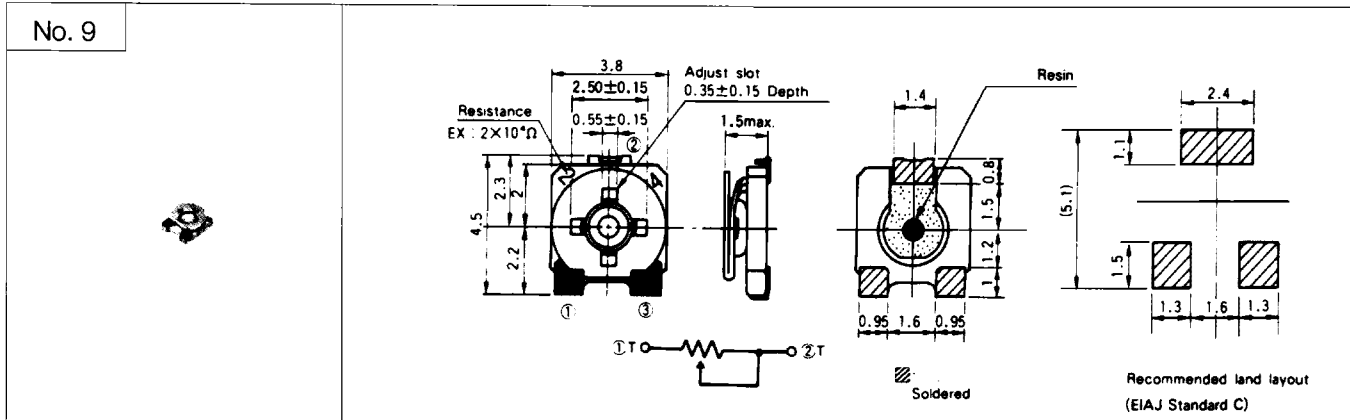
2 terminals, Cross slot

EVM 1G



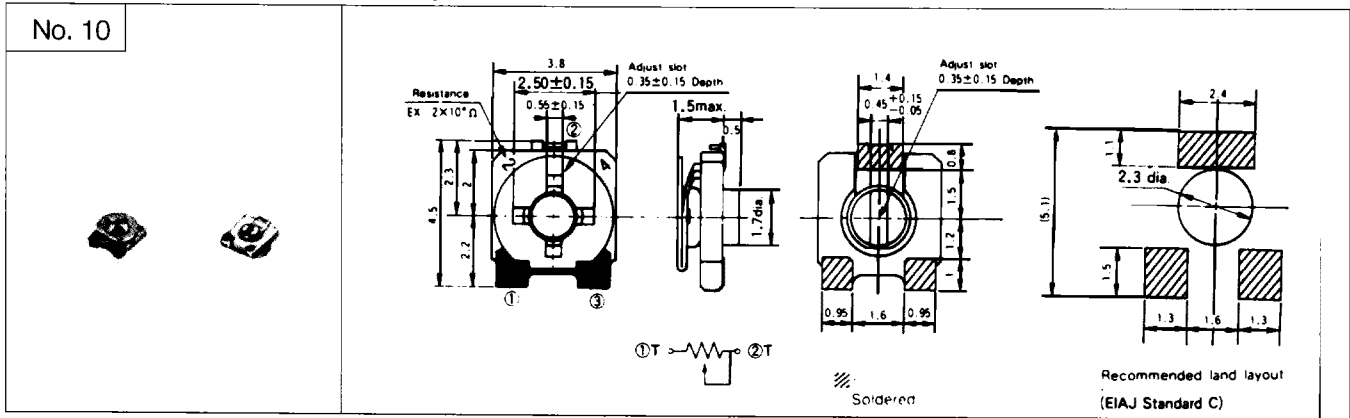
2 terminals, Cross slot

EVM 1L



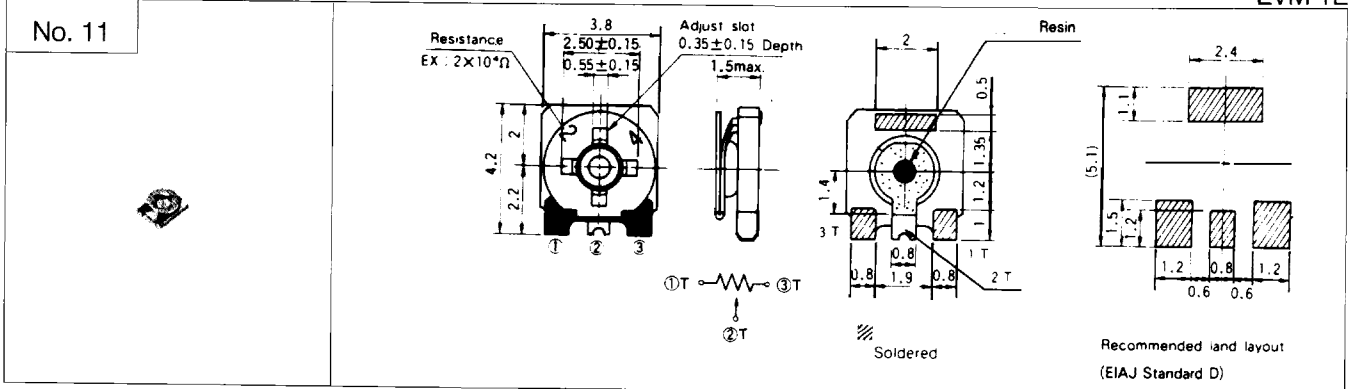
2 terminals, Cross slot, Both sides adjust

EVM 1K



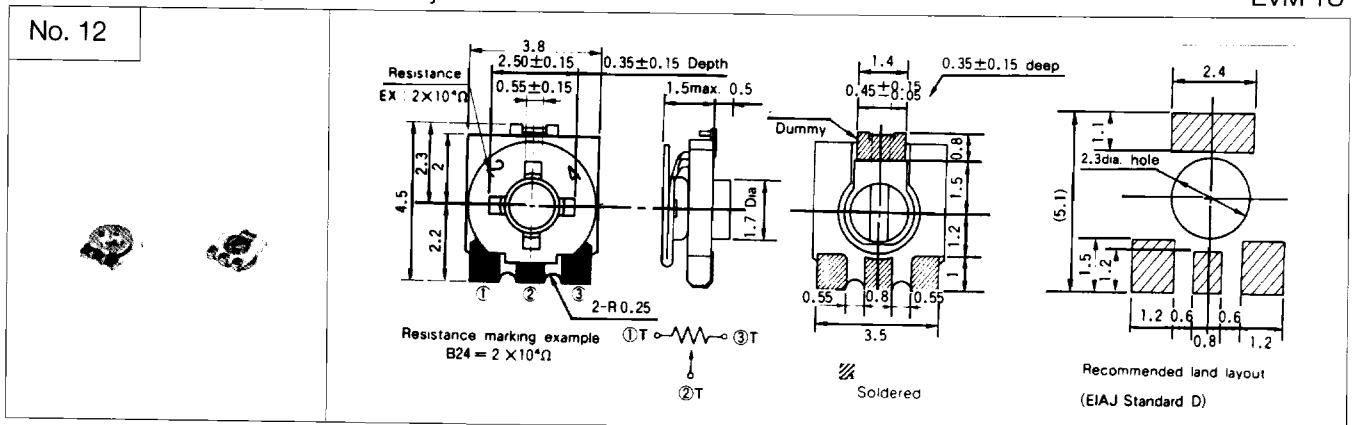
3 terminals, Cross slot

EVM 1E



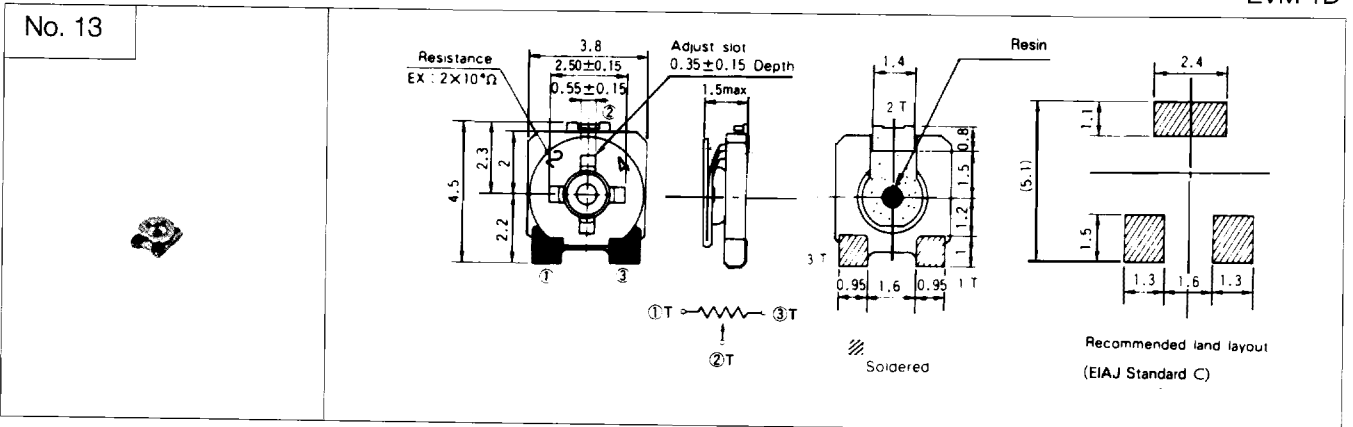
3 terminals, Cross slot, Both sides adjust

EVM 1U



3 terminals, Cross slot

EVM 1D

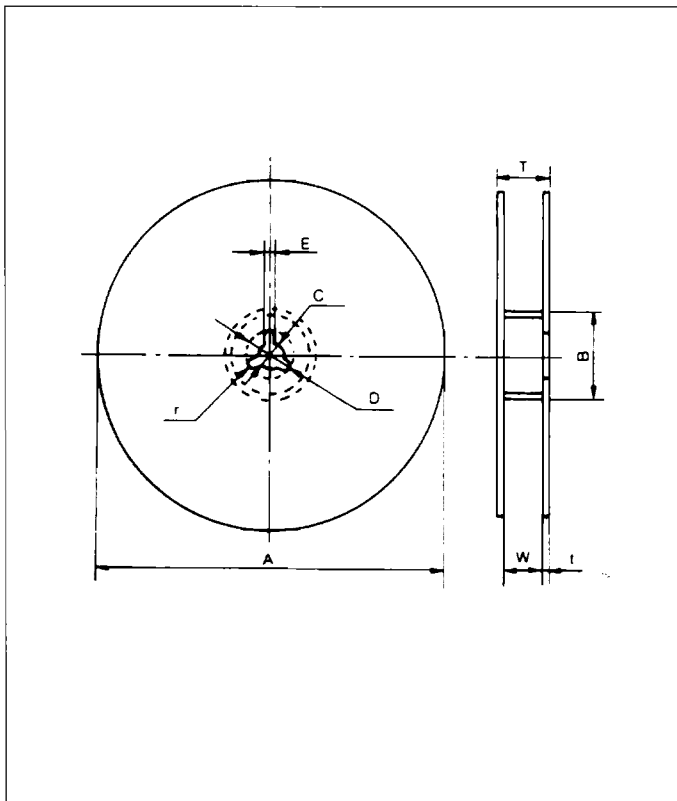
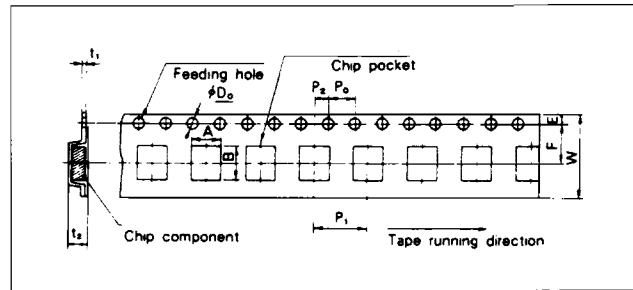


Taping/Packaging Specifications

Standard Packing Quantity

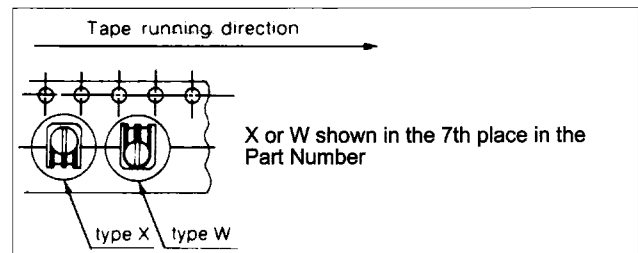
Appearance	Style	Embossed Taping	Bulk
	Thickness		
EVM 7J	2.0 mm	1000/5000 pcs/reel	500 pcs/pack
EVM 7L	2.6 mm	750/4000 pcs/reel	500 pcs/pack
EVM 1□, 2mm	1.5 to 2.0 mm	2000 pcs/reel	1000 pcs/pack
EVM1□, 3mm	1.5 mm	1000/2000 pcs/reel	500 pcs/pack
EVM 1□, 4mm	1.5 mm	1000/5000 pcs/reel	500 pcs/pack

Embossed Taping



Part No.	Dim. Code	A	B	W	F	E	P <sub>1</sub>
EVM 7J		3.5	4.3	12	5.5	1.75	8
EVM 7L		3.5	4.3	12	5.5	1.75	8
EVM 1□, 2mm		2.45	2.9	8	3.5	1.75	4
EVM 1□, 3mm		3.3	4.0	8/12	3.5	1.75	4/8
EVM 1□, 4mm		4.3	5	12	5.5	1.75	8

Part No.	Dim. Code	P <sub>2</sub>	P <sub>0</sub>	∅D <sub>0</sub>	t <sub>1</sub>	t <sub>2</sub>
EVM 7J		2	4	1.5	0.3	2.4
EVM 7L		2	4	1.5	0.3	3.1
EVM 1□, 2mm		2	4	1.5	0.3	2.3
EVM 1□, 3mm		2	4	1.5	0.3	2.0 to 2.4
EVM 1□, 4mm		2	4	1.5	0.3	2.2



Embossed Taping

(Unit: mm)

Type No.	Dim. Code	A	B	C	D	E	W	t	Packaging Quantity
	Tolerance	±2.0	min.	±0.5	±0.8	±0.5	±1.5	±0.5	t <sub>2</sub> =2.0 to 2.4
	1	178 dia.	50/80 dia.	13.0 dia.	21.0 dia.	2.0	14.0/10.0*	1.0 to 2.0	1000 pcs (P <sub>1</sub> =8) 2000 pcs (P <sub>1</sub> =4)
	3	370 dia.	80 dia.	13.0 dia.	21.0 dia.	2.0	14.0/10.0	1.0 to 2.0	5000 pcs (P <sub>1</sub> =8)

Application Notes

- After automatic assembly, please wash completely with Freon substitute or other appropriate solvent
- For sealed type, use Freon TF substitute.
- Soldering reworking shall be done only once under the following conditions:

Time: 3s max.  
Temperature: 280°C max.  
Soldering iron: 20 W max.

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