

Chip Resistor Array

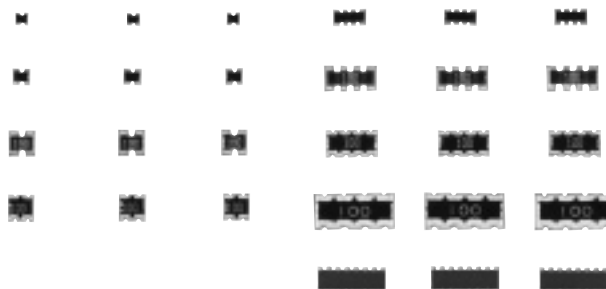
Type: **EXB1:0201x2**

EXB2:0402x2, 0402x4, 0402x8

EXB3:0603x2, 0603x4

EXBV:0603x2, 0603x4

EXBS:0805x4



■ Features

● High density

- 2 resistors in 0.8 mm × 0.6 mm size (14V, Convex Terminal)
- 2 resistors in 1.0 mm × 1.0 mm size (24V, Convex Terminal)
- 2 resistors in 1.6 mm × 1.6 mm size (34V, Convex Terminal)
- 2 resistors in 1.6 mm × 1.6 mm size (V4V, Concave Terminal)
- 4 resistors in 2.0 mm × 1.0 mm size (28V, Convex Terminal)
- 4 resistors in 3.2 mm × 1.6 mm size (38V, Convex Terminal)
- 4 resistors in 3.2 mm × 1.6 mm size (V8V, Concave Terminal)
- 4 resistors in 5.08 mm × 2.2 mm size (S8V, Concave Terminal)
- 8 resistors in 3.8 mm × 1.6 mm size (2HV, Convex Terminal)

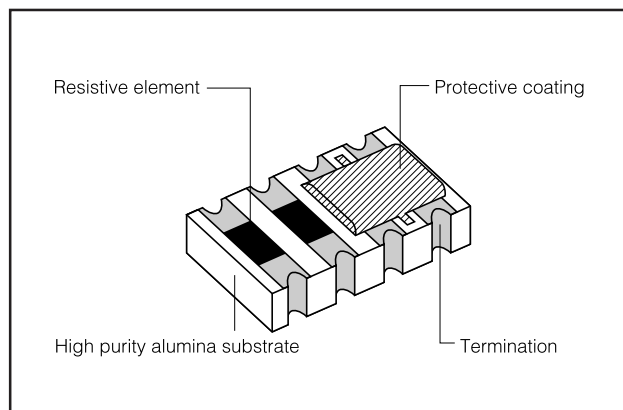
● Improvement of placement efficiency

Placement efficiency of Chip Resistor Array is two, four or eight times of the flat type chip resistor

■ Explanation of Part Numbers

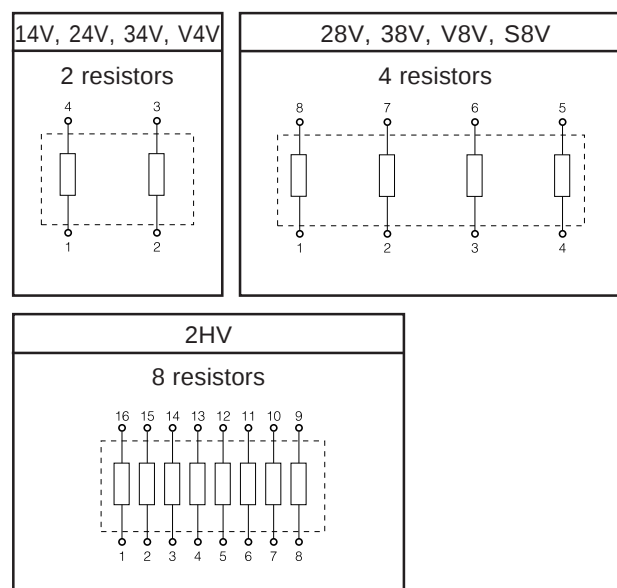
Explanation of Part Name Code													
1	2	3	4	5	6	7	8	9	10	11			
E	X	B	V	8	V	4	7	2	J	V			
Product Code Thick Film Chip Resistor Networks	Chip Resistor Array Type: inches			No. of Terminal		Schematics		Resistance Value The first two digits are significant figures of resistance value and the third one denotes the number of zeros following. Jumper is expressed by R00 Example: 222: 2.2 kΩ		Resistance Tolerance	Packaging Methods		
	1	0201×2			4	4 Terminal		V	Isolated type				
	2	0402×2, 0402×4, 0402×8			8	8 Terminal							
	3	0603×2, 0603×4			H	16 Terminal							
	V	0603×2, 0603×4											
	S	0805×4											
									G	±2 %	Nil	Embossed taping (Only S8V type)	
									J	±5 %	V	Punched (Paper) taping 4 mm pitch	
									0	Jumper	X	Punched (Paper) taping 2 mm pitch (Only 14V, 24V, 28V type)	

■ Construction (Example : EXBV8V)

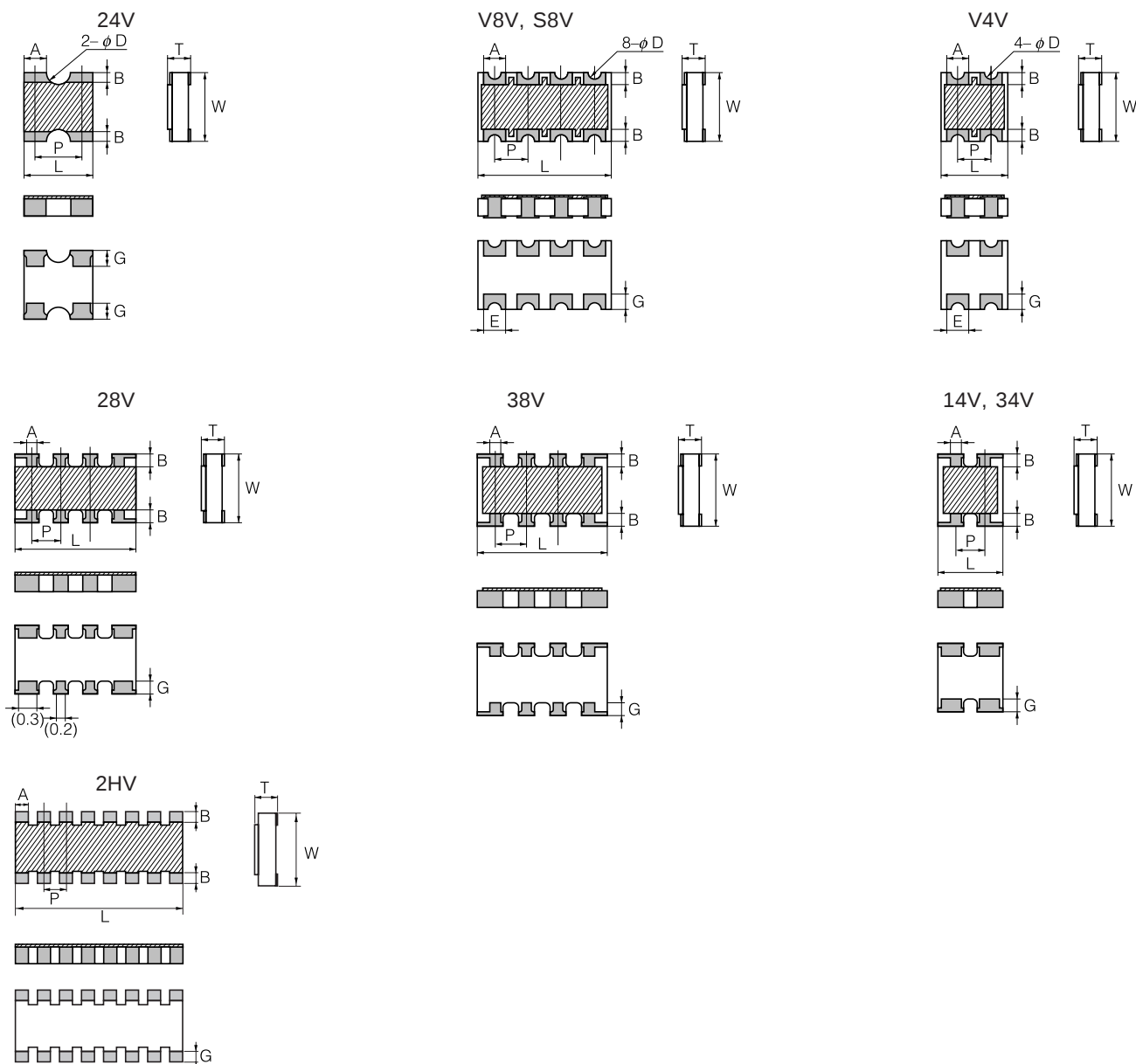


■ Schematics

● Isolated type



■ Dimensions in mm (not to scale)



Type (inches)	Dimensions (mm)								
	L	W	T	A	B	ϕD	P	E	G
EXB14V (0201×2)	0.80±0.10	0.60±0.10	0.35±0.10	0.35±0.10	(0.15±0.10)	—	0.50±0.10	—	0.15±0.10
EXB24V (0402×2)	1.00±0.05	1.00±0.05	0.35±0.05	0.33±0.05	0.15±0.10	0.34±0.05	0.65±0.10	—	0.25±0.05
EXB28V (0402×4)	2.00±0.10	1.00±0.10	0.35±0.10	0.20±0.10	0.20±0.10	—	0.50±0.10	—	0.25±0.10
EXBV4V (0603×2)	1.60 ^{+0.20} _{-0.10}	1.60 ^{+0.20} _{-0.10}	0.60±0.10	0.60±0.10	0.30±0.15	(0.3)	0.80±0.10	0.45±0.10	0.40±0.15
EXB34V (0603×2)	1.60±0.20	1.60±0.15	0.50±0.10	0.45±0.15	(0.30±0.20)	—	0.80±0.15	—	0.30±0.20
EXBV8V (0603×4)	3.20 ^{+0.20} _{-0.10}	1.60 ^{+0.20} _{-0.10}	0.60±0.10	0.60±0.10	0.30±0.15	(0.3)	0.80±0.10	0.45±0.10	0.45±0.15
EXB38V (0603×4)	3.20±0.20	1.60±0.15	0.50±0.10	0.45±0.15	(0.30±0.20)	—	0.80±0.15	—	0.35±0.20
EXBS8V (0805×4)	5.08 ^{+0.20} _{-0.10}	2.20 ^{+0.20} _{-0.10}	0.70±0.20	0.80±0.15	0.50±0.15	(0.5)	1.27±0.20	0.70±0.20	0.55±0.15
EXB2HV (0402×8)	3.80±0.10	1.60±0.10	0.45±0.10	0.30±0.10	(0.30±0.10)	—	0.50±0.10	—	0.30±0.10

() Reference

■ Ratings

Item		Specifications
Resistance Range		10 Ω to 1 MΩ: E24 series
Resistance Tolerance		G: ±2 %, J: ±5 %
Number of Terminal	14V,24V,V4V,34V	4 terminal
	28V,38V,V8V,S8V	8 terminal
	2HV	16 terminal
Number of Resistors	14V,24V,V4V,34V	2 resistors
	28V,38V,V8V,S8V	4 resistors
	2HV	8 resistors
Power Rating at 70 °C	14V,28V	0.031 W/element
	24V,V4V,34V,V8V,38V	0.063 W/element
	S8V	0.1 W/element
	2HV	0.063 W/element (0.25 W/package)

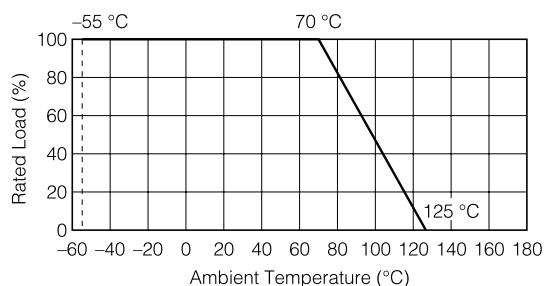
Item		Specifications	
Limiting Element Voltage ⁽¹⁾ (Max. Rated Continuous Working Voltage)	14V	12.5 V	
	2HV	25 V	
	24V,28V,38V,34V,V4V,V8V	50 V	
	S8V	100 V	
Max. Over-load Voltage ⁽²⁾	14V	25 V	
	2HV	50 V	
	24V,28V,38V,34V,V4V,V8V	100 V	
	S8V	200 V	
T.C.R.		±200 ×10 ⁻⁶ /°C(ppm/°C)	
Category Temperature Range (Operating Temperature Range)		-55 °C to 125 °C	
Jumper Array	Rated Current	14V	0.5 A
		2HV,24V,28V,38V,34V,V4V,V8V	1 A
		S8V	2 A
	Max. Overload Current	14V	1 A
		2HV,24V,28V,38V,34V,V4V,V8V	2 A
		S8V	4 A

(1) Rated Continuous Working Voltage (RCWV) shall be determined from $RCWV = \sqrt{\text{Power Rating} \times \text{Resistance Value}}$, or Limiting Element Voltage (max. RCWV) listed above, whichever less.

(2) Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from $SOTV = 2.5 \times \text{Power Rating}$ or max. Overload (Voltage) listed above whichever less.

Power Derating Curve

For resistors operated in ambient temperature above 70 °C, power rating shall be derated in accordance with the right figure.

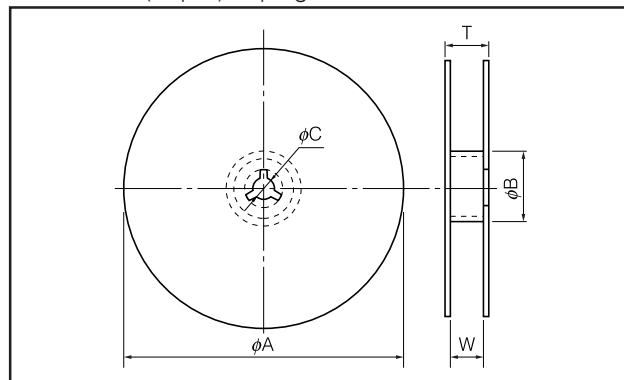


■ Packaging Methods

● Standard Quantity

Type (inches)	Thickness (mm)	Weight/1000 pcs. (g)	Punched (Paper) Taping	Embossed Taping
EXB14V (0201×2)	0.35	14V: 0.5	10000 pcs./reel	—
EXB24V, 28V (0402×2, 0402×4)	0.35	24V: 1.2 28V: 2	10000 pcs./reel	—
EXBV4V, V8V (0603×2, 0603×4)	0.6	V4V: 5 V8V: 10	5000 pcs./reel	—
EXB34V, 38V (0603×2, 0603×4)	0.5	34V: 3.5 38V: 7	5000 pcs./reel	—
EXBS8V (0805×4)	0.7	S8V: 30	—	2500 pcs./reel
EXB2HV (0402×8)	0.45	2HV: 9	5000 pcs./reel	—

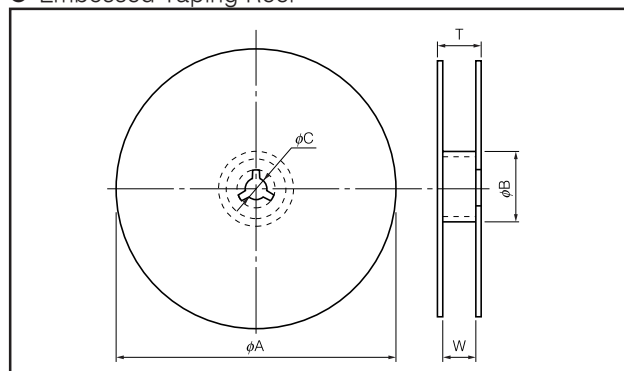
● Punched (Paper) Taping Reel



Dimensions (mm)	Type	ϕA	ϕB	ϕC
14V, 2HV 24V, 28V V4V, 34V V8V, 38V		180.0 ⁰ _{-3.0}	60 min.	13.0±1.0

Dimensions (mm)	Type	W	T
14V, 2HV 24V, 28V V4V, 34V V8V, 38V		9.0±1.0	11.4±2.0

● Embossed Taping Reel



Dimensions (mm)	Type	ϕA	ϕB	ϕC
S8V		180.0 ⁰ _{-3.0}	60 min.	13.0±1.0

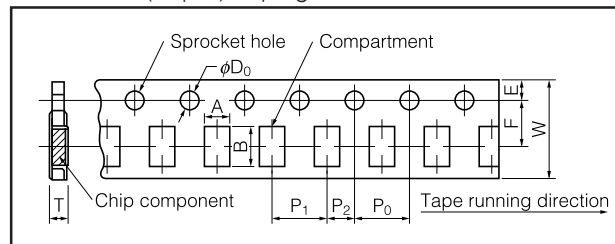
Dimensions (mm)	Type	W	T
S8V		13.0±1.0	15.4±2.0

■ Land pattern design

Recommendable land pattern design for Network chip is as shown below figure.

(Not to scale)					
Type	Dimensions				
	a	b	c	p	f
14V	0.3	0.3	0.3	0.50	0.9
24V	0.5	0.35 to 0.40	0.35 to 0.40	0.65	1.4 to 1.5
V4V, V8V	0.7 to 0.9	0.4 to 0.45	0.4 to 0.45	0.80	2 to 2.4
34V, 38V	0.7 to 0.9	0.4 to 0.5	0.4 to 0.5	0.80	2.2 to 2.6
S8V	1 to 1.2	0.5 to 0.75	0.5 to 0.75	1.27	3.2 to 3.8

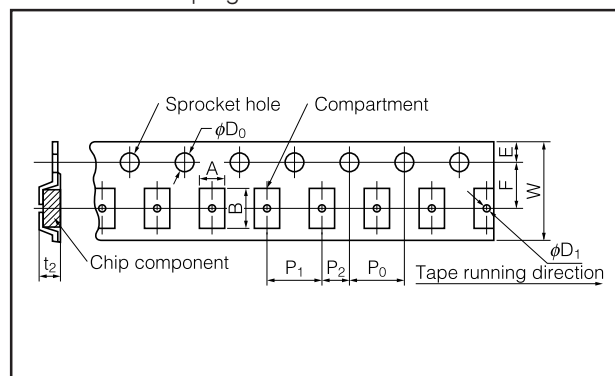
● Punched (Paper) Taping



Dimensions (mm)	Type	A	B	W	F	E
	14V	0.70±0.05	0.90±0.05	8.00±0.20	3.50±0.05	1.75±0.10
	24V	1.20±0.05	1.20±0.05			
	28V		2.20±0.10			
	V4V	1.95±0.15	1.95±0.20			
	34V					
	V8V	2.00±0.15	3.60±0.20			
	38V					
	2HV	1.90±0.15	4.10±0.15			

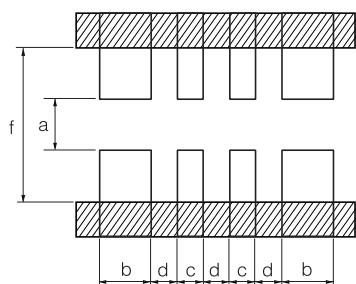
	Type	P ₁	P ₂	P ₀	ϕD ₀	T
Dimensions (mm)	14V	2.00±0.10	2.00±0.05	4.00±0.10	1.50 ^{+0.10} ₀	0.52±0.05
	24V					
	28V					
	V4V	4.00±0.10				0.84±0.05
	34V					0.70±0.05
	V8V					0.84±0.05
	38V					
	2HV					0.70±0.05

● Embossed Taping



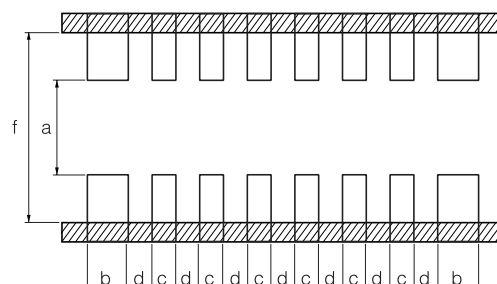
Dimensions (mm)	Type	A	B	W	F	E	P0
S8V		2.80±0.20	5.70±0.20	12.00±0.30	5.50±0.05	1.75±0.10	4.00±0.10

Dimensions (mm)	Type	P1	P2	ϕD0	t2	ϕD1
S8V		4.00±0.10	2.00±0.05	1.50 ^{+0.10} ₀	1.6 max.	1.50 ^{+0.10} ₀



(Not to scale)

Type	Dimensions				Unit (mm)
	a	b	c	d	
28V	0.40	0.525	0.25	0.25	1.40



(Not to scale)

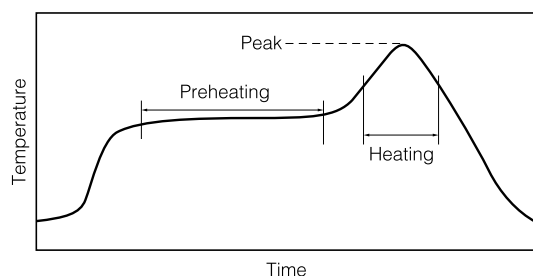
Type	Dimensions				Unit (mm)
	a	b	c	d	
2HV	1.00	0.425	0.25	0.25	2.00

■ Recommended Soldering Conditions

Recommendations and precautions are described below.

● Recommended soldering conditions for reflow

- Reflow soldering shall be two times maximum.
- Please contact us for additional information when you use in conditions other than those specified.
- Please measure a temperature of terminations and study solderability every kind of solder and board, before actual use.



For solder (Example : Sn/Pb)

	Temperature	Time
Preheating	140 °C to 160 °C	60 s to 120 s
Main heating	Above 200 °C	30 s to 40 s
Peak	235 ± 5 °C	max. 10 s

For lead-free solder (Example : Sn/Ag/Cu)

	Temperature	Time
Preheating	150 °C to 180 °C	60 s to 120 s
Main heating	Above 230 °C	30 s to 40 s
Peak	max. 260 °C	max. 10 s

● Flow soldering

- We can not recommended the flow soldering, because we are afraid that solder bridge happen.

⚠ Cautions for Safety

1. Component Placement

- ① Take measure against mechanical stress during and after mounting so as not to damage the termination and protective coating.
- ② Misplacement of components on the land pattern may cause solder bridge problem.
2. If transient load (heavy load in a short time) like pulse is expected to be applied, carry out evaluation and confirmation test with the resistors actually mounted on your own board.
When the load of more than rated power is applied under the load condition at steady state, it may impair performance and/or reliability of resistor. Never exceed the rated power.
3. Chlorine type or other high-activity flux is not recommended as the residue may affect performance or reliability of resistors.
4. When soldering with soldering iron, never touch the body of the chip resistor with a tip of the soldering iron. When using a soldering iron with a tip at high temperature, solder for a time as short as possible (three seconds or less up to 350 °C).
5. Avoid physical shock to the resistor and nipping of the resistor with hard tool (a pair of pliers or tweezers) as it may damage protective film or the body of resistor and may affect resistor's performance.
6. Do not use the product in dewy atmospheres.