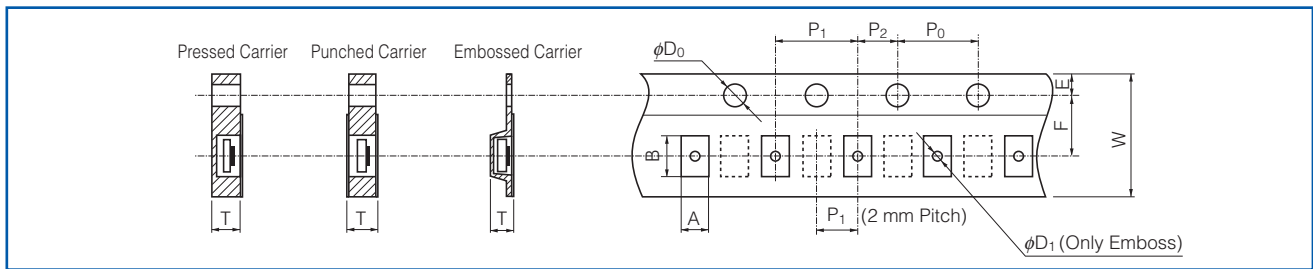


Surface Mount Resistors Series			Packaging (Standard Quantity : pcs./reel)			
Products	Part No.	Size mm (inch)	Pressed Carrier Taping (2 mm pitch)	Punched Carrier Taping (2 mm pitch)	Punched Carrier Taping (4 mm pitch)	Embossed Carrier Taping (4 mm pitch)
Thick Film Chip Resistors	ERJXGN	0402(01005)	20,000 *	—	—	4,000 **
	ERJ1GN	0603(0201)	15,000	—	—	—
	ERJ2GE	1005(0402)	—	10,000, 20,000	—	—
	ERJ3GE	1608(0603)	—	—	5,000	—
	ERJ6GE	2012(0805)	—	—	5,000	—
	ERJ8GE	3216(1206)	—	—	5,000	—
	ERJ14	3225(1210)	—	—	—	5,000
	ERJ12	4532(1812)	—	—	—	5,000
	ERJ12Z	5025(2010)	—	—	—	5,000
	ERJ1T	6432(2512)	—	—	—	4,000
Precision Thick Film Chip Resistors	ERJXGN	0402(01005)	20,000	—	—	—
	ERJ1GN/1RH	0603(0201)	15,000	—	—	—
	ERJ2RH/2RK	1005(0402)	—	10,000	—	—
	ERJ3RB/3RE/3EK	1608(0603)	—	—	5,000	—
	ERJ6RB/6RE/6EN	2012(0805)	—	—	5,000	—
	ERJ8EN	3216(1206)	—	—	5,000	—
	ERJ14N	3225(1210)	—	—	—	5,000
	ERJ12N	4532(1812)	—	—	—	5,000
	ERJ12S	5025(2010)	—	—	—	5,000
ERJ1TN	6432(2512)	—	—	—	4,000	
Metal Film Chip Resistors, High Reliability Type	ERA1A	0603(0201)	15,000	—	—	—
	ERA2A	1005(0402)	—	10,000	—	—
	ERA3A	1608(0603)	—	—	5,000	—
	ERA6A	2012(0805)	—	—	5,000	—
	ERA8A	3216(1206)	—	—	5,000	—
Thick Film Chip Resistors/ Low Resistance Type	ERJ2LW/2BW	1005(0402)	10,000	—	—	—
	ERJ2BS/2BQ	1005(0402)	—	10,000	—	—
	ERJ3L/3B/3R/L03	1608(0603)	—	—	5,000	—
	ERJ6B/6R/L06	2012(0805)	—	—	5,000	—
	ERJ8B/8R/8C/L08	3216(1206)	—	—	5,000	—
	ERJ14B/14R/L14	3225(1210)	—	—	—	5,000
	ERJ12R/L12	4532(1812)	—	—	—	5,000
	ERJ12Z/L1D	5025(2010)	—	—	—	5,000
	ERJ1TR	6432(2512)	—	—	—	4,000
Current Sensing Resistors, Metal Plate Type	ERJ1W	6432(2512)	—	—	—	3,000
	ERJMS4	6432(2512)	—	—	—	2,000
	ERJMS6	6468(2526)	—	—	—	1,000 (8 mm Pitch)
High Power Chip Resistors/ Wide Terminal Type	ERJM1W	6432(2512)	—	—	—	3,000
	ERJA1	3264(1225)	—	—	—	4,000
	ERJB1/ERJC1 ⁽¹⁾	2550(1020)	—	—	—	5,000
	ERJB2	1632(0612)	—	—	5,000	—
	ERJB3	1220(0508)	—	—	5,000	—

* W8P2 : Width 8 mm, Pitch 2 mm, ** W4P1 : Width 4 mm, Pitch 1 mm
 (1) Anti-Sulfurated High Power Chip Resistors / Wide Terminal Type

Surface Mount Resistors Series			Packaging (Standard Quantity : pcs./reel)			
Products	Part No.	Size mm (inch)	Pressed Carrier Taping (2 mm pitch)	Punched Carrier Taping (2 mm pitch)	Punched Carrier Taping (4 mm pitch)	Embossed Carrier Taping (4 mm pitch)
Anti-Surge Thick Film Chip Resistors	ERJP03/PA3	1608(0603)	—	—	5,000	—
	ERJP06	2012(0805)	—	—	5,000	—
	ERJP08	3216(1206)	—	—	5,000	—
	ERJP14	3225(1210)	—	—	—	5,000
Anti-Pulse Thick Film Chip Resistors	ERJT06	2012(0805)	—	—	5,000	—
	ERJT08	3216(1206)	—	—	5,000	—
	ERJT14	3225(1210)	—	—	—	5,000
Anti-Sulfurated Thick Film Chip Resistors	ERJU01	0603(0201)	15,000	—	—	—
	ERJS02/U02	1005(0402)	—	10,000	—	—
	ERJS03/U03	1608(0603)	—	—	5,000	—
	ERJS06/U06 ERJU6S/U6Q	2012(0805)	—	—	5,000	—
	ERJS08/U08	3216(1206)	—	—	5,000	—
	ERJS14/U14	3225(1210)	—	—	—	5,000
	ERJS12/U12	4532(1812)	—	—	—	5,000
	ERJS1D/U1D ERJS1T/U1T	5025(2010) 6432(2512)	— —	— —	— —	5,000 4,000
Chip Resistor Array	EXB14V	0806(0302)	—	10,000	—	—
	EXB24V	1010(0404)	—	10,000	—	—
	EXB34V	1616(0606)	—	—	5,000	—
	EXBV4V	1616(0606)	—	—	5,000	—
	EXB18V	1406(0502)	—	10,000	—	—
	EXB28V	2010(0804)	—	10,000	—	—
	EXBN8V	2010(0804)	—	10,000	—	—
	EXB38V	3216(1206)	—	—	5,000	—
	EXBV8V	3216(1206)	—	—	5,000	—
	EXBS8V	5022(2009)	—	—	—	2,500
	EXB2HV	3816(1506)	—	—	5,000	—
Metal Film Chip Resistor Array	ERA38V	3216(1206)	—	—	5,000	—
Anti-Sulfurated Chip Resistor Array	EXBU24	1010(0404)	—	10,000	—	—
	EXBU34	1616(0606)	—	—	5,000	—
	EXBU28	2010(0804)	—	10,000	—	—
	EXBU38	3216(1206)	—	—	5,000	—
	EXBU2H	3816(1506)	—	—	5,000	—
Chip Resistor Networks	EXBD	3216(1206)	—	—	5,000	—
	EXBE	4021(1608)	—	—	—	4,000
	EXBA	6431(2512)	—	—	—	4,000
	EXBQ	3816(1506)	—	—	5,000	—
Chip Attenuator	EXB14AT	0806(0302)	—	10,000	—	—
	EXB24AT	1010(0404)	—	10,000	—	—

Carrier Tape



Pressed Carrier Taping (2 mm Pitch)

● Rectangular Type

(Unit : mm)

Part No.	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T
ERJXGN	0402(01005)	0.24 ^{±0.03}	0.45 ^{±0.03}	8.00 ^{±0.20}	3.50 ^{±0.05}	1.75 ^{±0.10}	2.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	0.31 ^{±0.05}
ERJ1GN ERJ1R□ ERJU01 ERA1A	0603 (0201)	0.38 ^{±0.05}	0.68 ^{±0.05}								0.42 ^{±0.05}
ERJ2LW	1005(0402)	0.68 ^{±0.10}	1.20 ^{±0.10}								0.60 ^{±0.05}
ERJ2BW	1005(0402)	0.67 ^{±0.10}	1.17 ^{±0.10}								0.61 ^{±0.05}

Punched Carrier Taping (2 mm Pitch)

● Rectangular Type

(Unit : mm)

Part No.	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T
ERJ2□ ERJS02 ERJU02 ERA2A	1005 (0402)	0.67 ^{±0.05}	1.17 ^{±0.05}	8.00 ^{±0.20}	3.50 ^{±0.05}	1.75 ^{±0.10}	2.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	0.52 ^{±0.05}

● Chip Resistor Array / Anti-Sulfurated Chip Resistor Array / Chip Attenuator

(Unit : mm)

Part No.	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T
EXB14V EXB14AT	0806 (0302)	0.70 ^{+0.10} _{-0.05}	0.95 ^{+0.05} _{-0.10}	8.00 ^{±0.20}	3.50 ^{±0.05}	1.75 ^{±0.10}	2.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	0.52 ^{±0.05}
EXB18V	1406(0502)		1.60 ^{±0.10}								
EXB24V EXBU24 EXB24AT	1010 (0404)	1.20 ^{±0.10}	1.20 ^{±0.10}								
EXB28V EXBU28 EXBN8V	2010 (0804)		2.20 ^{±0.10}								

Punched Carrier Taping (4 mm Pitch)

● Rectangular Type

(Unit : mm)

Part No.	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T
ERJ3□ ERJ3LW(10 mΩ) ERJ3BW ERJ□□3 ERA3A	1608 (0603)	1.10 ^{±0.10}	1.90 ^{±0.10}	8.00 ^{±0.20}	3.50 ^{±0.05}	1.75 ^{±0.10}	4.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	0.70 ^{±0.05}
ERJ3LW(5 mΩ)											
ERJ6□ ERJ□06 ERJU6S, U6Q ERA6A	2012 (0805)	1.65 ^{±0.15}	2.50 ^{±0.20}								0.84 ^{±0.05}
ERJB3	1220(0508)										
ERJ6BW	2012(0805)	1.55 ^{±0.15}	2.30 ^{±0.20}								
ERJ8□ ERJ8□W ERJ□08 ERA8A	3216 (1206)	2.00 ^{±0.15}	3.60 ^{±0.20}								
ERJB2	1632(0612)										

Panasonic Surface Mount Resistors Packaging Method (Taping)

● Chip Resistor Array / Metal Film Chip Resistor Array / Anti-Sulfurated Chip Resistor Array / Chip Resistor Networks (Unit : mm)

Part No.	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T
EXB34V EXBU34	1616(0606)	1.95 ^{±0.15}	1.95 ^{±0.20}	8.00 ^{±0.20}	3.50 ^{±0.05}	1.75 ^{±0.10}	4.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	0.70 ^{±0.05}
EXB38V ERA38V EXBU38	3216(1206)		3.60 ^{±0.20}								
EXB2HV EXBU2H	3816(1506)		4.10 ^{±0.15}								
EXBV4V	1616(0606)		1.95 ^{±0.20}								
EXBV8V	3216(1206)		3.60 ^{±0.20}								
EXBD	3216(1206)	2.00 ^{±0.20}	3.60 ^{±0.20}								0.84 ^{±0.10}
EXBQ	3816(1506)	1.90 ^{±0.20}	4.10 ^{±0.20}								0.64 ^{±0.05}

Embossed Carrier Taping (1 mm Pitch)

● Rectangular Type (Unit : mm)

Part No.	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T
ERJXGN	0402(01005)	0.25 ^{±0.05}	0.45 ^{±0.05}	4.00 ^{±0.20}	1.80 ^{±0.05}	0.90 ^{±0.10}	1.00 ^{±0.10}	1.00 ^{±0.10}	2.00 ^{±0.10}	0.80 ^{±0.10}	0.5 max.

Embossed Carrier Taping (4 mm Pitch)

● Rectangular Type (Unit : mm)

Part No.	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T	φD ₁	
ERJ14□ ERJ□14	3225 (1210)	2.80 ^{±0.20}	3.50 ^{±0.20}	8.00 ^{±0.30}	3.50 ^{±0.05}	1.75 ^{±0.10}	4.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	1.00 ^{±0.10}	1.00 ^{±0.10}	
ERJ12□ ERJ□12	4532 (1812)	3.50 ^{±0.20}	4.80 ^{±0.20}	12.00 ^{±0.30}	5.50 ^{±0.20}								
ERJ12Z ERJ12S ERJ□1D	5025 (2010)	2.80 ^{±0.20}	5.30 ^{±0.20}										
ERJB1 ERJC1	2550 (1020)	3.60 ^{±0.20}	6.90 ^{±0.20}	3.50 ^{±0.20}	6.80 ^{±0.20}								
ERJ1T□ ERJ□1T	6432 (2512)												1.60 ^{±0.10}
ERJL1W ERJM1W ERJMS4													
ERJA1	3264(1225)												

● Chip Resistor Array / Chip Resistor Networks (Unit : mm)

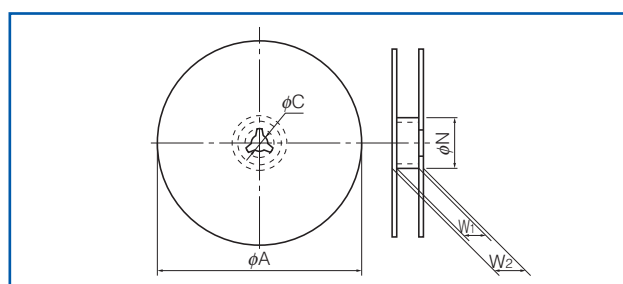
Part No.	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T	φD ₁
EXBS8V	5022(2029)	2.80 ^{±0.20}	5.70 ^{±0.20}	12.00 ^{±0.30}	5.50 ^{±0.20}	1.75 ^{±0.10}	4.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	1.6 max.	1.5 min.
EXBE	4021(1608)	2.50 ^{±0.20}	4.40 ^{±0.20}								1.10 ^{±0.20}	
EXBA	6431(2512)	3.50 ^{±0.20}	6.80 ^{±0.20}									

Embossed Carrier Taping (8 mm Pitch)

● Rectangular Type (Unit : mm)

Part No.	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T	φD ₁
ERJMS6	6468(2526)	6.90 ^{±0.20}	7.50 ^{±0.20}	12.00 ^{±0.30}	5.50 ^{±0.05}	1.75 ^{±0.10}	8.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	2.10 ^{±0.10}	1.5 min.

Taping Reel

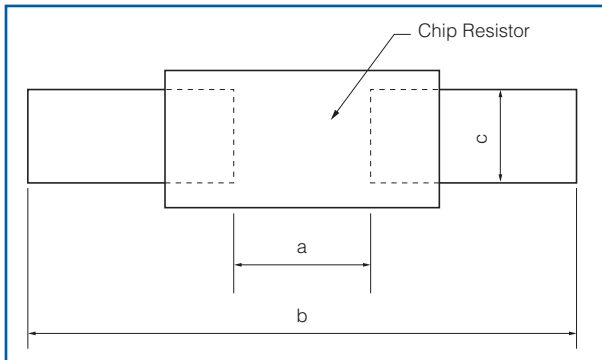


(Unit : mm)

Tape Width (W)	φA	φN	φC	W ₁	W ₂
4mm Width	180.0 ^{±3.0}	60.0 ^{+1.0} ₀	13.0 ^{±0.2}	4.5 ^{±0.5}	7.0 ^{±0.5}
8mm Width	180.0 ^{+0.0} _{-1.5}			9.0 ^{+1.0} ₀	11.4 ^{±1.0}
12mm Width				13.0 ^{+1.0} ₀	15.4 ^{±1.0}
24mm Width				380.0 ^{±2.0}	80.0 ^{±1.0}

Recommended Land Pattern

- An example of a land pattern for the Rectangular Type is shown below.



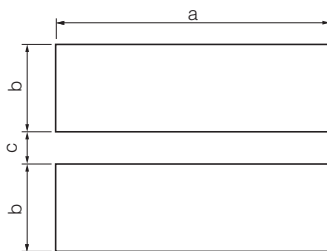
Size mm/inch	Dimensions (mm)		
	a	b	c
0402/01005	0.15 to 0.20	0.5 to 0.7	0.20 to 0.25
0603/0201	0.3 to 0.4	0.8 to 0.9	0.25 to 0.35
1005/0402	0.5 to 0.6	1.4 to 1.6	0.4 to 0.6
1608/0603	0.7 to 0.9	2.0 to 2.2	0.8 to 1.0
2012/0805	1.0 to 1.4	3.2 to 3.8	0.9 to 1.4
3216/1206	2.0 to 2.4	4.4 to 5.0	1.2 to 1.8
3225/1210	2.0 to 2.4	4.4 to 5.0	1.8 to 2.8
4532/1812	3.3 to 3.7	5.7 to 6.5	2.3 to 3.5
5025/2010	3.6 to 4.0	6.2 to 7.0	1.8 to 2.8
6432/2512	5.0 to 5.4	7.6 to 8.6	2.3 to 3.5
6432/2512*	3.6 to 4.0	7.6 to 8.6	2.3 to 3.5

High power (double-sided resistive elements structure) type

Part No.	Size mm/inch	Dimensions (mm)		
		a	b	c
ERJ2LW/2BW	1005/0402	0.52	1.4 to 1.6	0.4 to 0.6
ERJ3LW/3BW	1608/0603	0.5 to 0.8	2.5 to 2.7	0.9 to 1.1
ERJ6BW	2012/0805	0.9	3.2 to 3.8	1.1 to 1.4
ERJ8BW				
ERJ8CW (10 to 16 mΩ)	3216/1206	1.2	4.4 to 5.0	1.3 to 1.8
ERJ8CW (18 to 50 mΩ)	3216/1206	2.0 to 2.6	4.4 to 5.0	1.2 to 1.8

* ERJL1W

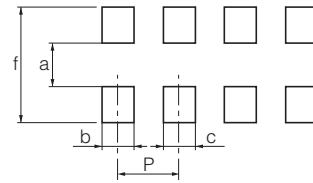
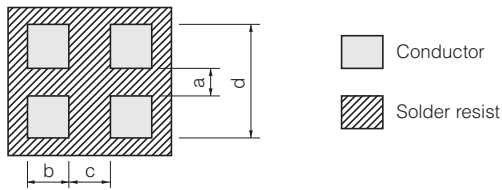
- An example of a land pattern for High Power Chip Resistors / Wide Terminal Type is shown below.



Part No.	Dimensions (mm)		
	a	b	c
ERJA1	6.4	1.70	0.60
ERJB1 ERJC1 ⁽¹⁾	5.0	1.30	0.75
ERJB2	3.2	0.95	0.70
ERJB3	2.0	0.80	0.60

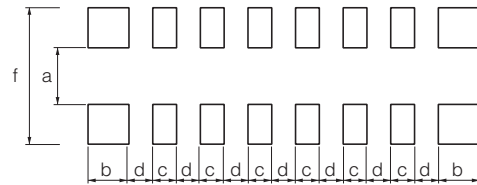
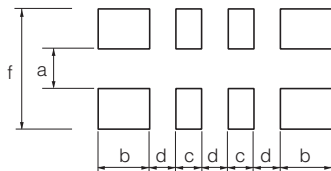
(1) Anti-Sulfurated High Power Chip Resistors / Wide Terminal Type

● An example of a land pattern for Chip Resistor Array, Metal Film Chip Resistor Array, Anti-Sulfurated Chip Resistor Array and Chip Attenuator is shown below.



Part No.	Dimensions (mm)			
	a	b	c	d
EXB14V EXB14A	0.30	0.30	0.30	0.80 to 0.90
EXB24V EXBU24 EXB24A	0.5	0.35 to 0.40	0.30	1.4 to 1.5

Part No.	Dimensions (mm)				
	a	b	c	f	P
EXB18V	0.20 to 0.30	0.15 to 0.20	0.15 to 0.20	0.80 to 0.90	0.40
EXBV4V,V8V	0.7 to 0.9	0.4 to 0.45	0.4 to 0.45	2 to 2.4	0.80
EXB34V,38V EXBU34,U38 ERA38V	0.7 to 0.9	0.4 to 0.5	0.4 to 0.5	2.2 to 2.6	0.80
EXBS8V	1 to 1.2	0.5 to 0.75	0.5 to 0.75	3.2 to 3.8	1.27



Part No.	Dimensions (mm)				
	a	b	c	d	f
EXB28V EXBU28	0.40	0.525	0.25	0.25	1.40
EXBN8V	0.45 to 0.50	0.35 to 0.38	0.25	0.25	1.40 to 2.00

Part No.	Dimensions (mm)				
	a	b	c	d	f
EXB2HV EXBU2H	1.00	0.425	0.25	0.25	2.00

● An example of a land pattern for Chip Resistor Networks is shown below.

	EXBA	EXBE
For popular pattern	Pitch 1.27 mm 	Pitch 0.8 mm
For high density pattern*	Pitch 0.635 mm Through-hole less EXBA10P EXBA10E 	Pitch 0.4 mm Through-hole less
	EXBD	EXBQ
For popular pattern	Pitch 0.635 mm 	Pitch 0.5 mm

* When designing high density land patterns, examine the reliability of isolation among the lines and adopt the chip resistor networks.

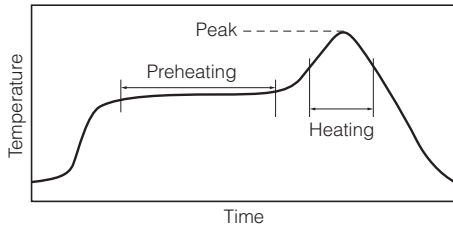
Recommended Soldering Conditions

Recommendations and precautions are described below.

● Rectangular Type

● Recommended soldering conditions for reflow

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



For soldering (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 soldering (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

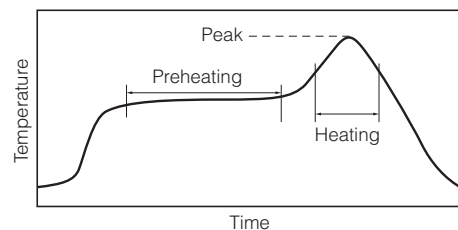
● Recommended soldering conditions for flow

	For soldering		For lead-free soldering	
	Temperature	Time	Temperature	Time
Preheating	140 °C to 180 °C	60 s to 120 s	150 °C to 180 °C	60 s to 120 s
Soldering	245 ± 5 °C	20 s to 30 s	max. 260 °C	max. 10 s

● Chip Resistor Array, Chip Resistor Networks and Chip Attenuator

● Recommended soldering conditions for reflow

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



For soldering (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 soldering (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 do not recommend flow soldering, because a solder bridge may form. Please contact us regarding flow soldering of EXBA series.