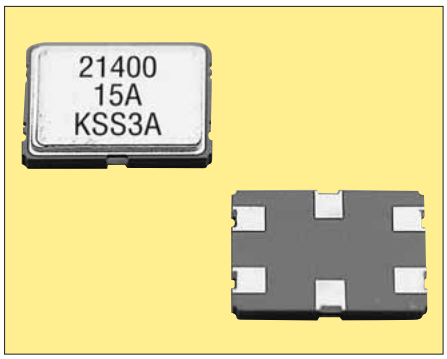


Pb Free RoHS Conforming

Features

- Compact and low profile.(Height=1.3mm)
- Excellent vibration resistance and shock resistance.
- Designed for automatic mounting and reflow soldering.

Applications

- Mobile communication

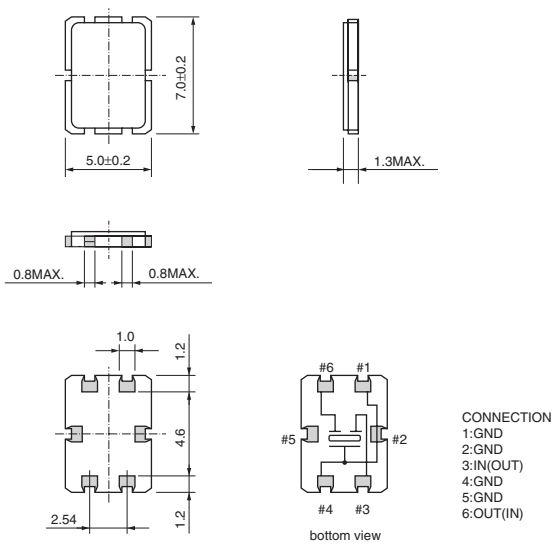
Specifications

Type	Number of inner units	Pass Bandwidth		Ripple	Insertion Loss	Stop Bandwidth		Terminating Impedance	Operating Temp.Range
		dB	kHz MIN	dB MAX	dB MAX	dB	kHz MAX	Ω//pF	˚C
MXF21.4-15A-FP2	1	3	±7.5	0.5	1.5	18	±25	1.5k//2.5	–20~+70
MXF21.7-8A-FP2	1	3	±3.5	1	2	16	±12.5	1.5k//6	–20~+70
MXF45-15AF-FP2	1	3	±7.5	1	2.5	14	±25	550//3	–20~+70
MXF45-30AF-FP2	1	3	±15	1	2	15	±50	1.2k//1.5	–20~+70
MXF55-26AF-FP2	1	3	±13	1	3	27	±100	750//2.7	–20~+70

Dimensions

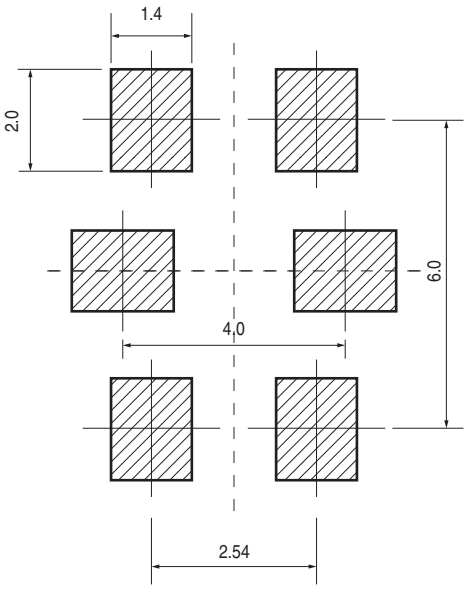
(Unit : mm)

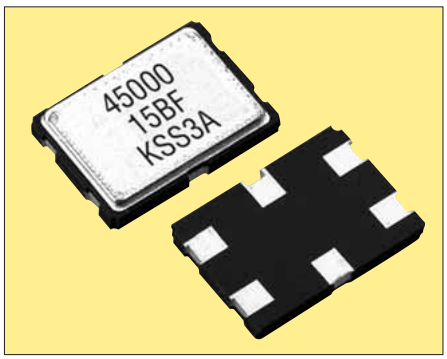
FP2



Recommended Land Pattern

(Unit : mm)





Pb Free RoHS Conforming

Features

- Compact size.(7x5x1.3mm, 4pole)
- Excellent vibration resistance and shock resistance.
- Designed for automatic mounting and reflow soldering.

Applications

- Mobile communication

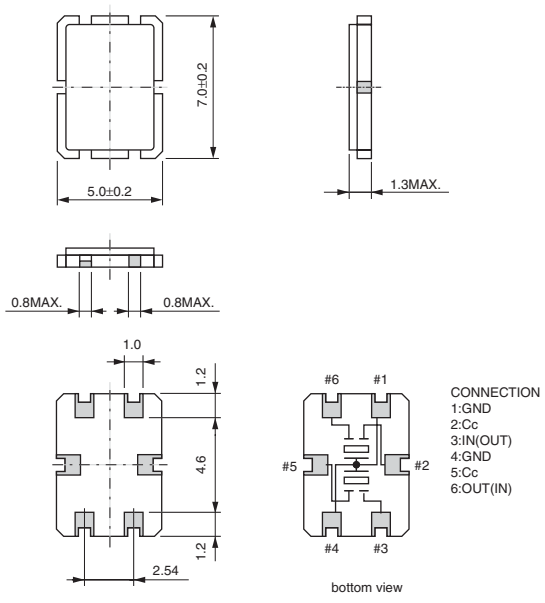
Specifications

Type	Number of inner units	Pass Bandwidth		Ripple	Insertion Loss	Stop Bandwidth		Terminating Impedance	Operating Temp.Range
		dB	kHz MIN	dB MAX	dB MAX	dB	kHz MAX	Ω//pF	˚C
MXF45-7.5BF-FP4	1	3	±3.75	1	4	30	±15	500//4.5 Cc(13pF)	–20~+70
MXF45-15BF-FP4	1	3	±7.5	1.5	2	30	±25	600//2.3 Cc(7.5pF)	–20~+70
MXF45-30BF-FP4	1	3	±15	1	3	30	±40	1.2k//1 Cc(2.5pF)	–20~+70

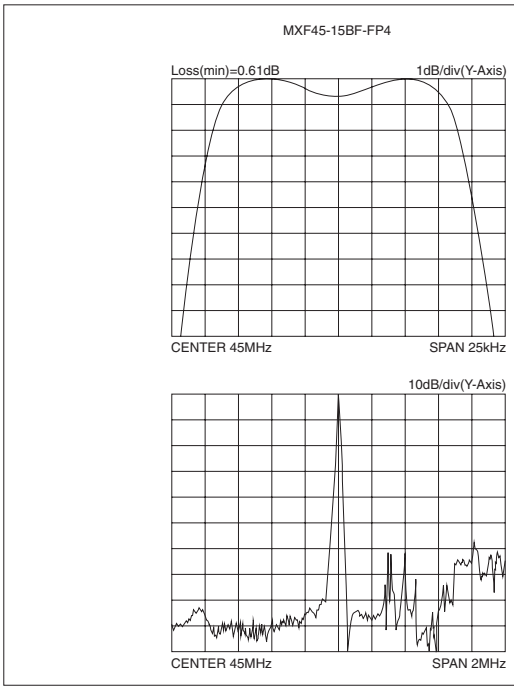
Dimensions

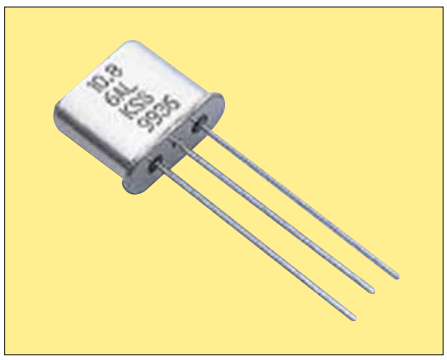
(Unit : mm)

FP4



Electrical Characteristics





Features

- Compact and light weight.
- Excellent vibration resistance and shock resistance.
- Stable temperature characteristics.

Applications

- Car audio

*Pb Free and RoHS conformance planned on Jan. 2005.

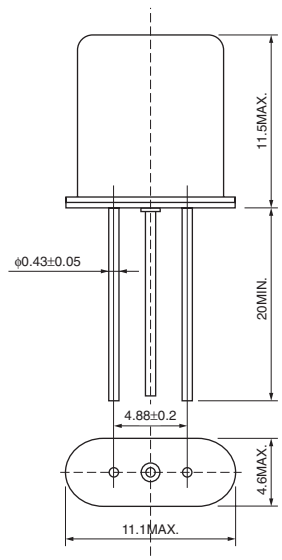
Specifications

Type	Number of inner units	Pass Bandwidth		Ripple	Insertion Loss	Stop Bandwidth		Terminating Impedance	Operating Temp.Range	Outline
		dB	kHz	dB MAX	dB MAX	dB	kHz MAX	Ω//pF	˚C	
MXF10.7-6A	1	3	±(2.5~3.5)	1	1.5	30	55	1.5k//3	–40~+85	Fig.1
MXF10.7-6AL	1	3	±(2.5~3.5)	1	3	30	55	1.5k//3	–40~+85	Fig.2
MXF10.7-7.5A	1	3	±3.75 MIN	0.5	1.5	20	±18	1.8k//5	–40~+85	Fig.1
MXF10.7-7.5AL	1	3	±3.75 MIN	0.5	3	20	±18	1.8k//5	–40~+85	Fig.2
MXF10.8-6A	1	3	±(2.5~3.5)	1	1.5	30	55	1.5k//3	–40~+85	Fig.1
MXF10.8-6AL	1	3	±(2.5~3.5)	1	3	30	55	1.5k//3	–40~+85	Fig.2
MXF10.8-16AL	1	3	±(7.5~8.5)	1	3	20	55	2.2k//2.5	–40~+85	Fig.2

Dimensions

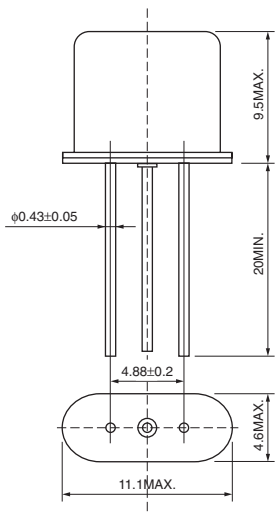
(Unit : mm)

Fig. 1 **49/U-11**

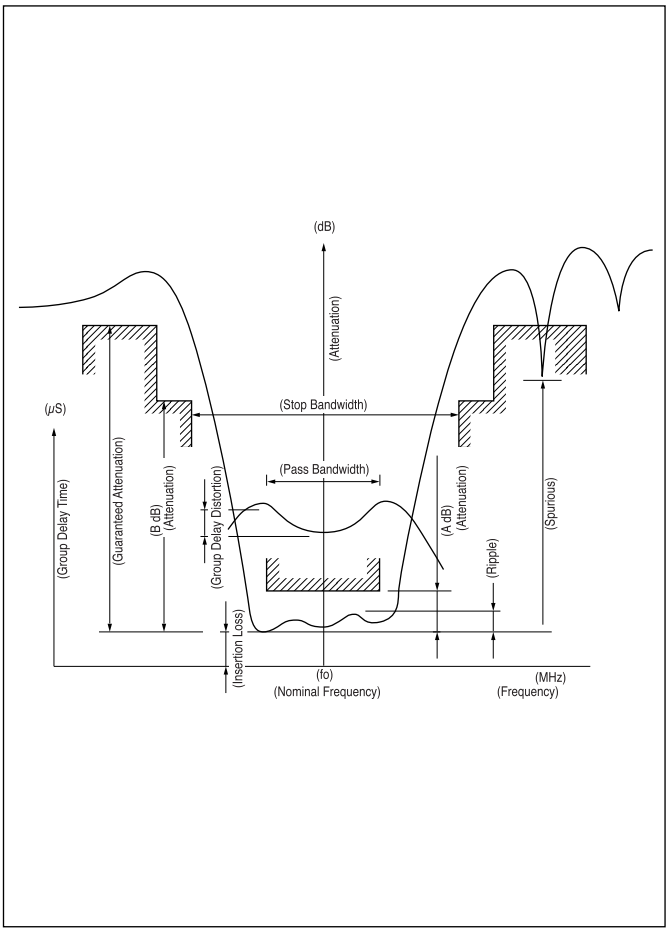


(Unit : mm)

Fig. 2 **49/U-9**



Characteristic diagram and terms of crystal filters



■Nominal Frequency
This is the nominal value of the center frequency (fo) and is used as the reference frequency of related standards.

■Pass Bandwidth
This is the frequency interval in which the relative attenuation (the attenuation from the minimum insertion loss) is equal to the specified value “A dB” (Usually 3dB).

■Insertion Loss
This is the difference of attenuation when a filter is and isn’t inserted. The minimum insertion loss is the minimum value of insertion loss and becomes as the reference level of attenuation characteristics specification. The constant loss is the insertion loss at the nominal frequency.

■Ripple
This is the maxinum value of the difference between the peak value of attenuation in the pass band and the minimum insertion loss.

■Stop Bandwidth
This is the frequency interval in which the relative attenuation is equal to the specified value “B dB”.

■Guaranteed Attenuation
This is the relative attenuation guaranteed in the specified range within attenuation band scope.

■Spurious Response
This is the value of relative attenuation generated by the secondary vibration in the specified range within attenuation band scope.

■Group Delay Time
This is the difference between the maximum and the minimum value of the group delay in the specified range of the pass band.

■Terminating Impedance
This is the impedance value terminated to the input and the output side of filter and is indicated by the resistance portion and the parallel capacity portion including the floating capacity.

ORDERING FORMAT for CRYSTAL FILTERS

Please specify the following items when ordering crystal filters.

I. **Standard product in catalog Indicate type name.**
for example : MXF10.7-6A

II. **Indicate following items in specification if you order special type.**

1. Electrical Characteristics

(1)Nominal Frequency _____MHz
(2)Pass Bandwidth at_____dB ±_____kHz MIN.
(3)Stop Bandwitdth at_____dB ±_____kHz MAX.
(4)Guaranteed Attenuation _____dB MINn. (fo ±_____kHz)
(5)Spurious Response _____dB MIN.
(6)Ripple _____dB MAX.
(7)Insertion Loss _____dB MAX.
(8)Terminating Impedance _____Ω//_____pF

2. Environmental Condition
(1)Operating Temperature Range _____˚C ~_____˚C

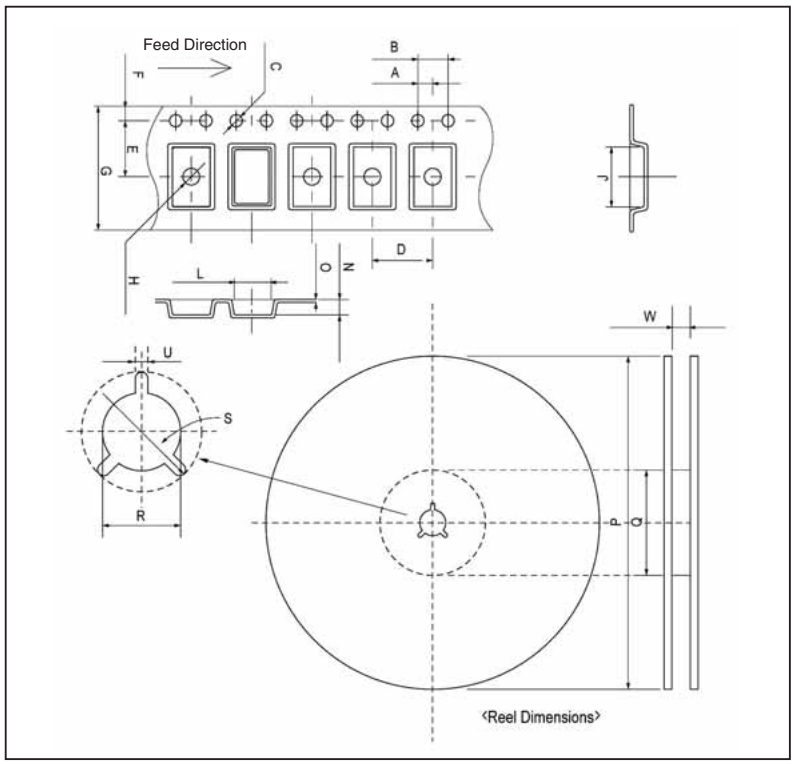
3. Dimensions _____

4. Application _____

Tape & Reel Specifications

■SAW FILTERS / MCFs

		SAW FILTERS		
		SF16	SF25	SF30
TAPE	A	2.0±0.05	2.0±0.05	2.0±0.05
	B	4.0±0.1	4.0±0.1	4.0±0.1
	C	ϕ1.5±0.1	ϕ1.55+0.1/−0	ϕ1.55+0.1/−0
	D	4.0±0.1	4.0±0.1	8.0±0.1
	E	3.5±0.05	5.5±0.05	5.5±0.05
	F	1.75±0.1	1.75±0.1	1.75±0.1
	G	8.0±0.2	12.0±0.2	12.0±0.2
	H	ϕ1.1±0.1	ϕ1.1±0.1	ϕ1.55±0.1
	J	1.9±0.1	2.9±0.1	3.3±0.1
	L	1.85±0.1	2.4±0.1	3.3±0.1
	N	0.95±0.1	1.2±0.1	1.85±0.1
	O	0.25±0.05	0.3±0.05	0.3±0.05
REEL	P	ϕ178±2	ϕ330±2	ϕ330±2
	Q	ϕ80±2	ϕ100±2	ϕ100±2
	R	ϕ13±0.2	ϕ13±0.2	ϕ13±0.2
	S	ϕ21±0.8	ϕ21±0.8	ϕ21±0.8
	U	2±0.5	2±0.5	2±0.5
	W	13.5±1	13.5±1	13.5±1
Qty		3000	3000	3000



		SAW FILTERS								MCF
		PAFA	PAFC243B	PAFC433.92A	B54	B22 B43	B19 B25	C12 C30	B44	FP2 FP4
TAPE	A	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.10	2.0±0.10	2.0±0.05	2.0±0.10	2.0±0.10	2.0±0.1
	B	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1
	C	ϕ1.55+0.05	ϕ1.5+0.1/−0	ϕ1.5+0.1/−0	ϕ1.55±0.05	ϕ1.55±0.05	ϕ1.55±0.05	ϕ1.55±0.05	ϕ1.55±0.05	ϕ1.55±0.05
	D	8.0±0.1	8.0±0.1	8.0±0.1	8.0±0.1	8.0±0.1	8.0±0.1	8.0±0.1	8.0±0.1	8.0±0.1
	E	5.5±0.05	5.5±0.05	5.5±0.05	5.5±0.1	7.5±0.1	5.5±0.05	7.5±0.1	5.5±0.05	7.5±0.1
	F	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1
	G	12.0±0.2	12.0±0.2	12.0±0.3	12.0±0.3	16.0±0.3	12.0±0.15	16.0±0.3	12.0±0.2	16.0±0.3
	H	ϕ1.55±0.05	ϕ1.55±0.1	ϕ1.55±0.1	ϕ1.5+0.05/−0	ϕ1.55±0.05	ϕ1.55±0.05	ϕ1.55±0.05	ϕ1.55±0.05	ϕ1.55±0.05
	J	3.3±0.1	4.3±0.1	5.3±0.1	5.25±0.1	9.4±0.1	4.2±0.1	7.6±0.1	3.95±0.2	7.5±0.1
	L	3.3±0.1	4.3±0.1	5.3±0.1	3.45±0.1	5.1±0.1	4.2±0.1	5.6±0.1	3.95±0.2	5.5±0.1
	N	1.85±0.1	2.05±0.1	2.1±0.1	1.5+0.1/−0	2.0±0.1	1.8±0.1	1.94±0.1	1.35±0.1	1.8±0.1
	O	0.3±0.05	0.3±0.05	0.3±0.05	0.3±0.1	0.3±0.05	0.3±0.05	0.3±0.05	0.2±0.05	0.3±0.05
REEL	P	ϕ255±2	ϕ255±2	ϕ255±2	ϕ330±1	ϕ330±1	ϕ178±2	ϕ330±1	ϕ178±2	ϕ178±2
	Q	ϕ100±2	ϕ80±2	ϕ80±2	ϕ100±1	ϕ100±1	ϕ80±1	ϕ100±1	ϕ80±1	ϕ80±2
	R	ϕ13±0.2	ϕ13±0.2	ϕ13±0.2	ϕ13±0.3	ϕ13±0.3	ϕ13±0.5	ϕ13±0.3	ϕ13±0.5	ϕ13±0.5
	S	ϕ21±0.8	ϕ21±0.8	ϕ21±0.8	ϕ21±0.5	ϕ21±0.5	ϕ21±0.5	ϕ21±0.5	ϕ21±0.5	ϕ21±0.8
	U	2±0.5	2±0.5	2±0.5	2±0.5	2±0.5	2±0.5	2±0.5	2±0.5	2±0.5
	W	13.5±1	13.5±1	13.5±1	12.4+2/-0	16.4±0.5	13.5+2/−0	16.4±0.5	13.5+2/−0	17.5+1/−0.5
Qty		2000	2000	2000	3000	3000	1000	3000	1000	1000