

F6 SERIES (L2 Type) ASSP

PIEZOELECTRIC SAW BPF

DESCRIPTION

The F6 series are wideband bandpass filters for use in the 1000 MHz to 2500 MHz range.

The F6 series uses a single lithium tantalate piezoelectric crystal (LiTaO₃) that has large electromechanical coupling coefficient. This provides wide bandwidths and exceptional stability.

Our exclusive mounting technology makes the F6 series very compact and surface mountable.

Insertion loss is much lower than other filters and impedance is realized at 50 Ω in passband.

L2 type can be handled without outside matching circuit.

The F6 series is most suitable for use in handheld phones for digital systems.

FEATURES

- Ultra compact and light (0.02 cc, 0.1 g)
- Outside matching circuit is unnecessary.
- Surface mount package (SMT)
- Low insertion loss
- High power rating : 0.2 W guaranteed for F6CC Series
0.1 W guaranteed for F6CE Series

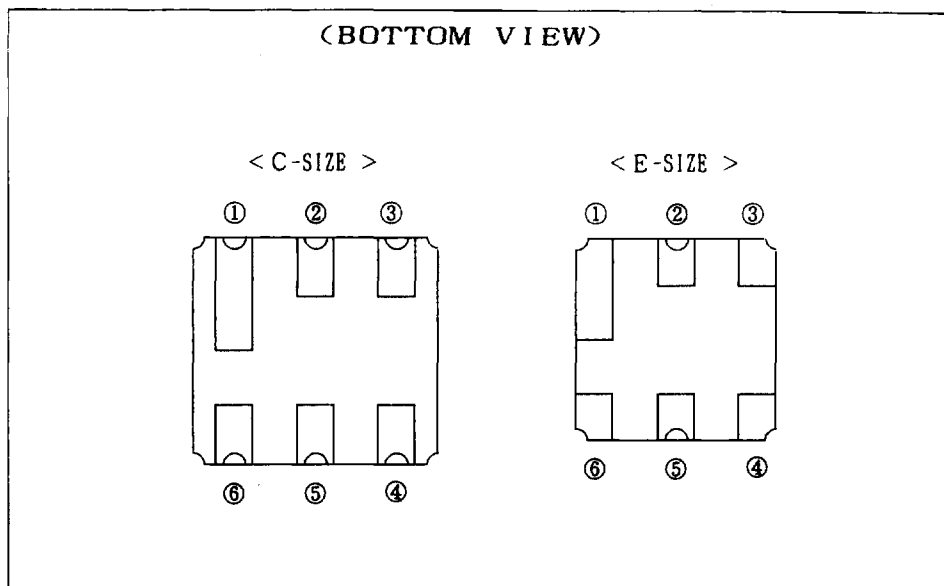
7

PACKAGE



F 6 SERIES (L 2)

PIN ASSIGNMENT



7

DESCRIPTION

Pin No.	Pin name	Description
1	GND	Ground Pin
2	IN	Input Pin
3	GND	Ground Pin
4	GND	Ground Pin
5	OUT	Output Pin
6	GND	Ground Pin

F 6 SERIES (L 2)

MAXIMUM RATINGS

Item	Symbol	Rating	Unit
Operating temperature	T _a	-30 ~ 85	°C
Storage temperature	T _{stg}	-40 ~ 100	°C
Frequency range		1000 ~ 2500	MHz
Maximum input level	P _{IN}	Refer to electrical characteristics	mW

Recommended Operating Conditions

Item	Symbol	Rating	Unit
Operating temperature	T _a	-30 ~ 85*	°C

*Standard Rating for Wireless LAN is 0 ~ 60 °C

STANDARD FREQUENCIES

Center freq. (MHz)	BW (MHz)	System	Part Symbol	Part number	Package Size
1441.0	24	PDC1.5G (Tx)	ZA	FAR-F6CC-1G4410-L2ZA	C
1489.0	24	PDC1.5G (Rx)	ZB	FAR-F6CC-1G4890-L2ZB	C
1619.0	24	PDC1.5G (Lo)	ZN	FAR-F6CC-1G6190-L2ZN	C
1747.5	75	DCS1800 (Tx)	A	FAR-F6CE-1G7475-L2YA	E
1842.5	75	DCS1800 (Rx)	B	FAR-F6CE-1G8425-L2YB	E
1880.0	60	PCS (Tx)	C	FAR-F6CE-1G8800-L2XA	E
1960.0	60	PCS (Rx)	D	FAR-F6CE-1G9600-L2XB	E
2450.0	100	Wireless LAN	E	FAR-F6CE-2G4500-L2WA	E

F 6 S E R I E S (L 2 T y p e)

■ ELECTRICAL CHARACTERISTICS (STANDARD VERSION)

1. PDC1.5G system (Tx)

Part number : FAR-F6CC-1G4410-L2ZA

T_a = -30 ~ 85 °C

Item	Symbol	Condition	Rating			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	I L	1429 ~1453 MHz	—	2.5	3.5	dB	
In-band ripple		1429 ~1453 MHz	—	1.0	1.8	dB	
Absolute stopband attenuation		DC ~1200 MHz	20	26	—	dB	
		1200 ~1260 MHz	25	30	—	dB	
		1260 ~1287 MHz	30	34	—	dB	
		1287 ~1380 MHz	25	29	—	dB	
		1477 ~1513 MHz	10	14	—	dB	
		1513 ~1607 MHz	33	39	—	dB	
		1607 ~1631 MHz	35	39	—	dB	
		1631 ~1900 MHz	30	38	—	dB	
		1900 ~2906 MHz	18	20	—	dB	
In-band VSWR		1429 ~1453 MHz	—	1.3	2.0	—	
Max. input power	P _{IN}	1429 ~1453 MHz	—	—	200	mW	

F 6 S E R I E S (L 2 T y p e)

ELECTRICAL CHARACTERISTICS (STANDARD VERSION)

2. PDC 1.5 G system (R x)

Part number : F A R - F 6 C C - 1 G 4 8 9 0 - L 2 Z B

T_a = - 3 0 ~ 8 5 °C

Item	Symbol	Condition	Rating			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	I L	1477 ~1501 MHz	—	2.9	3.2	dB	
In-band ripple		1477 ~1501 MHz	—	1.2	1.7	dB	
Absolute stopband attenuation		DC ~ 130 MHz	30	38	—	dB	
		130 ~ 958 MHz	20	26	—	dB	
		958 ~1216 MHz	25	27	—	dB	
		1216 ~1241 MHz	30	32	—	dB	
		1241 ~1429 MHz	26	28	—	dB	
		1429 ~1453 MHz	10	17	—	dB	
		1542 ~1566 MHz	20	40	—	dB	
		1566 ~1607 MHz	30	40	—	dB	
		1607 ~1631 MHz	35	40	—	dB	
		1631 ~1737 MHz	30	40	—	dB	
		1737 ~1761 MHz	35	40	—	dB	
		1761 ~1900 MHz	30	37	—	dB	
		1900 ~3000 MHz	15	20	—	dB	
In-band VSWR		1477 ~1501 MHz	—	1.4	2.0	—	
Max. input power	P _{IN}	1477 ~1501 MHz	—	—	200	mW	

F 6 S E R I E S (L 2 T y p e)

■ ELECTRICAL CHARACTERISTICS (STANDARD VERSION)

3. PDC 1.5 G system (L o)

Part number : FAR-F 6 C C - 1 G 6 1 9 0 - L 2 Z N

T_a = - 3 0 ~ 8 5 °C

Item	Symbol	Condition	Rating			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	I L	1607 ~1631 MHz	—	3.0	4.0	dB	
In-band deviation		1607 ~1631 MHz	—	1.5	2.0	dB	
Absolute stopband attenuation		DC ~ 130 MHz	30	38	—	dB	
		130 ~1501 MHz	25	28	—	dB	
		1737 ~1809 MHz	30	35	—	dB	
		1809 ~2500 MHz	20	29	—	dB	
		3214 MHz	15	25	—	dB	
In-band VSWR		1607 ~1631 MHz	—	1.6	2.0	—	
Max. input power	P _{IN}	1607 ~1631 MHz	—	—	200	mW	

F 6 S E R I E S (L 2 T y p e)

ELECTRICAL CHARACTERISTICS (STANDARD VERSION)

4. DCS 1800 system (Tx)

Preliminary

Part number : FAR-F6CE-1G7475-L2YA

T_a = -30 ~ 55 °C

Item	Symbol	Condition	Rating			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	I L	1710 ~1785 MHz	—	3.5	4.5	dB	
In-band ripple		1710 ~1785 MHz	—	2.0	3.0	dB	
Absolute stopband attenuation		DC ~1500 MHz	15	17	—	dB	
		1500 ~1670 MHz	20	22	—	dB	
		1805 ~1880 MHz	5	10	—	dB	
		1880 ~2200 MHz	22	24	—	dB	
		3420 ~3570 MHz	25	27	—	dB	
		5130 ~5355 MHz	10	20	—	dB	
In-band VSWR		1710 ~1785 MHz	—	2.0	3.0	—	
Max. input power	P _{IN}	1710 ~1785 MHz	—	—	100	mW	

5. DCS 1800 system (Rx)

Preliminary

Part number : FAR-F6CE-1G8425-L2YB

T_a = -30 ~ 55 °C

Item	Symbol	Condition	Rating			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	I L	1805 ~1880 MHz	—	3.9	4.8	dB	
In-band ripple		1805 ~1880 MHz	—	2.0	2.5	dB	
Absolute stopband attenuation		DC ~1500 MHz	21	23	—	dB	
		1600 ~1710 MHz	26	28	—	dB	
		1710 ~1785 MHz	8	24	—	dB	
		1920 ~2400 MHz	22	24	—	dB	
		3610 ~3760 MHz	22	25	—	dB	
In-band VSWR		1805 ~1880 MHz	—	2.0	3.0	—	
Max. input power	P _{IN}	1805 ~1880 MHz	—	—	100	mW	

F6 SERIES (L2 Type)

ELECTRICAL CHARACTERISTICS (STANDARD VERSION)

6. PCS system (Tx) Preliminary
 Part number : FAR-F6CE-1G8800-L2XA $T_a = -30 \sim 85^\circ\text{C}$

Item	Symbol	Condition	Rating			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	IL	1850 ~1910 MHz	—	3.5	4.5	dB	
In-band deviation		1850 ~1910 MHz	—	1.5	2.5	dB	
Absolute stopband attenuation		DC ~1500 MHz	22	24	—	dB	
		1500 ~1800 MHz	25	28	—	dB	
		1930 ~1990 MHz	5	8	—	dB	
		3700 ~3820 MHz	20	24	—	dB	
		5550 ~5730 MHz	4	5	—	dB	
In-band VSWR		1850 ~1910 MHz	—	1.8	2.5	—	
Max. input power	P_{IN}	1850 ~1910 MHz	—	—	100	mW	

7. PCS system (Rx) Preliminary
 Part number : FAR-F6CE-1G9600-L2XB $T_a = -30 \sim 85^\circ\text{C}$

Item	Symbol	Condition	Rating			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	IL	1930 ~1990 MHz	—	4.0	4.8	dB	
In-band deviation		1930 ~1990 MHz	—	2.0	2.8	dB	
Absolute stopband attenuation		DC ~1500 MHz	22	24	—	dB	
		1500 ~1850 MHz	25	28	—	dB	
		1850 ~1910 MHz	10	25	—	dB	
		3920 ~4040 MHz	20	23	—	dB	
In-band VSWR		1930 ~1990 MHz	—	1.8	2.5	—	
Max. input power	P_{IN}	1930 ~1990 MHz	—	—	100	mW	

F 6 S E R I E S (L 2 T y p e)

ELECTRICAL CHARACTERISTICS (STANDARD VERSION)

8. Wireless-LAN system

Preliminary

Part number : FAR-F6CE-2G4500-L2WA

T_a = 0 ~ 60 °C

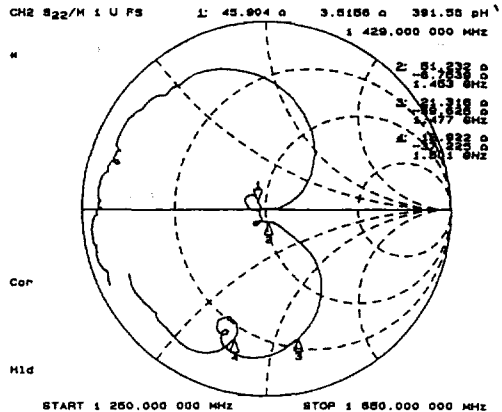
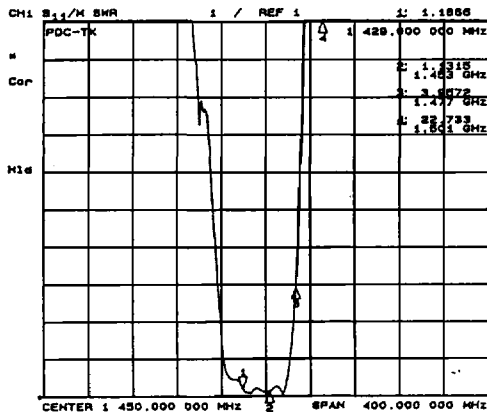
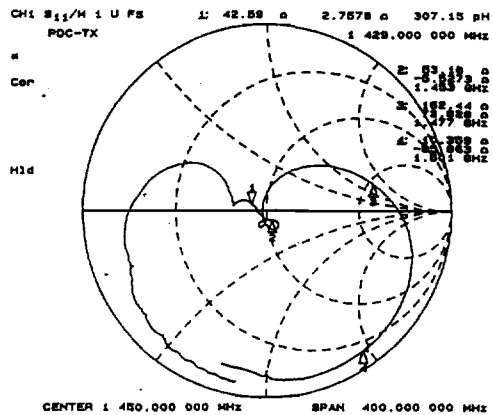
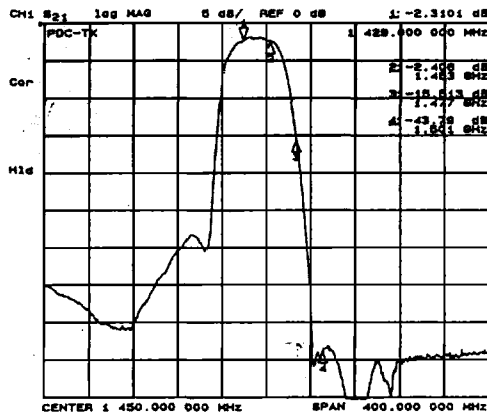
Item	Symbol	Condition	Rating			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	I L	2400 ~2500 MHz	—	4.5	5.5	dB	
In-band ripple		2400 ~2500 MHz	—	2.3	3.5	dB	
Absolute stopband attenuation		DC ~1700 MHz	20	25	—	dB	
		1800 ~2200 MHz	25	28	—	dB	
		2700 ~3100 MHz	30	34	—	dB	
		4800 ~5000 MHz	15	18	—	dB	
In-band VSWR		2400 ~2500 MHz	—	2.0	3.0	—	
Max. input power	P _{IN}	2400 ~2500 MHz	—	—		mW	

F6 SERIES (L2 Type)

TYPICAL CHARACTERISTICS (STANDARD VERSION)

1. PDC1.5G system (Tx)

Part number : FAR-F6CC-1G4410-L2ZA

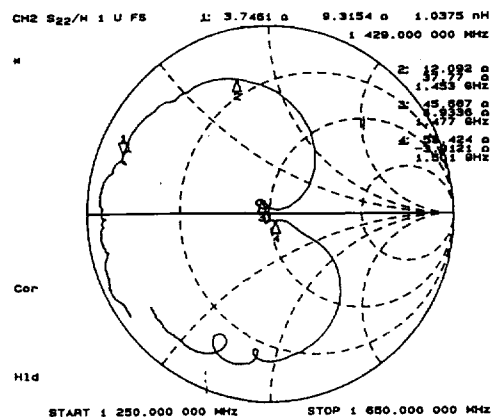
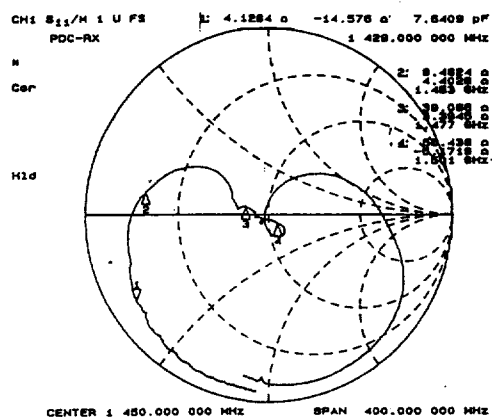
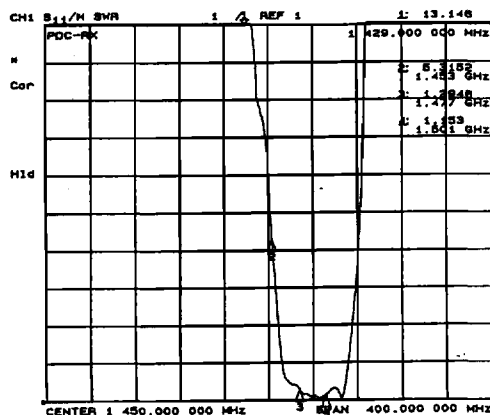
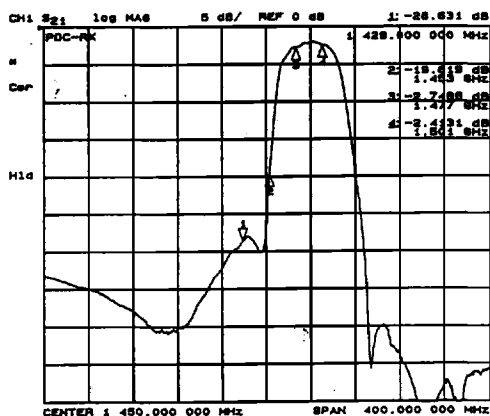


F6 SERIES (L2 Type)

TYPICAL CHARACTERISTICS (STANDARD VERSION)

2. PDC1.5 G system (Rx)

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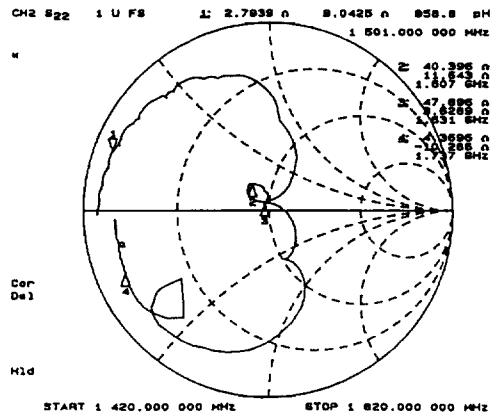
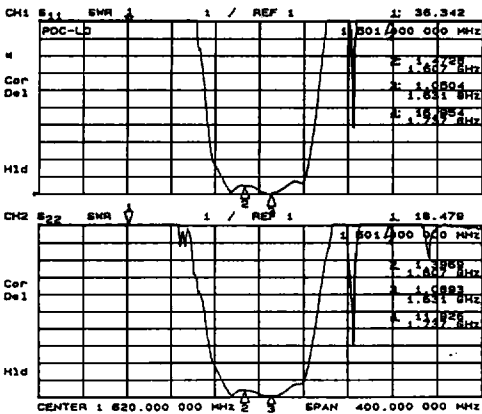
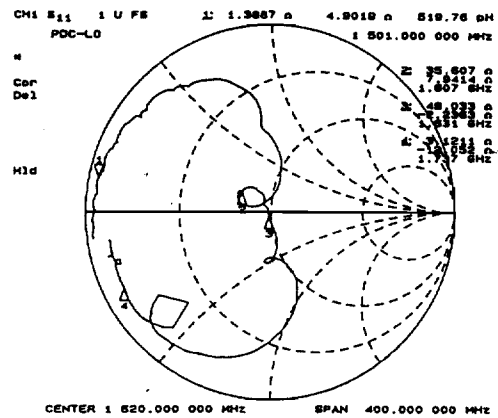
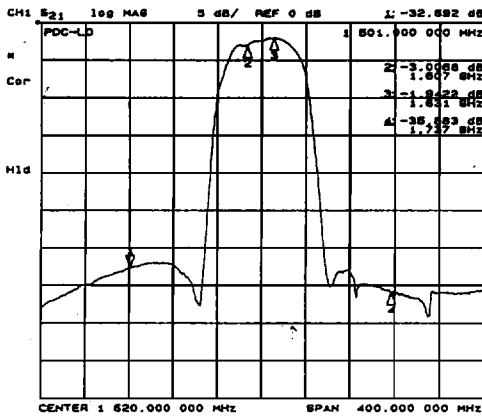


F6 SERIES (L2 Type)

TYPICAL CHARACTERISTICS (STANDARD VERSION)

3. PDC1.5G system (Lo)

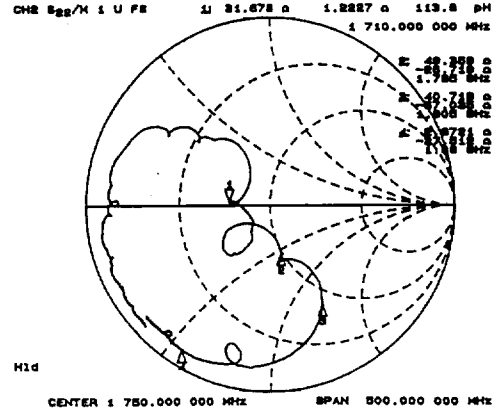
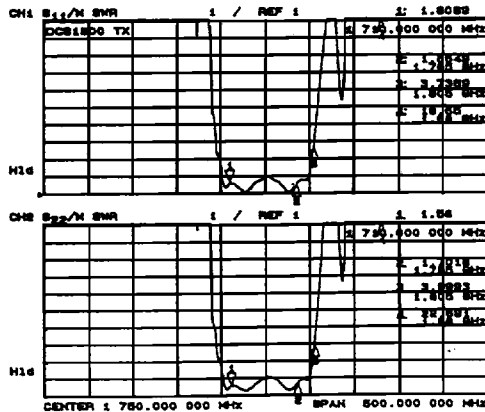
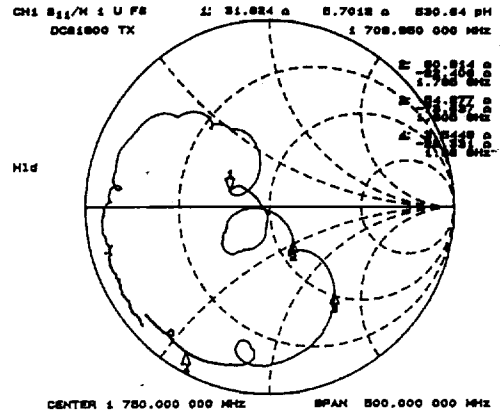
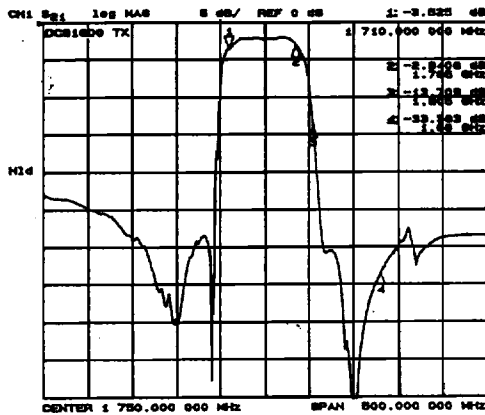
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F6 SERIES (L2 Type)

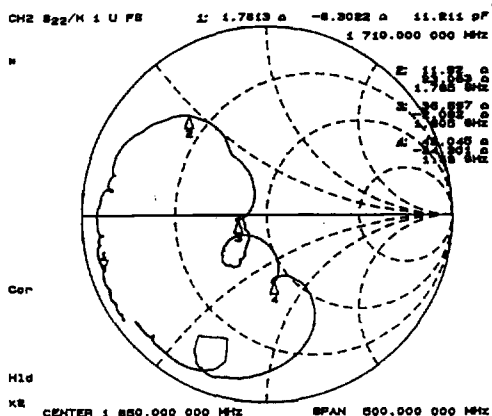
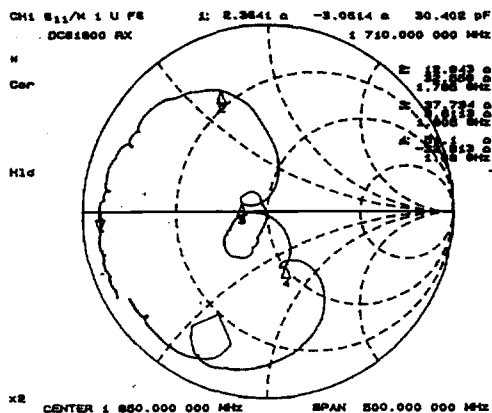
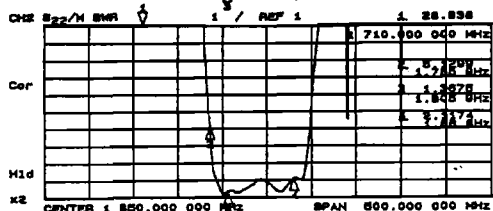
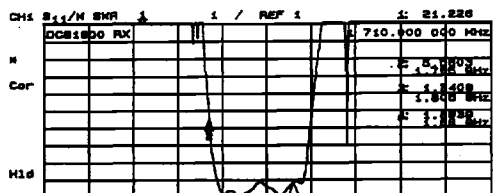
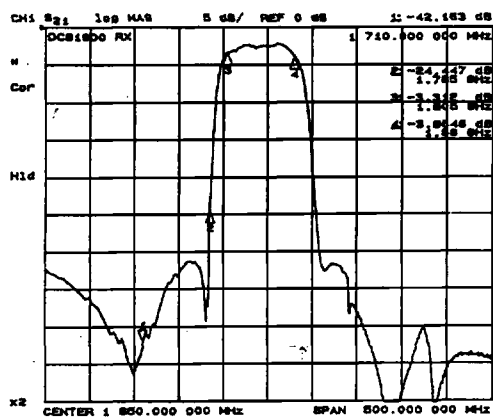
TYPICAL CHARACTERISTICS (STANDARD VERSION)

4. DCS1800 system (Tx) Preliminary
Part number : FAR-F6CE-1G7475-L2YA



TYPICAL CHARACTERISTICS (STANDARD VERSION)

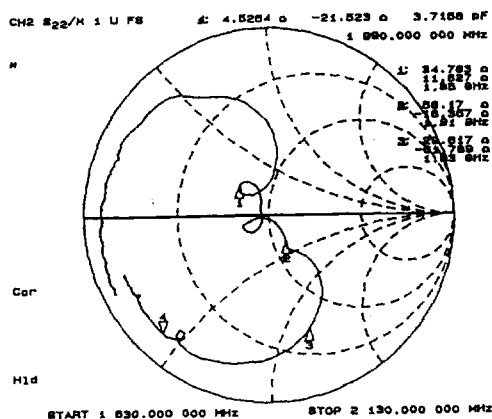
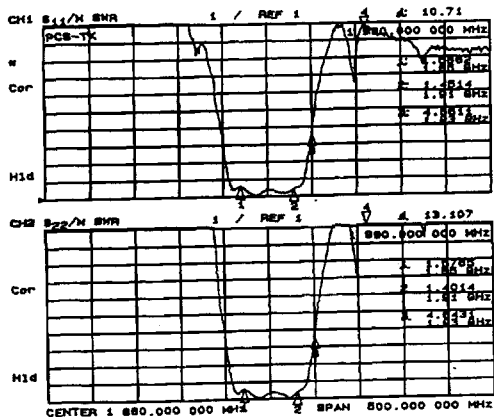
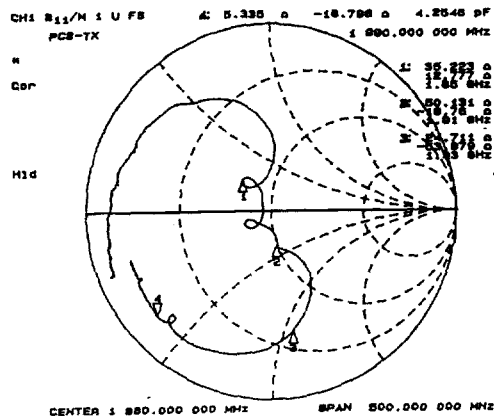
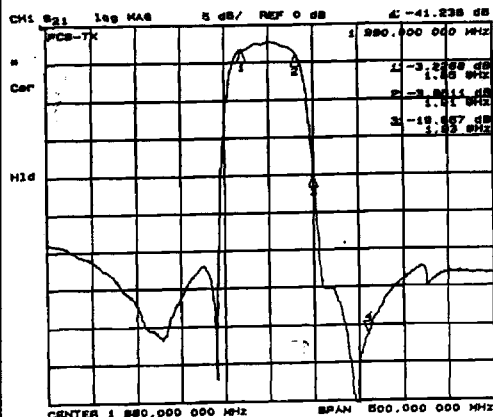
5. DCS1800 system (Rx) Preliminary
Part number : FAR-F6CE-1G8425-L2YB



F6 SERIES (L2 Type)

TYPICAL CHARACTERISTICS (STANDARD VERSION)

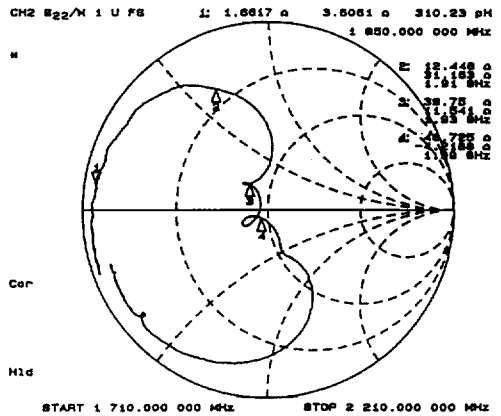
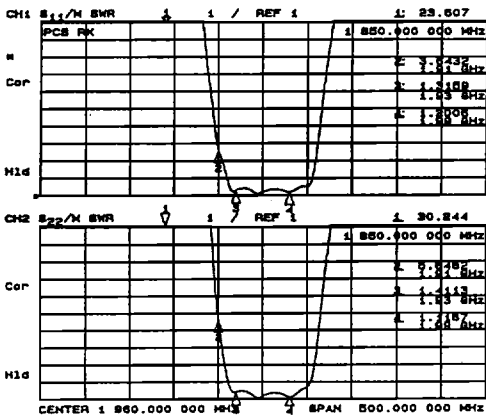
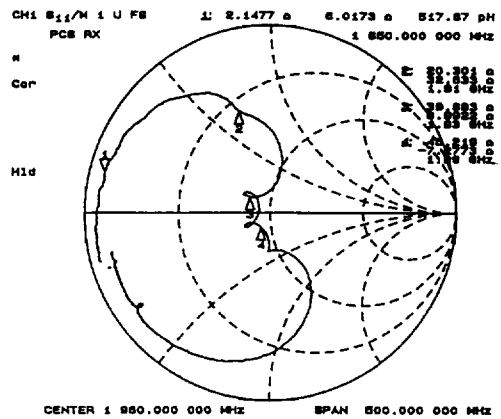
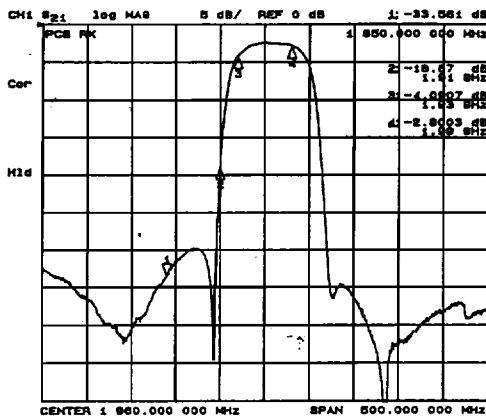
6. PCS system (Tx) Preliminary
Part number : FAR-F6CE-1G8800-L2XA



F6 SERIES (L2 Type)

TYPICAL CHARACTERISTICS (STANDARD VERSION)

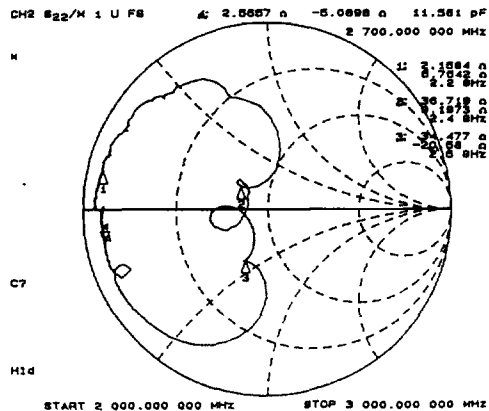
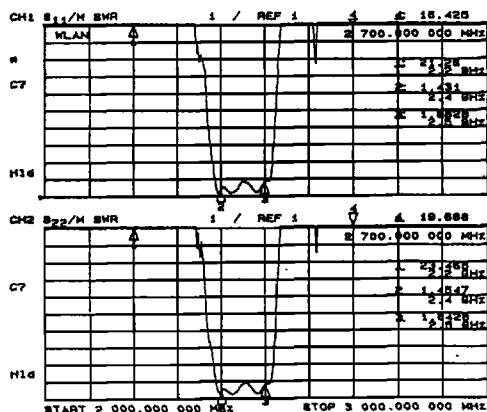
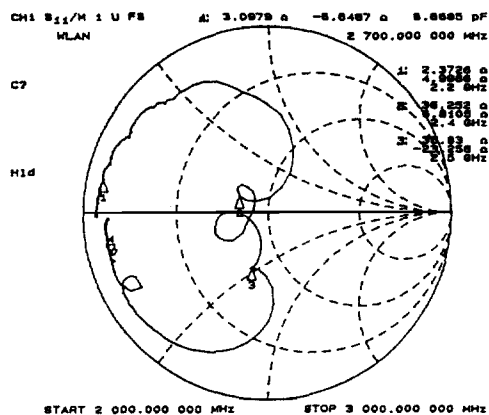
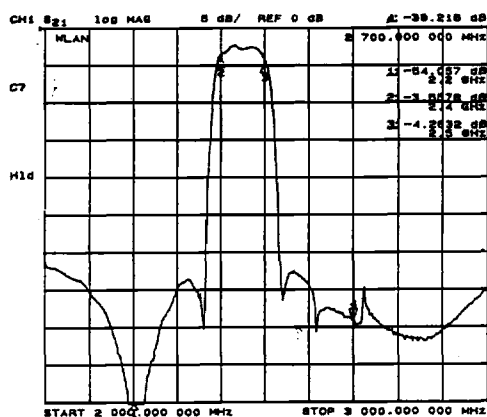
7. PCS system (Rx) Preliminary
Part number : FAR-F6CE-1G9600-L2XB



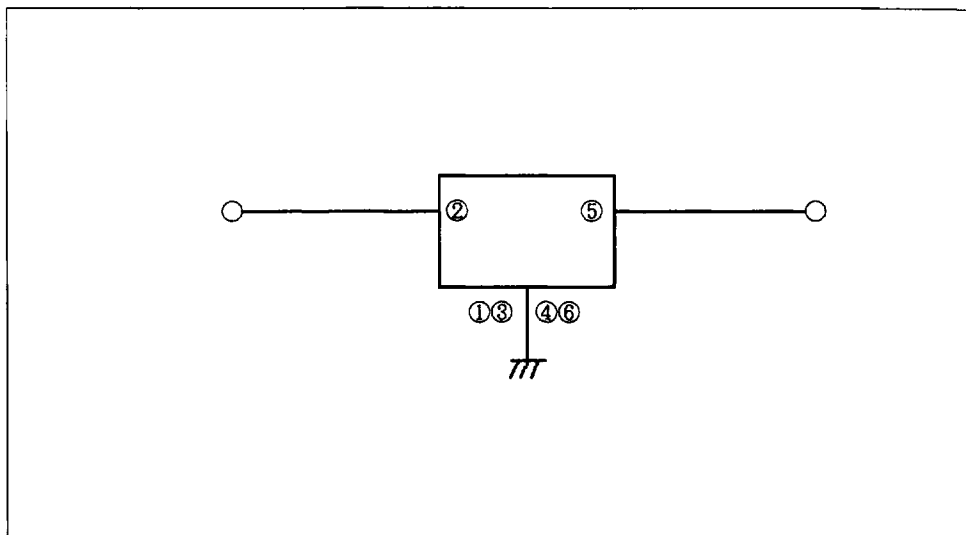
F6 SERIES (L2 Type)

TYPICAL CHARACTERISTICS (STANDARD VERSION)

8. Wireless-LAN system Preliminary
Part number : FAR-F6CE-2G4500-L2WA



MEASURING CIRCUIT



PART NUMBER DESIGNATION

[Designation example]

FAR-F 6 C - - L 2 -

① ② ③ ④

①Package designation: C : 3.8 mm[□] × 1.6 mm

E : 3.0 mm[□] × 1.2 mm

Refer to " standard frequencies.

②Frequency designation: Specify the nominal frequency in six alphanumeric characters. Enter G(for GHz) at the decimal point. Refer to standard frequencies.

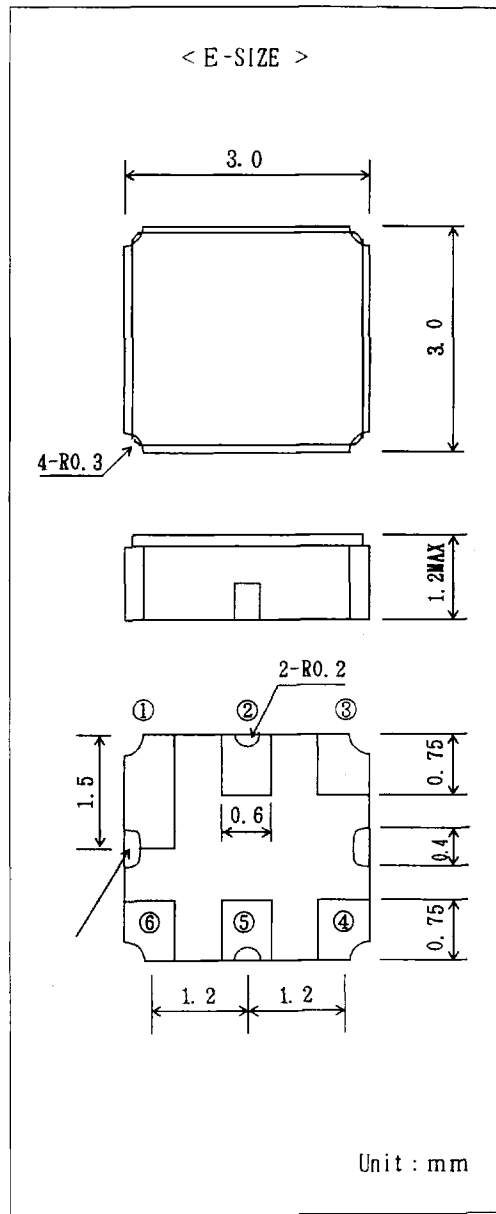
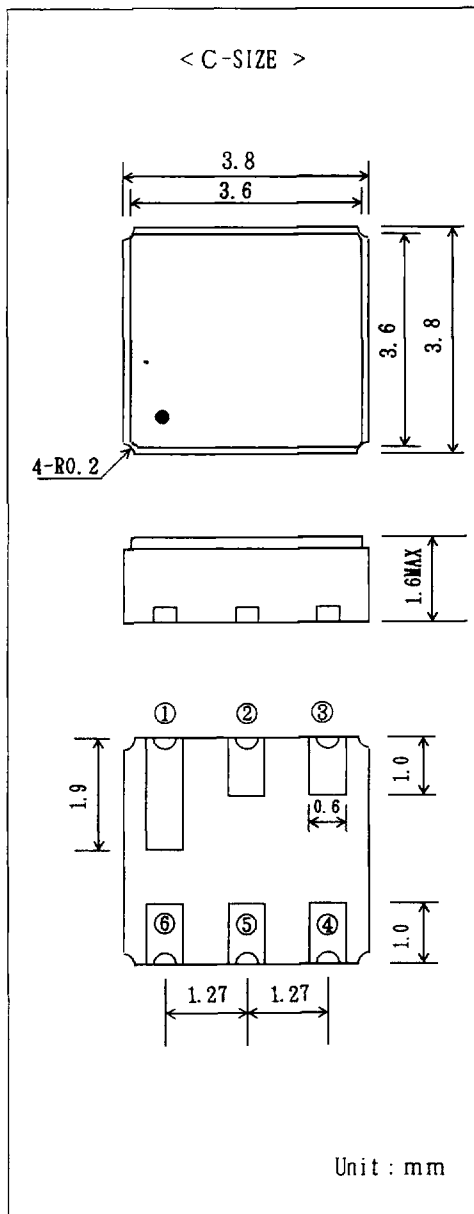
[Example] 1.4 4 1 0 GHz ⇔ 1G 4 4 1 0

③Serial number: Specify a number from WA to ZZ. Refer to standard frequencies.

④Packing: T : 1 K pcs/reel
(Reeled tape) R : 3 K pcs/reel

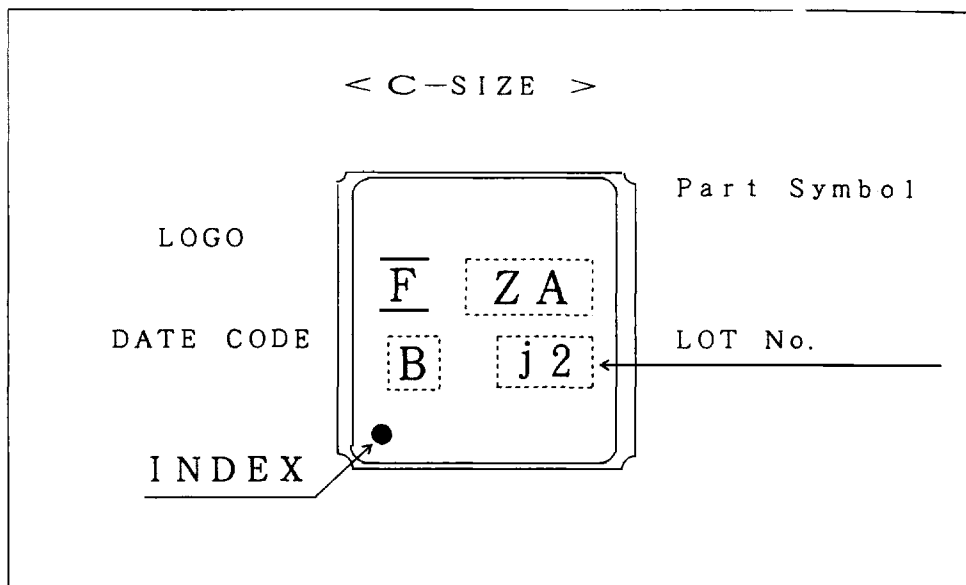
F 6 SERIES (L 2)

DIMENSIONS

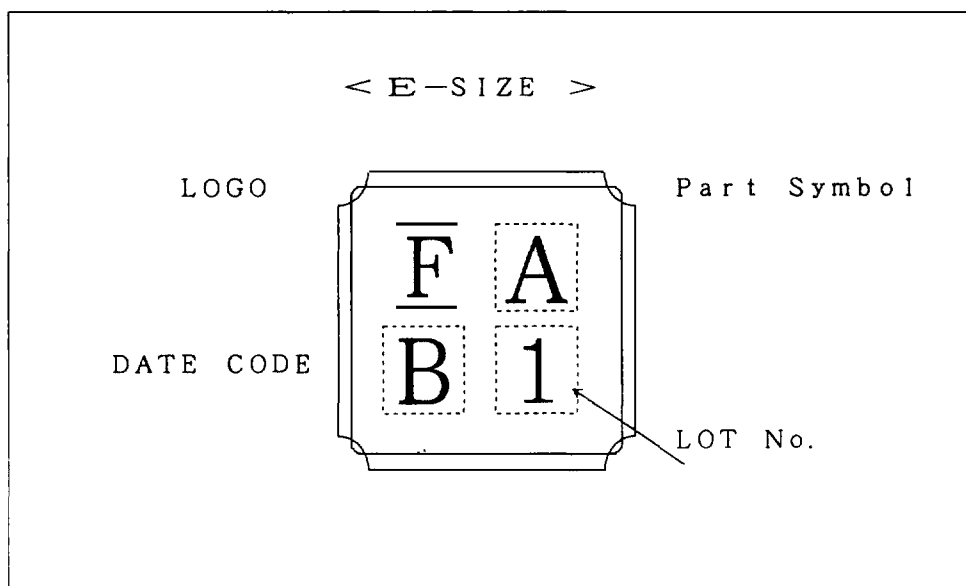


F 6 SERIES (L 2)

MARKING



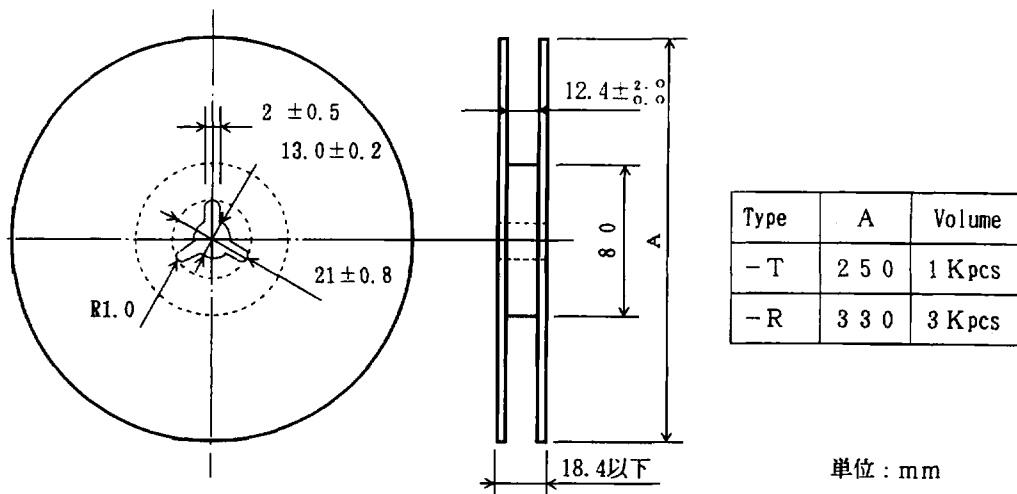
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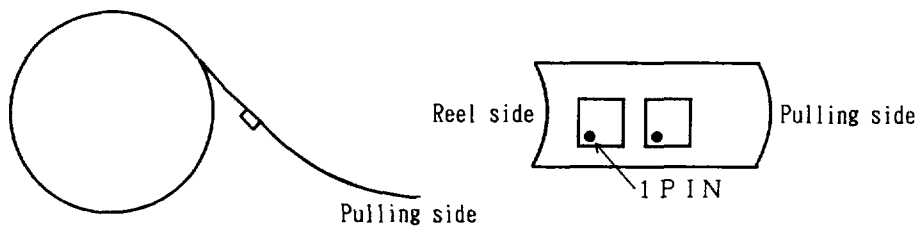
F 6 SERIES (L 2)

PACKING: Reel type

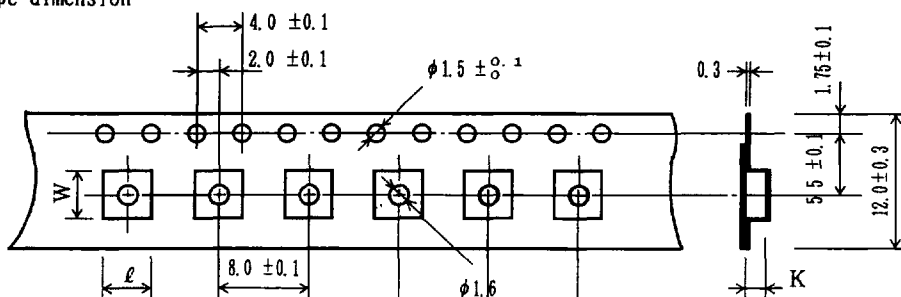
(1) Reel dimension



(2) Packing style



(3) Tape dimension



Package	ℓ	W	K
C	4.2 ± 0.1	4.2 ± 0.1	1.8
E	3.4 ± 0.1	3.4 ± 0.1	1.5

Unit: mm