

Chip Bead Cores

Type: **EXCCL**
EXCML
EXC3B



■ Features

- Effective noise suppression for Power line and high speed signal line.
- Easy pattern layout on PC Board without jointing the ground pattern.
- Available for flow soldering and re-flow soldering.

Type: EXCCL, EXCML

- Low DC Resistance 3 to 8 mil ohm typical: Rated current 3, 4 ampere for Power line (type EXCML)
- Low impedance: the wave-form correction for high speed signal line noise

Type: EXC3B

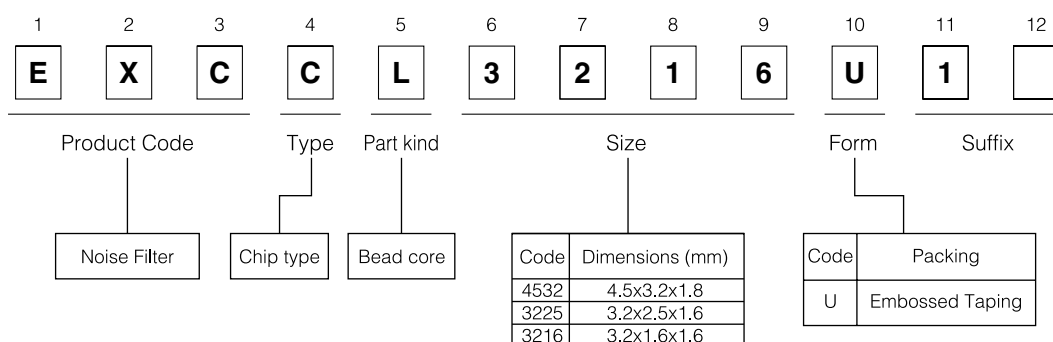
- High impedance for high speed signal line noise
- To increase attenuation by raising the R component steeply from around 50 MHz.
- 60Ω-1A, 120Ω-0.5A are achieved by 1608 size. (type: EXC3BP)

■ Recommended Applications

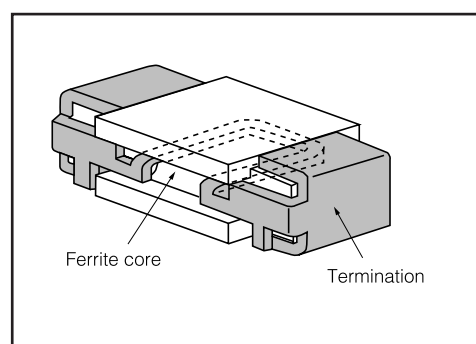
- Digital equipment such as Personal Computers, Word Processors, Printer, HDD, PCC, CD-ROM, DVD-ROM
- Digital Audio and Video equipment such as VCR, DVC, CD Player, DVD Player.
- Power supply equipment such as AC adapter, and Switching Power Supply
- Electronic automotive equipment such as Engine controls, Panels and Audio systems.
- Electric musical instrument, and other digital devices
- Above equipment of Power line and High speed signal line.

■ Type: EXCCL

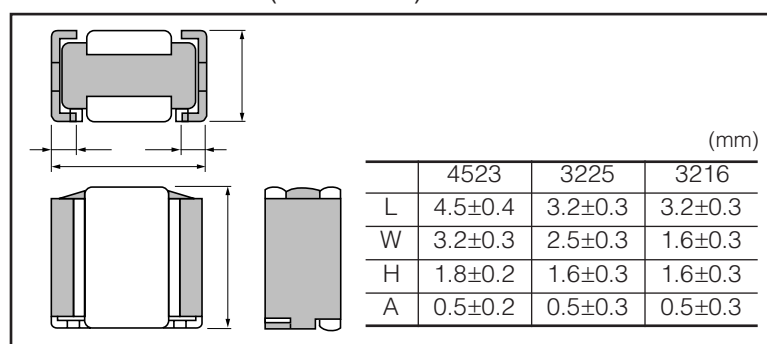
● Explanation of Part Numbers



■ Construction

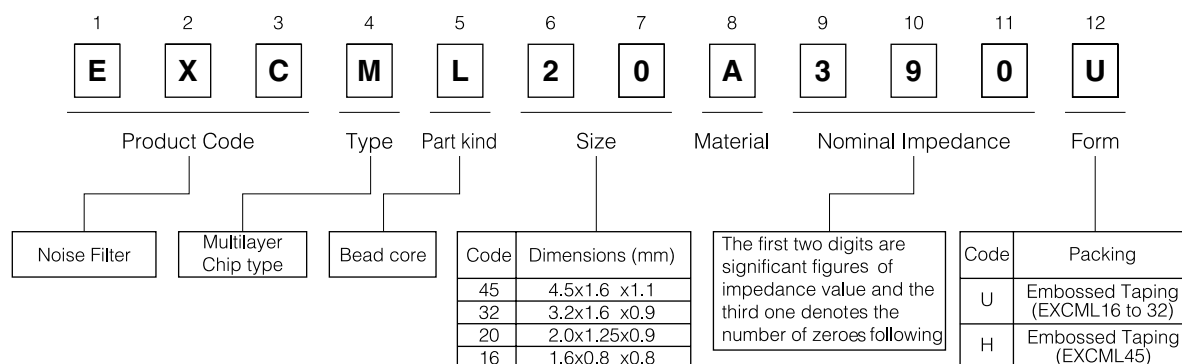


■ Dimensions in mm (not to scale)

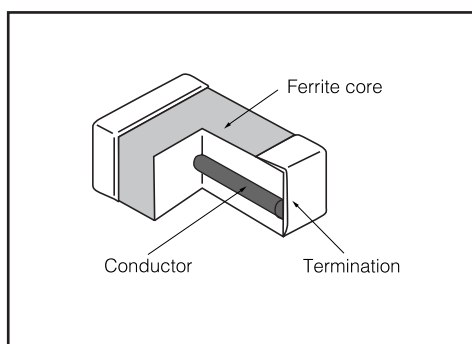


■ Type: EXCML

● Explanation of Part Numbers



■ Construction

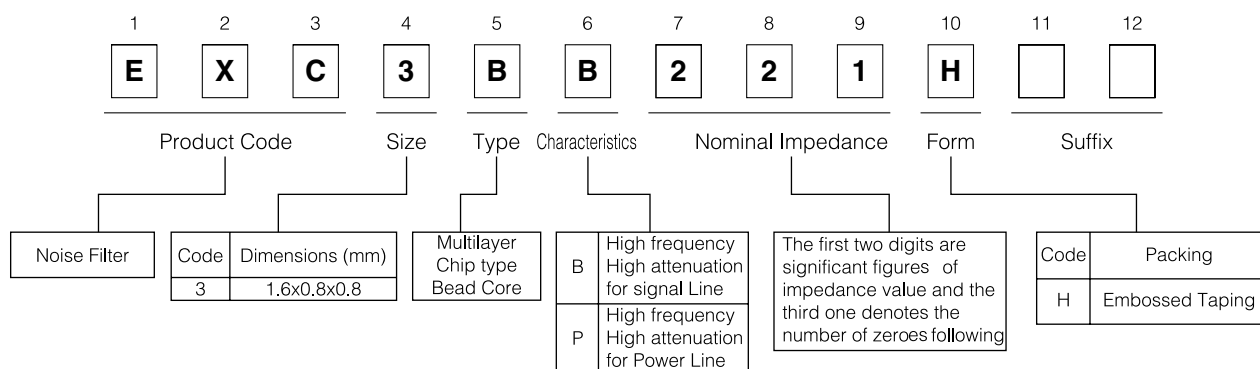


■ Dimensions in mm (not to scale)

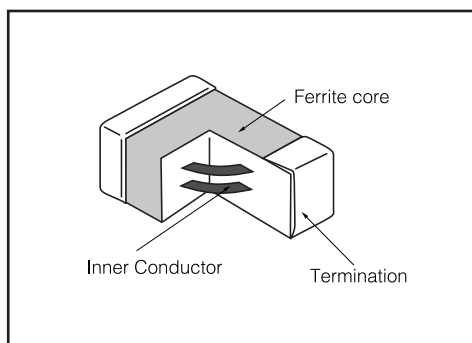
Type	L	W	T	e
EXCML16	1.6±0.2	0.8±0.2	0.8±0.2	(0.4)
EXCML20	2.0±0.2	1.25±0.20	0.9±0.2	(0.5)
EXCML32	3.2±0.3	1.6±0.3	0.9±0.2	(0.6)
EXCML45	4.5±0.3	1.6±0.3	1.1±0.2	(0.6)

■ Type: EXC3B

● Explanation of Part Numbers



■ Construction



■ Dimensions in mm (not to scale)

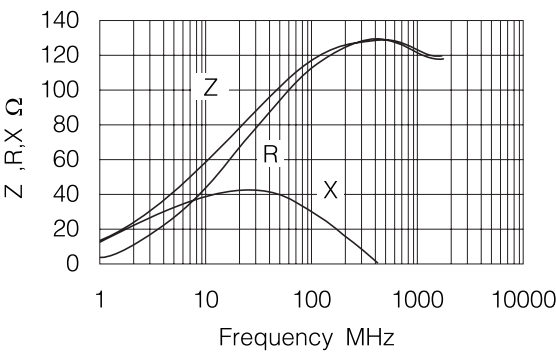
Type	L	W	T	e
EXC3BB	1.6±0.2	0.8±0.2	0.8±0.2	0.30±0.15
EXC3BP	1.6±0.2	0.8±0.2	0.8±0.2	0.30±0.15

■ Ratings

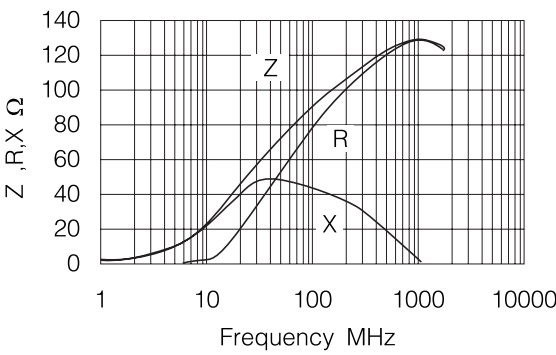
Type	Part Number	Impedance		Rated Current (mA DC)	DC Resistance (Ω) Max.
		(Ω) at 100 MHz	tol.(%)		
4532	EXCCL4532U1	115	±25	2000	0.1
3225	EXCCL3225U1	45		2000	0.05
3216	EXCCL3216U1	25		2000	0.05
4516	EXCML45A910H	91		3000	0.016
3216	EXCML32A680U	68		3000	0.012
2012	EXCML20A390U	39		4000	0.008
1608	EXCML16A270U	27		4000	0.006
1608	EXC3BP600H	60		1000	0.07
	EXC3BP121H	120		500	0.1
	EXC3BB221H	220		200	0.3
	EXC3BB601H	600		100	0.8
	EXC3BB102H	1000		50	1

■ Impedance Characteristics (Reference Data) Measured by HP4291A
|Z| : Impedance R : Resistance X : Reactance

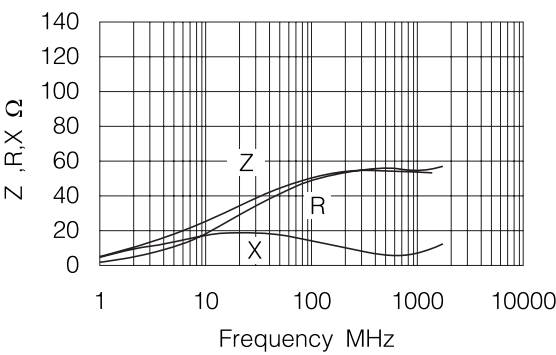
EXCCL4532U1 4532



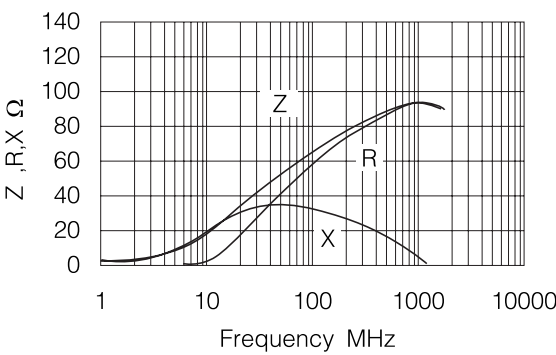
EXCML45A910 4516



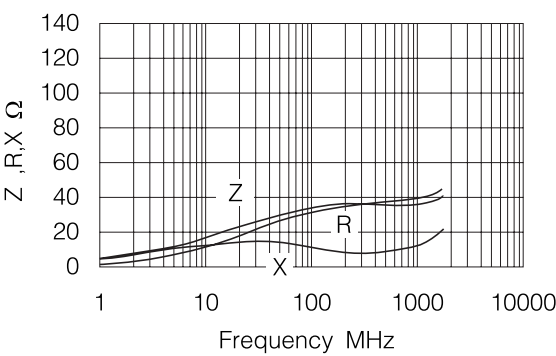
EXCCL3225U1 3225



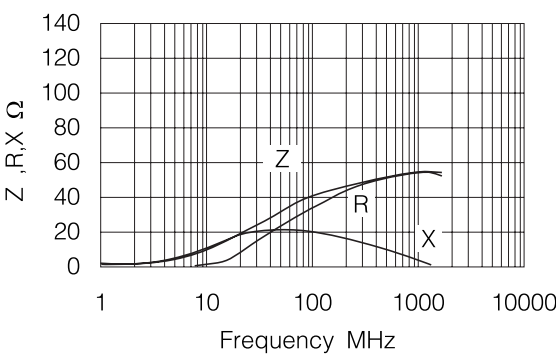
EXCML32A680 3216



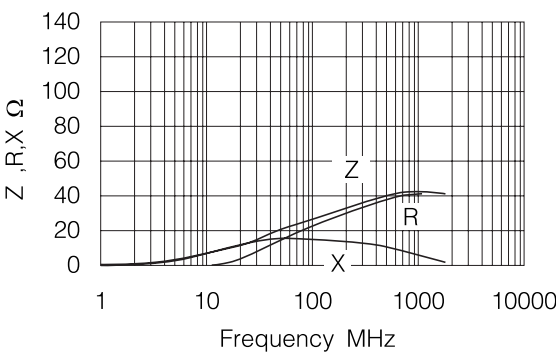
EXCCL3216U1 3216



EXCML20A390 2012



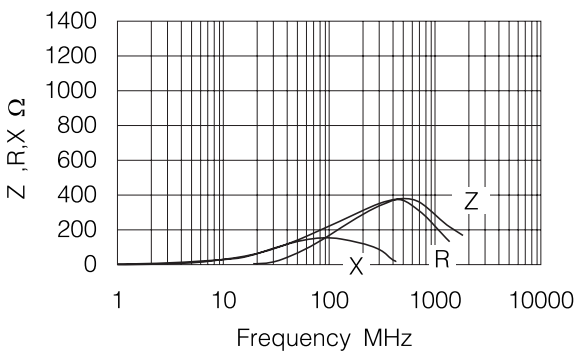
EXCML16A270 1608



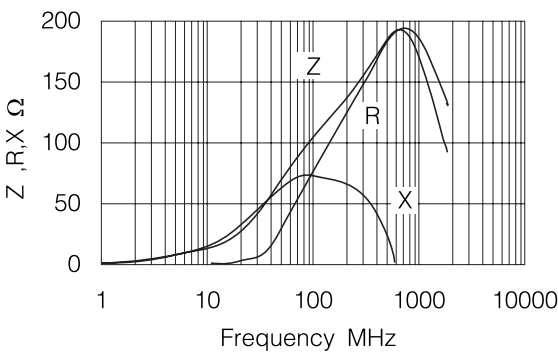
Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.

■ Impedance Characteristics (Reference Data) Measured by HP4291A
|Z| : Impedance R : Resistance X : Reactance

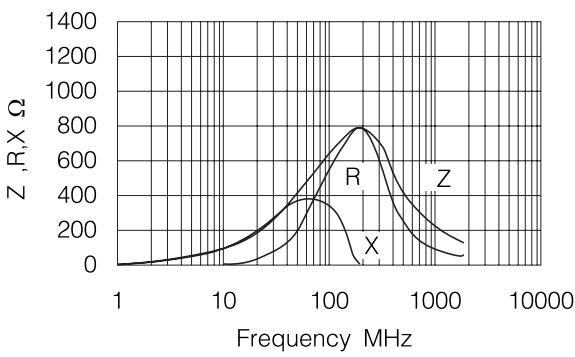
EXC3BB221 1608



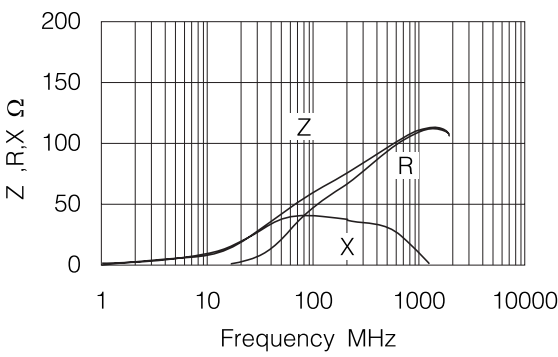
EXC3BP121 1608



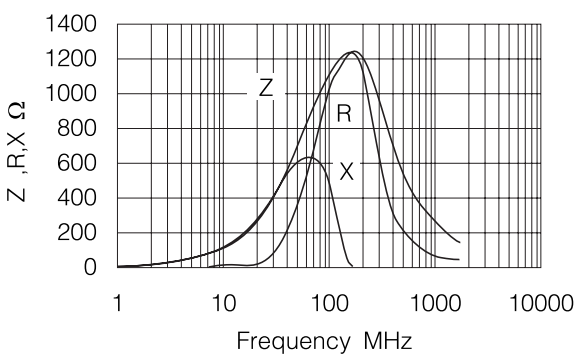
EXC3BB601 1608



EXC3BP600 1608

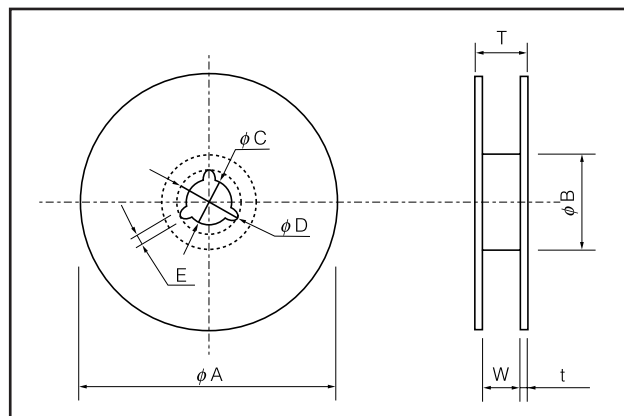


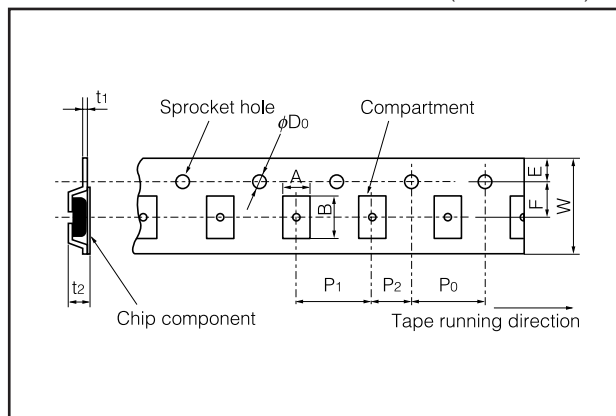
EXC3BB102 1608



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Part Number	Embossed Taping	Weight (mg/pcs.) Reference Data
EXCCL4532U1	1000 pcs./reel	125.8
EXCCL3225U1	2000 pcs./reel	60.5
EXCCL3216U1	2000 pcs./reel	37
EXCML45A910H	3000 pcs./reel	36.0
EXCML32A680U	3000 pcs./reel	21.5
EXCML20A390U	4000 pcs./reel	10.5
EXCML16A270U	4000 pcs./reel	4.5
EXC3B□□□□H	4000 pcs./reel	4.5





Part Number	φA	φB	φC	φD	E	W	T	t
EXCCL4532U1	180.0 ⁰ _{-3.0}	60.0±1.0	13.0±0.5	21.0±0.8	2.0±0.5	13.0 ^{+0.5} _{-1.0}	16.5 max.	1.2±0.5
EXCCL3225U1						9.5 ^{+0.5} _{-1.0}	13 max.	
EXCCL3216U1						13.0 ^{+0.5} _{-1.0}	16.5 max.	
EXCML45A910H						13.0 ^{+0.5} _{-1.0}	16.5 max.	
EXCML32A680U						9.5 ^{+0.5} _{-1.0}	13 max.	
EXCML20A390U						9.5 ^{+0.5} _{-1.0}	13 max.	
EXCML16A270U						9.5 ^{+0.5} _{-1.0}	13 max.	
EXC3B□□□□H						9.5 ^{+0.5} _{-1.0}	13 max.	

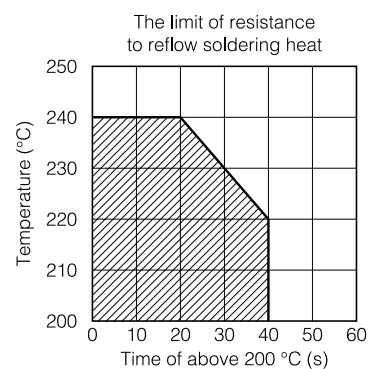
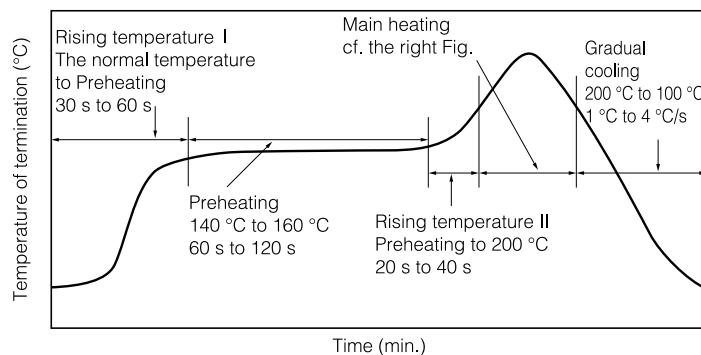
Part Number	A	B	W	F	E	P ₁	P ₂	P ₀	ϕD ₀	t ₁	t ₂				
EXCCL4532U1	3.6±0.2	4.9±0.2	12.0±0.2	5.5±0.1	1.75±0.10	8.0±0.1					2.4 max.				
EXCCL3225U1	2.9±0.2	3.6±0.2	8.0±0.2	3.5±0.1							2.0±0.1	4.0±0.1	1.5±0.1	0.20±0.05	2.1 max.
EXCCL3216U1	2.0±0.2	3.6±0.2													1.8 max.
EXCML45A910H	1.9±0.2	4.8±0.2	12.0±0.2	5.5±0.1		4.0±0.1	2.0±0.1	4.0±0.1	1.5±0.1	0.20±0.05	1.8 max.				
EXCML32A680U	1.9±0.2	3.5±0.2	8.0±0.2	3.5±0.1							1.6 max.				
EXCML20A390U	1.5±0.2	2.3±0.2													
EXCML16A270U	1.1±0.2	2.1±0.2													
EXC3B□□□□H	1.0±0.1	1.8±0.1									0.25±0.05				

■ Soldering Conditions

Precautions and recommendations are described below.

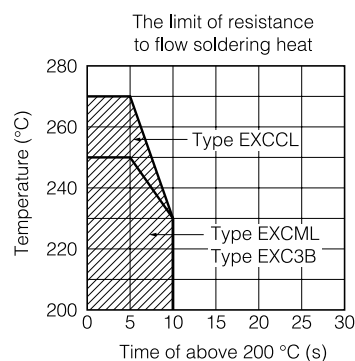
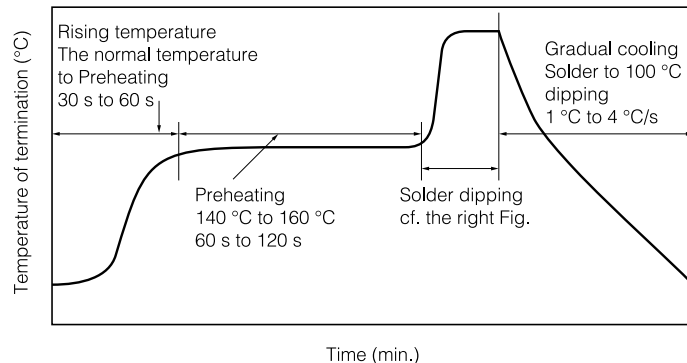
- Please inquire with us when different conditions are used.
- Please measure a temperature of terminations and study the solderability of every type of board, before actual use.

<Recommended reflow soldering temperature>



* Reflow soldering shall be within two times

<Recommended flow soldering temperature>

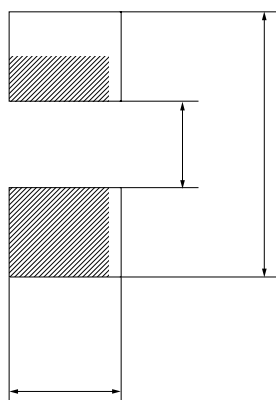


<Repair with hand soldering>

- Use a soldering iron with tip temperature 350 °C or less. Solder for 3 seconds or less for each termination.

■ Recommended Land Pattern Dimensions in mm (not to scale)

(mm)



Part Number	Flow/Reflow	A	B	C
EXCCL4532U1	Flow, Reflow	3	5.4	2.8
EXCCL3225U1		1.7	4.1	2.1
EXCCL3216U1		1.7	4.1	1.2
EXCML45A910H		2.6 to 3	5.5 to 6.5	1.2 to 1.6
EXCML32A680U		1.6 to 2	4 to 5	1.2 to 1.6
EXCML20A390U		0.8 to 1.2	3 to 4	1 to 1.2
EXCML16A270U		0.6 to 1	2 to 3	0.8 to 1
EXC3B	Flow	0.8 to 1	2.4 to 3	0.6 to 0.8
	Reflow	0.8 to 1	2 to 2.6	0.8 to 1

⚠ Safety Precautions

1. Flux: Use rosin or non-halogen type flux.
2. Cleaning agent: Use alcohol type. Inquire for other type of cleaning agent.
3. Excessive mechanical stress may damage the components. Take care in handling.
4. Store at temperature of -5°C to $+40^{\circ}\text{C}$ and relative humidity 40 % to 60 %. Avoid rapid changes of temperature and humidity.
5. Use the components within one year after date of inspection for shipment.
6. This catalog shows the quality and performance of a unit component. For quality assurance, exchange the delivery specification with us. Before adoption, be sure to evaluate and verify the product by mounting it in your product.