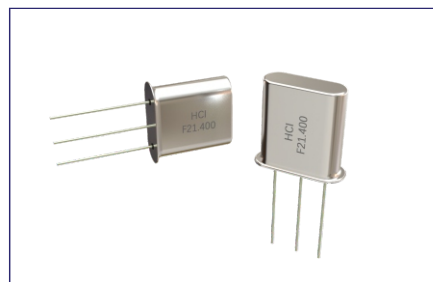


CRYSTAL FILTER UM-1/UM-5 PACKAGE

PRODUCT FEATURES

- Dimensions 7.9X3.3X8.0/5.8
- Low Insertion loss
- High selectivity
- Shock Resistant, High reliability
- RoHS compliant, Pb-Free and Halogen-Free

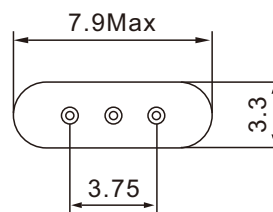
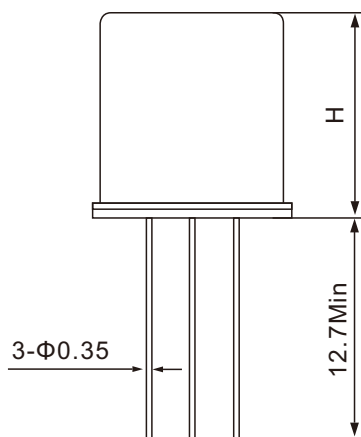
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Type	Frequency (MHz)	Bandwidth		StopBand Width		Ripple (dB)	Insertion Loss(dB)	Guaranteed Attenuation (dB)	Terminating Impedance (Ω//pF)	No of Poles	Size (mm)
		dB	KHz	dB	KHz						
21M7.5A	21.4	3	3.75	20	18	0.5	1.5	20	850//6	2	UM-1
21M7.5B	21.4	3	3.75	40	14	1	2	40	850//5	4	UM-1x2
21M12A	21.4	3	6	20	25	0.5	1.5	20	1.2k//3	2	UM-1
21M12B	21.4	3	6	40	20	1	2	40	1.2k//2.5	4	UM-1x2
21M15A	21.4	3	7.5	18	25	1	1.5	20	1.5k//2.5	2	UM-1
21M15B	21.4	3	7.5	40	25	1	2.5	40	1.5k//2	4	UM-1x2
10M3A	10	6	1.5	18	14	0.5	4	-	1000	2	UM-1
28M11B	28.0125	3	11	60	55	1	2	60	1500	4	UM-5x2
38.8M15B	38.855	3	7.5	40	60	1	2	40	1500	4	UM-5x2
40M15B	40	3	7.5	45	25	1	4	40	1000	4	UM-5x2
45M12A	45	3	6	15	22	1	2	-	650//5	2	UM-1
45M12B	45	3	6	30	20	1	3	40	650//4	4	UM-1x2
45M15A	45	3	7.5	15	25	1	2	-	650//2	2	UM-1
45M15B	45	3	7.5	30	25	1	3	40	650//2	4	UM-1x2

PACKAGE OUTLINE / DIMENSIONS



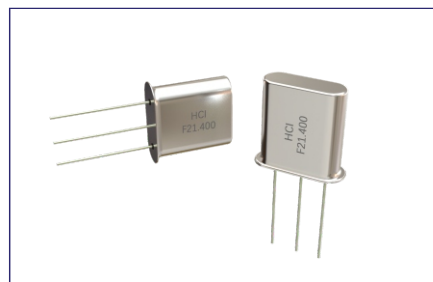
Package	Height(mm)
UM-1	8.0
UM-5	5.8

CRYSTAL FILTER HC-49U/HC-49T PACKAGE

PRODUCT FEATURES

- Dimensions 11X4.7X13.5/11.0
- Frequency Range: 7.8MHz~60MHz
- Low Insertion loss
- High selectivity
- Shock Resistant, High reliability
- RoHS compliant, Pb-Free and Halogen-Free

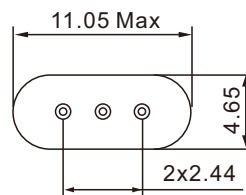
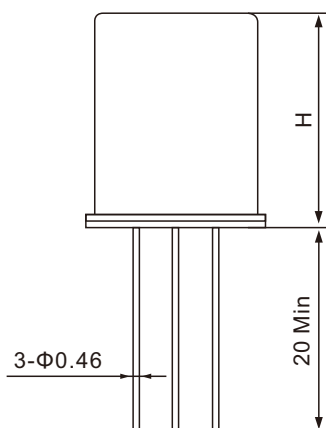
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Type	Frequency (MHz)	Bandwidth		Stop BandWidth				Ripple (dB)	Insertion Loss(dB)	Guaranteed Attenuation (dB)	Terminating Impedance (KΩ//pF)	No of Poles	Size (mm)
		dB	KHz	dB	KHz	dB	KHz						
10M7.5A	10.7	3	3.75	20	18	-	-	0.5	1.5	20	1.8//5	2	HC-49T
10M7.5B	10.7	3	3.75	40	14	-	-	1	2	40	1.8//5	4	HC-49T×2
10M12A	10.7	3	6	20	23	-	-	0.5	1.5	20	2.5//2.5	2	HC-49T
10M12B	10.7	3	6	40	20	-	-	1	2.5	40	2.5//1.5	4	HC-49T×2
10M15A	10.7	3	7.5	18	25	-	-	1	1.5	20	3.0//2.0	2	HC-49T
10M15B	10.7	3	7.5	40	25	-	-	1	2	40	3.0//1.5	4	HC-49T×2
7M5A	7.8	1	2.5	15	10	-	-	1	2	-	3300//1.5	2	HC-49T
8M7.5A1	8.192	3	3.75	-	-	40	40	1	1.5	-	2000	2	HC-49T
8M7.5A2	8.448	3	7.5	18	30	50	80	1	2	-	3000	2	HC-49T
16M7.5A1	16.9	3	3.75	-	-	40	30	1	2	-	1000	2	HC-49T
16M7.5A2	16.9	3	7.5	18	28	-	-	0.5	2	-	1500//2.0	2	HC-49T
10M8A	10	3	4	40	30	-	-	0.5	2	40	1500	2	HC-49T
17.9M15B	17.9	3	7.5	40	25	-	-	1	1.5	40	2000	4	HC-49T×2
21.7M15B	21.7	3	7.5	40	25	-	-	1	1.5	40	1200	4	HC-49T×2
P60MA1	60	3	3	40	30	-	-	1	1.5	40	1.5	2	HC-49T

PACKAGE OUTLINE / DIMENSIONS



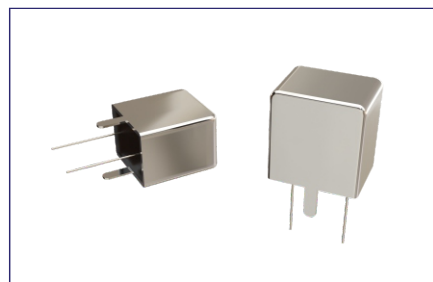
Package	Height(mm)
HC-49U	13.5
HC-49T	11.0

Monolithic CRYSTAL FILTER PACKAGE

PRODUCT FEATURES

- Frequency Range: 7.8MHz~70MHz
- Low Insertion loss
- High selectivity
- Shock Resistant, High reliability
- RoHS compliant, Pb-Free and Halogen-Free

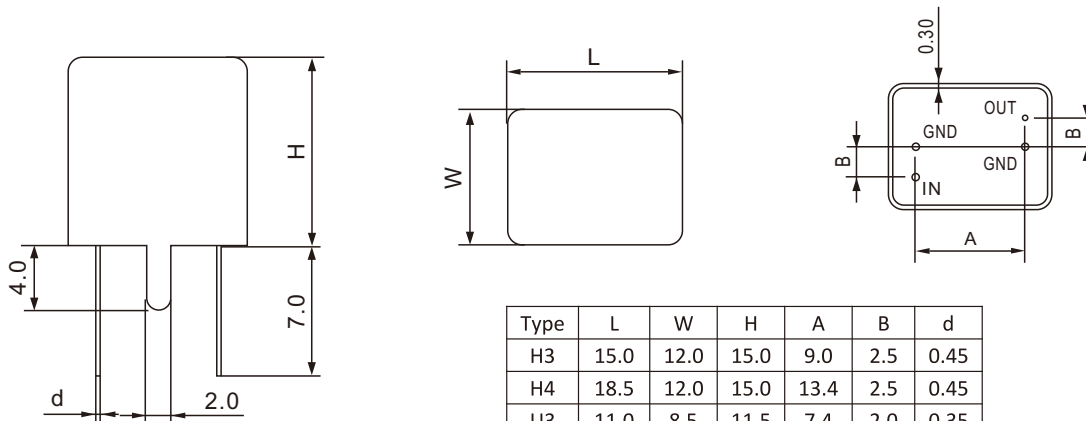
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Type	Frequency (MHz)	Bandwidth		Stop Band Width				Ripple (dB)	Insertion Loss(dB)	Guaranteed Attenuation (dB)	Terminating Impedance (Ω//pF)	No of Poles	Size (mm)
		dB	KHz	dB	KHz	dB	KHz						
10M7.5C	10.7	3	3.75	45	8.75	65	12.5	2	3.5	65	1.8k//3.5	6	H3
10M12C	10.7	3	6	45	14	60	20	2	2.5	65	2.8k//1	6	H3
10M15C	10.7	3	7.5	45	17.5	65	25	2	3	65	3.0k//1.5	6	H3
10M7.5D	10.7	6	3.75	65	8.75	90	12.5	2	4	80	1.8k//3.5	8	H4
10M12D	10.7	6	6	65	14	90	20	2	4	80	2.8k//1	8	H4
10M15D	10.7	3	7.5	70	17.5	90	25	2	4	80	3.0k//1.5	8	H4
10M04D	10.695	6	2	-	-	80	5	2	4	90	900//10	8	H4
10M01D	10.239	6	0.5	-	-	60	1.5	2	6	60	380//10	8	H4
10M2.4D	10.695	6	1.2	40	2.5	60	3	2	4	60	200	8	H4
21M7.5C	21.4	3	3.75	45	8.75	65	12.5	2	3.5	65	850//5	3	U3
21M12C	21.4	3	6	45	15	65	20	2	3	65	1.2k//2.5	3	U3
21M15C	21.4	3	7.5	45	18	65	25	2	3.5	65	1.5k//2	1	U3
21M7.5D	21.4	6	3.75	65	9	90	12.5	2	4	80	850//5	4	U4
21M12D	21.4	6	6	65	15	90	20	2	4	80	1.2k//2.5	4	U4
21M15D	21.4	6	7.5	65	18	90	25	2	4	80	1.8k//2	1	U4

PACKAGE OUTLINE / DIMENSIONS



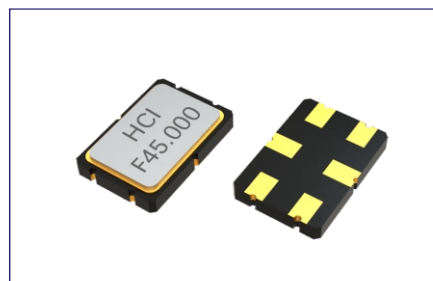
Type	L	W	H	A	B	d
H3	15.0	12.0	15.0	9.0	2.5	0.45
H4	18.5	12.0	15.0	13.4	2.5	0.45
U3	11.0	8.5	11.5	7.4	2.0	0.35
U4	13.4	8.5	11.5	9.8	2.0	0.35

Monolithic CRYSTAL FILTER 7.0X5.0 PACKAGE

PRODUCT FEATURES

- Frequency Range: 20MHz~60MHz
- Thin and light weight
- Low Insertion loss
- High selectivity and High reliability
- Excellent shock and vibration resistance
- RoHS compliant, Pb-Free and Halogen-Free

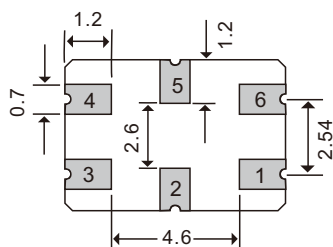
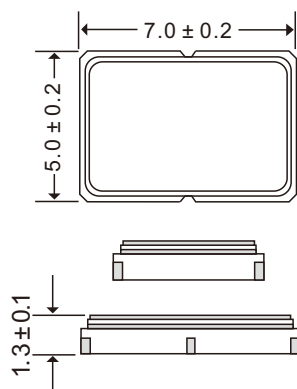
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

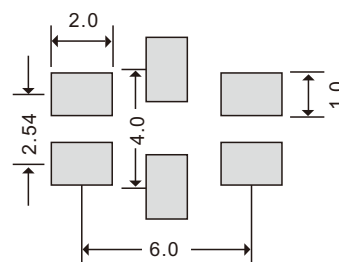
Frequency (MHz)	Model	No. of poles	pass Bandwidth		Stop Bandwidth		Ripple	Insertion Loss	Guaranteed Attenuation		Terminating Impedance	
			dB	KHz(min)	dB	KHz(max)			dB	KHz		Cc(pF)
21.400	21MQ7.5A	2	3	+/-3.75	20	+/-18	1.0	2.0	70	-910	850//6.0	
	21MQ15A	2	3	+/-7.5	18	+/-25	0.5	1.5	70	-910	1500//2.5	
	21MQ15B	4	3	+/-7.5	40	+/-25	1.0	3.0	70	-910	1800//0.35	5.0
	21MQ30A	2	3	+/-7.5	15	+/-50	1.5	2.0	60	-910	2500//0	
21.700	21.7MQ15A	2	3	+/-7.5	18	+/-28	1.0	2.0	70	-910	1500//2.5	
	21.7MQ15B	4	3	+/-7.5	40	+/-25	1.0	3.0	70	-910	1750//0.35	5.0
	21.7MQ30A	2	3	+/-15	15	+/-50	1.5	2.0	50	-910	2500//0	
45.000	45MQ15A	2	3	+/-7.5	15	+/-25	1.0	2.0	70	-910	650//3.5	
	45MQ15B	4	3	+/-7.5	30	+/-25	1.0	3.0	80	-910	600//2.3	7.5
	45MQ30A	2	3	+/-15	15	+/-60	1.0	2.0	70	-910	1200//1.8	
	45MQ30B	4	3	+/-15	30	+/-40	1.0	3.0	70	-910	1200//1.0	2.5

PACKAGE OUTLINE / DIMENSIONS



Pad 3 and 6 : M.C.F. in / out
Pad 1,2,4,5 : Metal lid for grounding

Recommended Land Pattern



ZTT 2.2x1.8 to 7.4x3.4 SMD PACKAGE

PRODUCT FEATURES

- Frequency Range: 2MHz~60MHz
- High stability and adjustment-free
- Small size and SMD Package
- With Built-in Capacitor
- RoHS compliant

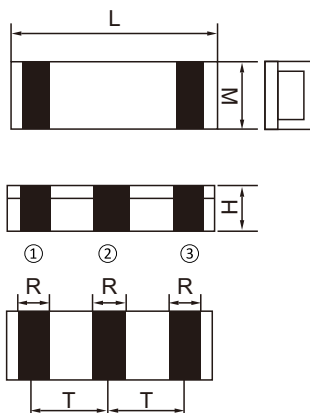
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

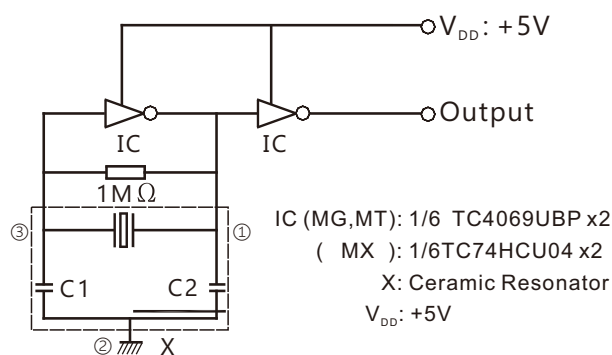
Part Number	Frequency Range (MHz)	Frequency Accuracy (25°C)(%)	Stability over Temperature (-25~+85°C)(%)	Operating Temperature (°C)	Aging for Ten Years (%)
ZTTC□MG	2.00-8.00	±0.5	±0.3	-25~+85	±0.3
ZTTCR□MG	4.00-8.00	±0.5	±0.3	-25~+85	±0.3
ZTTCE□MG	8.00-12.00	±0.5	±0.3	-25~+85	±0.3
ZTTCS□MT	6.00-13.00	±0.5	±0.4	-25~+85	±0.3
ZTTCV□MT	8.00-13.00	±0.5	±0.4	-25~+85	±0.3
ZTTCS□MX	13.01-60.00	±0.5	±0.3	-25~+85	±0.3
ZTTCV□MX	16.00-60.00	±0.5	±0.3	-25~+85	±0.3
ZTTCW□MX	20.00-60.00	±0.5	±0.3	-25~+85	±0.3
ZTTCZ□MX	24.00-60.00	±0.5	±0.3	-25~+85	±0.3
ZTTCP□MG	2.00-12.00	±0.5	±0.3	-25~+85	±0.3

PACKAGE OUTLINE / DIMENSIONS



① INPUT ② GROUND ③ OUTPUT

TEST CIRCUIT



Part Number	Size(mm)					
	L	W	H	P1	P2	T
ZTTC□MG	7.4±0.2	3.4±0.2	1.8±0.2	1.2±0.2	1.2±0.2	2.5±0.2
ZTTCR□MG	4.5±0.2	2.0±0.2	1.2max	0.8±0.2	0.8±0.2	1.5±0.2
ZTTCE□MG	3.2±0.2	1.3±0.2	1.0max	0.4±0.2	0.4±0.2	1.2±0.2
ZTTCS□MT/MX	4.7±0.2	4.1±0.2	(1.2+A)±0.2	1.0±0.2	0.8±0.2	1.95±0.2
ZTTCV□MT/MX	3.7±0.2	3.1±0.2	(1.0+A)±0.2	0.9±0.2	0.7±0.2	1.5±0.2
ZTTCW□MX	2.5±0.2	2.0±0.2	1.2max	0.5±0.2	0.4±0.2	1.0±0.2
ZTTCZ□MX	2.2±0.2	1.8±0.2	1.2max	0.4±0.2	0.5±0.2	0.85±0.2
ZTTCP□MG	6.0±0.2	3.0±0.2	2.0max	1.2±0.2	1.2±0.2	2.5±0.2

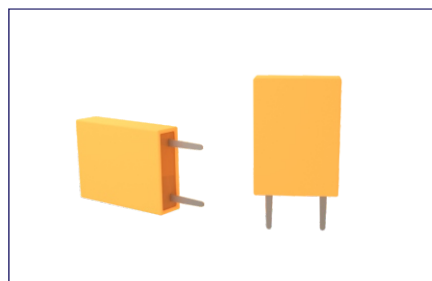
Note: A stands for thickness of the ceramic element, which varies with the frequency. The range of the thickness difference is 0.1 to 0.7mm.

ZTB 5.2x6.8 to 13.5x14.7 DIP PACKAGE

PRODUCT FEATURES

- Frequency Range: 150kHz~1500kHz
- High stability and adjustment-free
- RoHS compliant

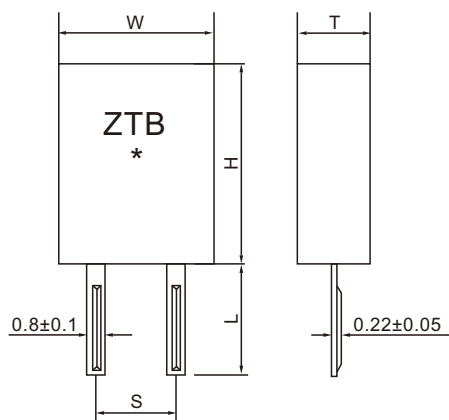
PRODUCT PHOTO



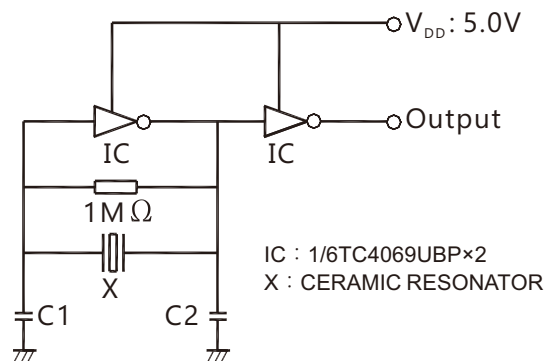
PRODUCT SPECIFICATIONS

Part Number	Frequency Accuracy (25°C)(KHz)	Stability over Temperature (-20~+80°C)(%)	Resonant Impedance (Ω)	Aging for Ten Years (%)	Load Capacitance	
					C1(pF)	C2(pF)
CRB150~249D	±1	±0.3	≦ 20	±0.3	330	470
CRB250~374D	±1	±0.3	≦ 20	±0.3	220	470
CRB375~429P	±2	±0.3	≦ 20	±0.3	120	470
CRB430~509E	±2	±0.3	≦ 20	±0.3	100	100
CRB510~699P	±2	±0.3	≦ 30	±0.3	100	100
CRB700~1500J	±3	±0.3	≦ 50	±0.3	100	100

PACKAGE OUTLINE / DIMENSIONS



TEST CIRCUIT



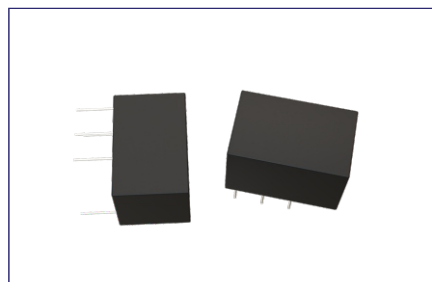
Part Number	W(mm) Width	T(mm) Thickness	H(mm) High	S(mm) Lead Space	L(mm) Lead Length
CRB150~249D	13.5	3.8	14.7	10.0	8.0
CRB250~374D	11.0	3.8	12.2	7.7	7.0
CRB375~429P	7.9	3.6	9.3	5.0	4.0
CRB430~509E	7.0	3.5	9.0	5.0	4.0
CRB510~699P	7.0	3.5	9.0	5.0	4.0
CRB700~1500J	5.2	2.8	6.8	3.5	3.5

6.5x6.0 to 11x8.0 DIP PACKAGE

PRODUCT FEATURES

- Highly selective for narrowband communication
- Compact structure and small size
- Electrical performance is not affected by external electromagnetic interference
- Suitable for matching with different ICs
- RoHS compliant

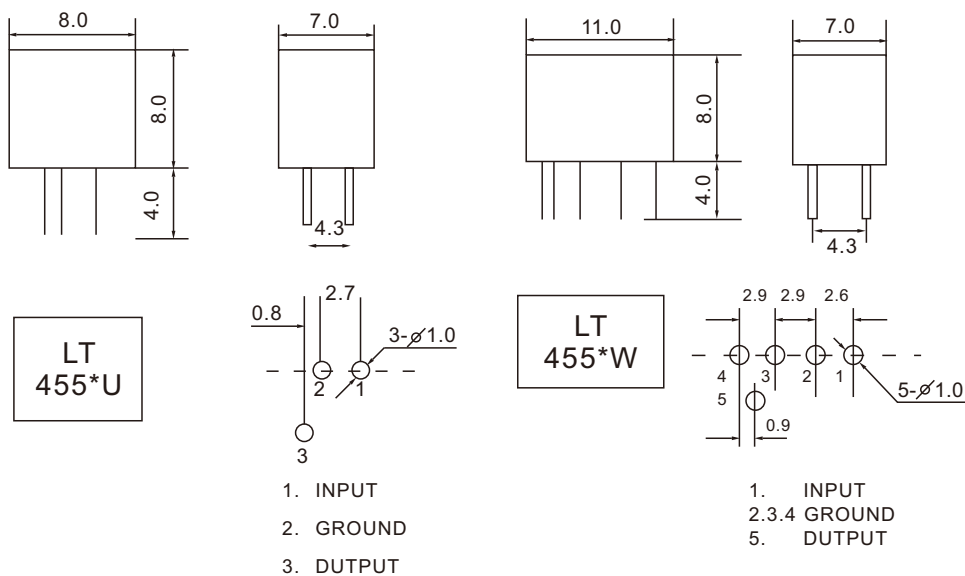
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Part Number		6dB Bandwidth (KHz)Min.	Attn.BW Bandwidth (KHz)Max.	Stop Band Attn (dB) Min.		Ripple (dB)Max.	Insertion Loss(dB)Max.	Input/Output Impedance (K.Ohm)	Operating Temperature (°C)
				LT	L				
LT455BU	LT455BW	±15	±30	28	45	2	4	1.5	-20~+80
LT455CU	LT455CW	±12.5	±24	28	45	2	4	1.5	
LT455DU	LT455DW	±10	±20	28	45	2	4	1.5	
LT455EU	LT455EW	±7.5	±15	28	45	2	4	1.5	
LT455FU	LT455FW	±6	±12.5	28	45	2	4	2	
LT455GU	LT455GW	±4.5	±10	30	45	2	4	2	
LT455HU	LT455HW	±3	±9	30	45	2	4	2	
LT455HTU	LT455HTW	±3	±9	35	45	2	4	2	

PACKAGE OUTLINE / DIMENSIONS



LT****U Series

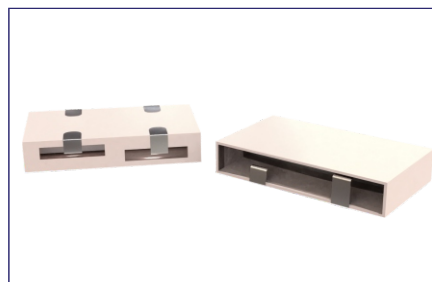
LT****W Series

SMD 6.5x6.0 to 8.5x7.5 PACKAGE

PRODUCT FEATURES

- High selectivity, suitable for narrowband communication
- Compact structure and small size
- Electrical performance won't be affected by external electromagnetic interference
- Suitable for matching with different ICs
- Automatic on-line, can be reflowed
- RoHS compliant

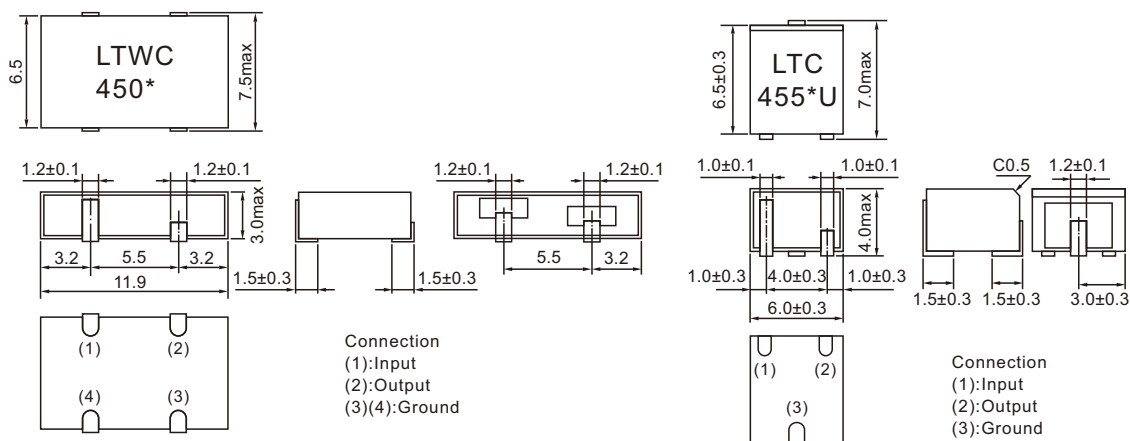
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Part Number		6dB Bandwidth (KHz)Min.	Attn.BW Bandwidth (KHz)Min.	Stop Band Attn (dB) Min.		Ripple (dB)Max.	Insertion Loss(dB)Max.	Input/Output Impedance (K.Ohm)	Operating Temperature (°C)
				LTWC	LTC				
LTWC450D	LTC450DU	±10	±20	45	28	3	6	1.5	-20~+80
LTWC450E	LTC450EU	±7.5	±15	45	28	3	6	1.5	
LTWC450F	LTC450FU	±6	±12.5	45	28	3	6	2	
LTWC450G	LTC450GU	±4.5	±10	45	28	3	6	2	
LTWC450H	LTC450HU	±3	±9	50	30	3	6	2	
LTWC455D	LTC455DU	±10	±20	45	28	3	6	1.5	
LTWC455E	LTC455EU	±7.5	±15	45	28	3	6	1.5	
LTWC455F	LTC455FU	±6	±12.5	45	28	3	6	2	
LTWC455G	LTC455GU	±4.5	±10	45	28	3	6	2	
LTWC455H	LTC455HU	±3	±9	50	30	3	6	2	

PACKAGE OUTLINE / DIMENSIONS



LTWC Series

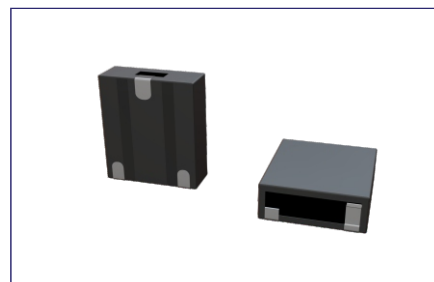
LTC ****U Series

SMD 6.0x6.2 & DIP 6.0x6.3 PACKAGE

PRODUCT FEATURES

- Compact and lightweight
- Suitable for mobile devices
- Responsive and reliable performance
- Standardized products
- Suitable for different dedicated circuits
- High cost performance
- RoHS compliant

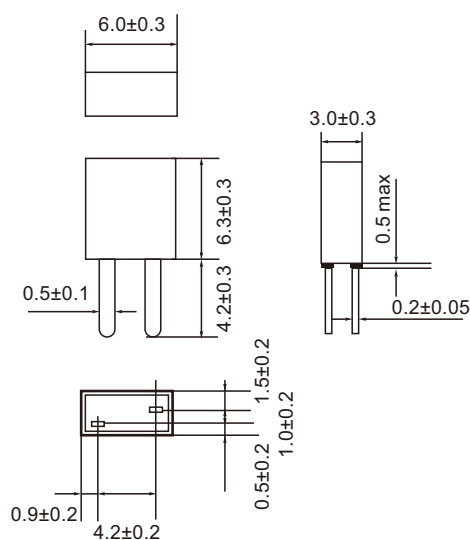
PRODUCT PHOTO



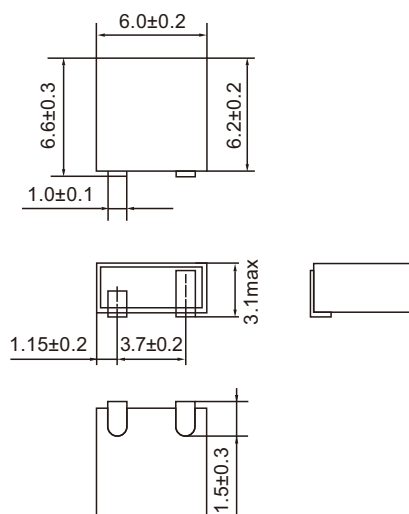
PRODUCT SPECIFICATIONS

Part Number		Receiver Audio 3dB Bandwidth (KHz)	Receiver Audio Output Voltage (mv)	Distortion (% max)
CDBM455C7	CDBB455C7	±4.0	340±60	3.0
CDBM455C16	CDBB455C16	±4.0	185±40	2.0
CDBM455C24	CDBB455C24	±4.0	100±40	2.0
CDBM455C28	CDBB455C28	±4.0	40±20	3.0
CDBM455C32	CDBB455C32	±4.0	40±20	3.0
CDBM455C40	CDBB455C40	±4.0	40±20	3.0
CDBM455C49	CDBB455C49	±4.0	40±15	3.0

PACKAGE OUTLINE / DIMENSIONS



CDBM Series



CDBB Series

SMD 3.7x3.1x1.4 PACKAGE

PRODUCT FEATURES

- Small size and light weight
- Suitable for mobile devices
- Responsive and reliable performance
- Adjustment-free test circuit
- High selectivity and Good stability
- RoHS compliant

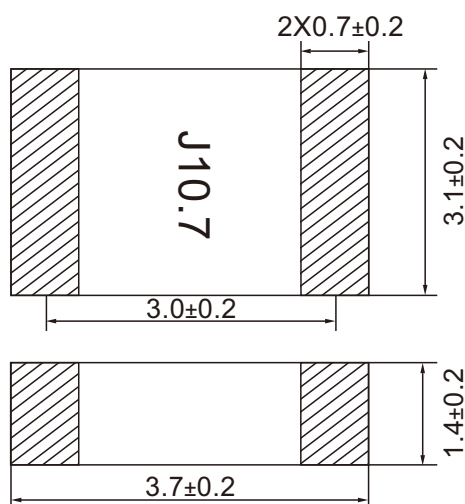
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Part Number	Receiver Audio 3dB Bandwidth(KHz)	Dernodulation Output at F0(mv)min	Distortion Factor at f0 (%) max
JTCV10.7MG1	345	25	1.0
JTCV10.7MG3	±150	650	1.0
JTCV10.7MG16	300	60~90	0.9
JTCV10.7MG18	300	60~90	0.9
JTCV10.7MG33	250	45	0.7
JTCV10.7MG80	300	65	1.0
JTCV10.7MG82	320	90	0.8
JTCV10.7MG92	300	60	1.0
JTCV10.7MC1	242	35	1.0

PACKAGE OUTLINE / DIMENSIONS

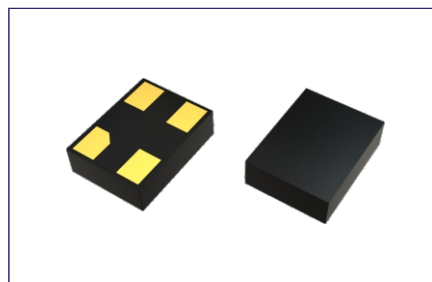


SMD 2.0x1.6 csp PACKAGE

PRODUCT FEATURES

- Small size 2.0x1.6x1.0mm
- The optional frequency can be customized
- High transmit and receive sensitivity
- High temperature resistance and impact resistance
- Good power and reliability
- RoHS compliant

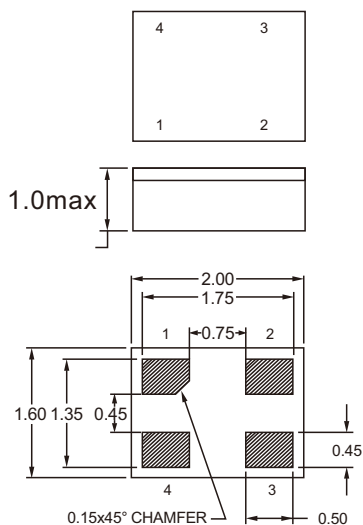
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item			Minimum	Typical	Maximum	Unit
Frequency Range			f _c	154~1000MHz		MHz
Standard Frequency			f _c	303,315,390,433.92,435,72		MHz
Frequency Tolerance(at 25℃)			△f _c	±50, ±75, ±150 or specify		KHz
Insertion Loss (in 50ohm system, min)			IL	1.0,1.3,1.4, 1.5 or specify		dB
Temperature Stability	Turnover Temperature	T ₀	25	40	55	℃
	Turnover Frequency	f ₀		f _c		
	Frequency Temperature Coefficient	FTC		0.037		ppm/℃
Frequency Aging	Absolute Value during the First Year	f _A		≤10		ppm/yr
DC Insulation Resistance between Any Two Pins				1.0		MΩ
Operating Temperature Range			-40~+85			℃
Storage Temperature Range			-40~+85			℃

PACKAGE OUTLINE / DIMENSIONS



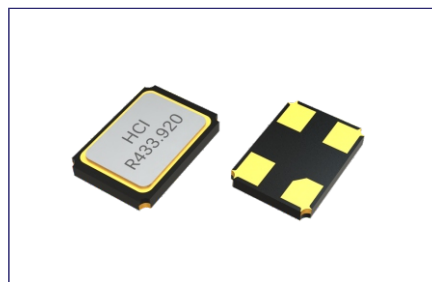
Pin No.	Description
1	Input/ Output
3	Output/ Input
2,4	Ground

SMD 3.2x2.5 CERAMIC SEAM SEAL PACKAGE

PRODUCT FEATURES

- Small size 3.2x2.5x1.0mm
- The optional frequency can be customized
- High transmit and receive sensitivity
- High temperature resistance and impact resistance
- Good power and reliability
- RoHS compliant

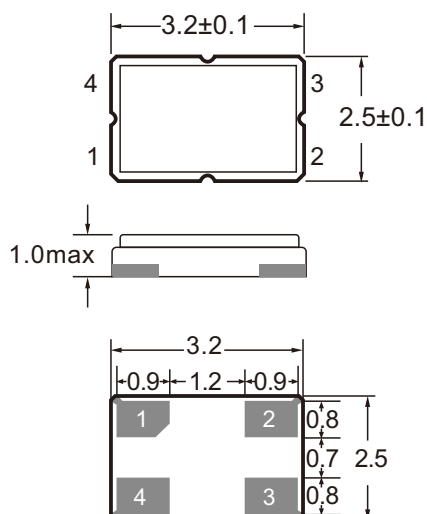
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item			Minimum	Typical	Maximum	Unit
Frequency Range			f _c	154~1000MHz		MHz
Standard Frequency			f _c	303,315,390,433.92,435,72		MHz
Frequency Tolerance(at 25℃)			△f _c	±50, ±75, ±150 or specify		KHz
Insertion Loss (in 50ohm system, min)			IL	1.0,1.3,1.4, 1.5 or specify		dB
Temperature Stability	Turnover Temperature	T ₀	25	40	55	℃
	Turnover Frequency	f ₀		f _c		
	Frequency Temperature Coefficient	FTC		0.037		ppm/℃
Frequency Aging	Absolute Value during the First Year	f _A		≤10		ppm/yr
DC Insulation Resistance between Any Two Pins				1.0		MΩ
Operating Temperature Range			-40~+85			℃
Storage Temperature Range			-40~+85			℃

PACKAGE OUTLINE / DIMENSIONS



Pin No.	Description
1	Input/ Output
3	Output/ Input
2,4	Ground

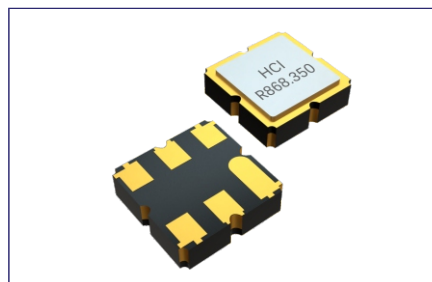


SMD 3.0x3.0 CERAMIC SEAM SEAL PACKAGE

PRODUCT FEATURES

- Small size 3.0x3.0x1.25mm
- The optional frequency can be customized
- High transmit and receive sensitivity
- High temperature resistance and impact resistance
- Good power and reliability
- RoHS compliant

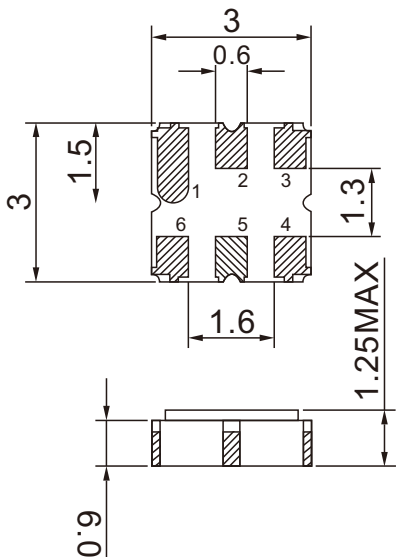
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item			Minimum	Typical	Maximum	Unit
Frequency Range		f_c	154~1000MHz			MHz
Standard Frequency			315,330, 370,433.92,868,915			MHz
Frequency Tolerance(at 25°C)		Δf_c	$\pm 50, \pm 75, \pm 150$ or specify			KHz
Insertion Loss (in 50ohm system, min)		IL	1.0,1.3,1.4, 1.5 or specify			dB
Temperature Stability	Turnover Temperature	T_0	25	40	55	°C
	Turnover Frequency	f_0		f_c		
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C
Frequency Aging	Absolute Value during the First Year	$ f_A $		≤ 10		ppm/yr
DC Insulation Resistance between Any Two Pins			1.0			MΩ
Operating Temperature Range			-40~+85			°C
Storage Temperature Range			-55~+125			°C

PACKAGE OUTLINE / DIMENSIONS



Pin No.	Description
2	Input/Output
5	Output/Input
1,3,4,6	Case Ground

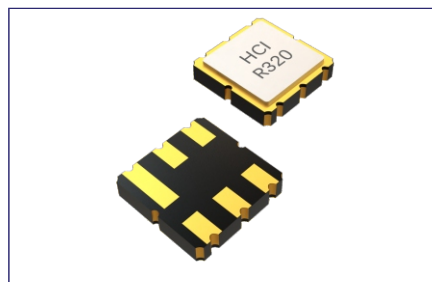


SMD 3.8x3.8 CERAMIC SEAM SEAL PACKAGE

PRODUCT FEATURES

- Small size 3.8x3.8x1.5mm
- The optional frequency can be customized
- High transmit and receive sensitivity
- High temperature resistance and impact resistance
- Good power and reliability
- RoHS compliant

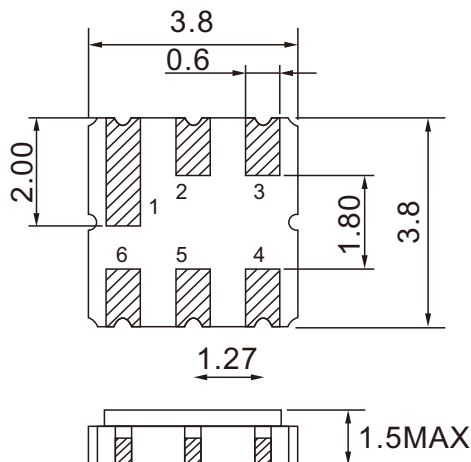
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item			Minimum	Typical	Maximum	Unit
Frequency Range		f_c	154~1000MHz			MHz
Standard Frequency			315,330, 370,433.92,868,915			MHz
Frequency Tolerance(at 25°C)		Δf_c	$\pm 50, \pm 75, \pm 150$ or specify			KHz
Insertion Loss (in 50ohm system, min)		IL	1.0,1.3,1.4, 1.5 or specify			dB
Temperature Stability	Turnover Temperature	T_0	25	40	55	°C
	Turnover Frequency	f_0		f_c		
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C
Frequency Aging	Absolute Value during the First Year	$ f_A $		≤ 10		ppm/yr
DC Insulation Resistance between Any Two Pins			1.0			MΩ
Operating Temperature Range			-40~+85			°C
Storage Temperature Range			-55~+125			°C

PACKAGE OUTLINE / DIMENSIONS



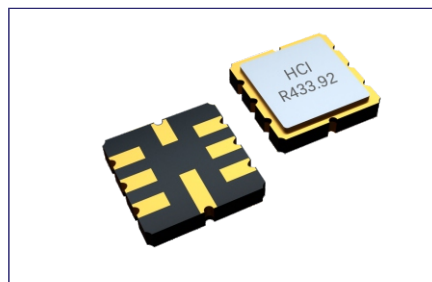
Pin No.	Description
2	Input/Output
5	Output/Input
1,3,4,6	Case Ground

SMD 5.0x5.0 CERAMIC SEAM SEAL PACKAGE

PRODUCT FEATURES

- Small size 5.0x5.0x1.5mm
- The optional frequency can be customized
- High transmit and receive sensitivity
- High temperature resistance and impact resistance
- Good power and reliability
- RoHS compliant

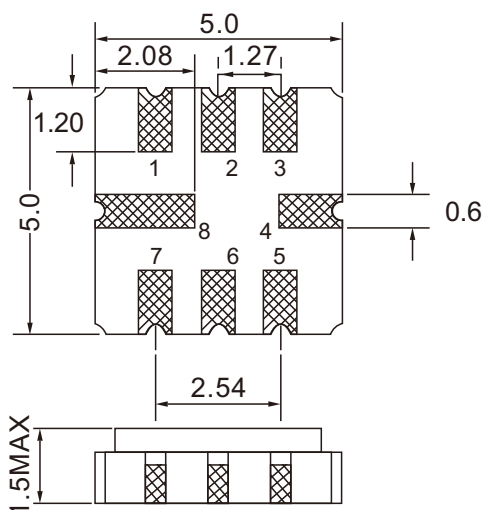
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item			Minimum	Typical	Maximum	Unit
Frequency Range			f _c	154~1000MHz		MHz
Standard Frequency				315,330, 370,433.92,868,915		MHz
Frequency Tolerance(at 25°C)			△f _c	±50, ±75, ±150 or specify		KHz
Insertion Loss (in 50ohm system, min)			IL	1.0,1.3,1.4, 1.5 or specify		dB
Temperature Stability	Turnover Temperature	T ₀	25	40	55	°C
	Turnover Frequency	f ₀		f _c		
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C
Frequency Aging	Absolute Value during the First Year	f _A		≤10		ppm/yr
DC Insulation Resistance between Any Two Pins				1.0		MΩ
Operating Temperature Range			-40~+85			°C
Storage Temperature Range			-55~+125			°C

PACKAGE OUTLINE / DIMENSIONS



Pin No.	Description
2	Input/Output
6	Output/Input
1,3,5,7	To be grounded
4,8	Case Ground

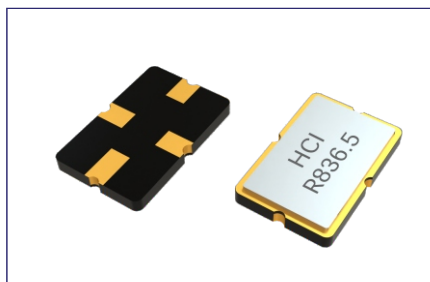


SMD 5.0x3.5 CERAMIC SEAM SEAL PACKAGE

PRODUCT FEATURES

- Small size 5.0x3.5x1.5mm
- The optional frequency can be customized
- High transmit and receive sensitivity
- High temperature resistance and impact resistance
- Good power and reliability
- RoHS compliant

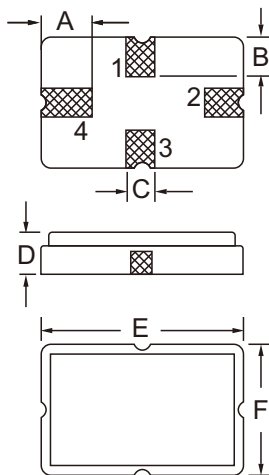
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item			Minimum	Typical	Maximum	Unit
Frequency Range		f_c	154~1000MHz			MHz
Standard Frequency			315,330, 370,433.92,868,915			MHz
Frequency Tolerance(at 25°C)		Δf_c	$\pm 50, \pm 75, \pm 150$ or specify			KHz
Insertion Loss (in 50ohm system, min)		IL	1.0,1.3,1.4, 1.5 or specify			dB
Temperature Stability	Turnover Temperature	T_0	25	40	55	°C
	Turnover Frequency	f_0		f_c		
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C
Frequency Aging	Absolute Value during the First Year	$ f_A $		≤ 10		ppm/yr
DC Insulation Resistance between Any Two Pins			1.0			MΩ
Operating Temperature Range			-40~+85			°C
Storage Temperature Range			-55~+125			°C

PACKAGE OUTLINE / DIMENSIONS



Sign	Data (unit: mm)	Sign	Data (unit: mm)
A	1.2±0.1	D	1.4±0.1
B	0.8±0.1	E	5.0±0.1
C	0.5	F	3.5±0.1

Pin No.	Description
1	Input/Output
3	Output/Input
2,4	Case Ground

D11 RESISTANCE WELDED PACKAGE

PRODUCT FEATURES

- Small size 8.4x3.5x2.9mm
- The optional frequency can be customized
- High transmit and receive sensitivity
- High temperature resistance and impact resistance
- Good power and reliability
- RoHS compliant

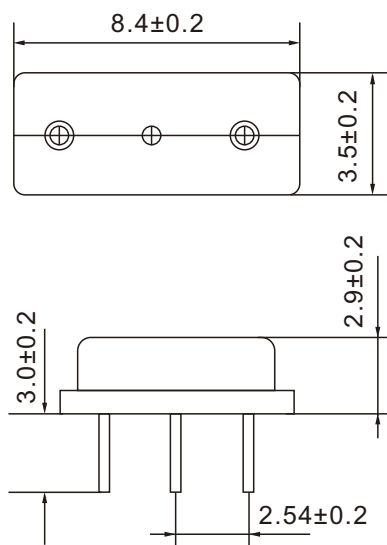
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item			Minimum	Typical	Maximum	Unit
Frequency Range		f_c	154~1000MHz			MHz
Standard Frequency			315,330, 370,433.92,868,915			MHz
Frequency Tolerance(at 25°C)		Δf_c	$\pm 50, \pm 75, \pm 150$ or specify			KHz
Insertion Loss (in 50ohm system, min)		IL	1.0,1.3,1.4, 1.5 or specify			dB
Temperature Stability	Turnover Temperature	T_0	25	40	55	°C
	Turnover Frequency	f_0		f_c		
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C
Frequency Aging	Absolute Value during the First Year	$ f_A $		≤ 10		ppm/yr
DC Insulation Resistance between Any Two Pins			1.0			MΩ
Operating Temperature Range			-40~+85			°C
Storage Temperature Range			-55~+125			°C

PACKAGE OUTLINE / DIMENSIONS



Pin No.	Description
1	Input
3	Output
2	Case Ground

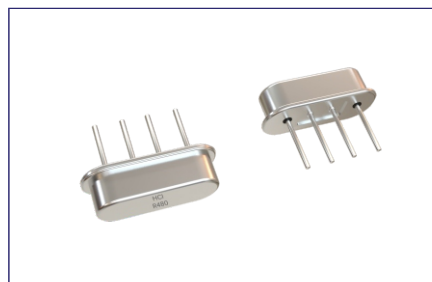


F11 RESISTANCE WELDED PACKAGE

PRODUCT FEATURES

- Small size 11x4.5x3.2mm
- The optional frequency can be customized
- High transmit and receive sensitivity
- High temperature resistance and impact resistance
- Good power and reliability
- RoHS compliant

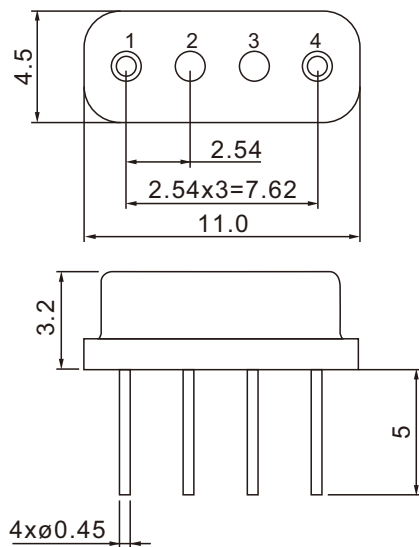
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item			Minimum	Typical	Maximum	Unit
Frequency Range		f_c	154~1000MHz			MHz
Standard Frequency			315,330, 370,433.92,868,915			MHz
Frequency Tolerance(at 25°C)		Δf_c	$\pm 50, \pm 75, \pm 150$ or specify			KHz
Insertion Loss (in 50ohm system, min)		IL	1.0,1.3,1.4, 1.5 or specify			dB
Temperature Stability	Turnover Temperature	T_0	25	40	55	°C
	Turnover Frequency	f_0		f_c		
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C
Frequency Aging	Absolute Value during the First Year	$ f_A $		≤ 10		ppm/yr
DC Insulation Resistance between Any Two Pins			1.0			MΩ
Operating Temperature Range			-40~+85			°C
Storage Temperature Range			-55~+125			°C

PACKAGE OUTLINE / DIMENSIONS



Pin No.	Description
1	Input/ Output
4	Output/ Input
2,3	Case Ground



T039 RESISTANCE WELDED PACKAGE

PRODUCT FEATURES

- Size $\phi 9.15 \times 3.3\text{mm}$
- The optional frequency can be customized
- High transmit and receive sensitivity
- High temperature resistance and impact resistance
- Good power and reliability
- RoHS compliant

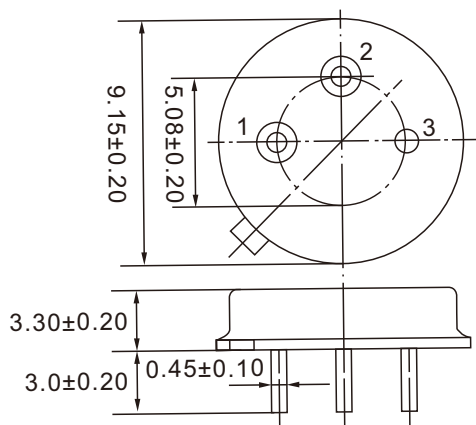
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item			Minimum	Typical	Maximum	Unit
Frequency Range		f_c	154~1000MHz			MHz
Standard Frequency			315,330, 370,433.92,868,915			MHz
Frequency Tolerance(at 25°C)		Δf_c	$\pm 50, \pm 75, \pm 150$ or specify			KHz
Insertion Loss (in 50ohm system, min)		IL	1.0,1.3,1.4, 1.5 or specify			dB
Temperature Stability	Turnover Temperature	T_0	25	40	55	°C
	Turnover Frequency	f_0		f_c		
	Frequency Temperature Coefficient	FTC		0.032		ppm/°C
Frequency Aging	Absolute Value during the First Year	$ f_A $		≤ 10		ppm/yr
DC Insulation Resistance between Any Two Pins			1.0			MΩ
Operating Temperature Range			-40~+85			°C
Storage Temperature Range			-55~+125			°C

PACKAGE OUTLINE / DIMENSIONS



Pin No.	Description
1	Input/ Output
2	Output/ Input
3	Case Ground

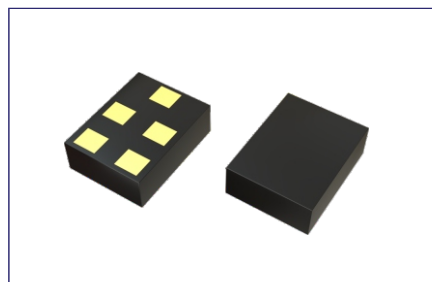


SMD 1.1X0.9X0.5 CSP PACKAGE

PRODUCT FEATURES

- Ultra Small size 1.1x0.9x0.5mm
- CSP process with chip scale package
- Standardization of small size
- Good stability and high reliability
- Mainly used in GPS navigation
- TDD/FDD communication and artificial intelligence chips
- RoHS compliant

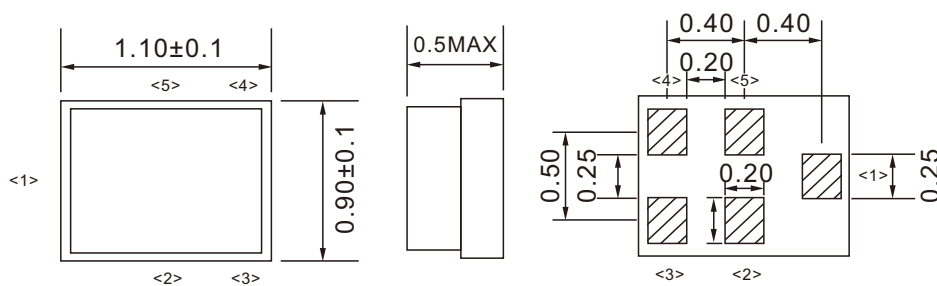
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item		Specifications	Unit
Frequency Range	f_c	800~3500MHz	MHz
Standard Frequency		1575.42, 1582.4, 1568, 2655	MHz
Useful Band Width		3, 18, 48 or specify	MHz
Insertion Loss (min)	IL	0.9, 1.3, 1.8, 2.2 or specify	dB
VSWR(max)		2.0	dB
Operating Temperature Range		-40~+85	°C
Storage Temperature Range		-40~+85	°C

PACKAGE OUTLINE / DIMENSIONS



Pin No.	Description
1	Input
4	Output
2,3,5	To be grounded

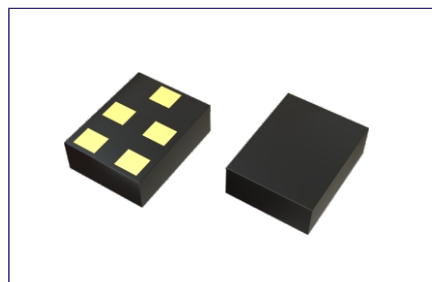


SMD 1.4X1.1X0.6 CSP PACKAGE

PRODUCT FEATURES

- Ultra Small size 1.4x1.1x0.6mm
- CSP process with chip scale package
- Standardization of small size
- Good stability and high reliability
- Mainly used in GPS navigation
- TDD/FDD communication and artificial intelligence chips
- ROHS compliant

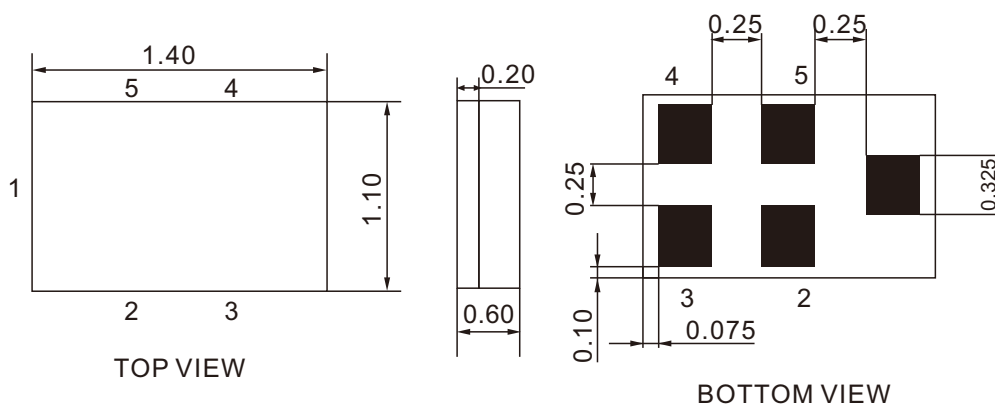
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item		Specifications	Unit
Frequency Range	f_c	800~3600MHz	MHz
Standard Frequency		1575.42, 1582.4, 1568, 2655	MHz
Useful Band Width		3, 18, 48 or specify	MHz
Insertion Loss (min)	IL	0.9, 1.3, 1.8, 2.2 or specify	dB
VSWR(max)		2.0	dB
Operating Temperature Range		-40~+85	°C
Storage Temperature Range		-40~+85	°C

PACKAGE OUTLINE / DIMENSIONS



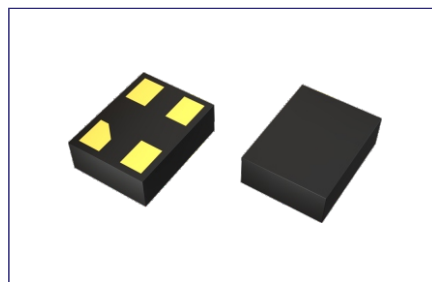
Pin No.	Description
1	Input
4	Output
2,3,5	To be grounded

SMD 2.0X1.5X0.6 CSP PACKAGE

PRODUCT FEATURES

- Ultra Small size 2.0x1.5x0.6mm
- CSP process with chip scale package
- Standardization of small size
- Good stability and high reliability
- Mainly used in GPS navigation
- TDD/FDD communication and artificial intelligence chips
- ROHS compliant

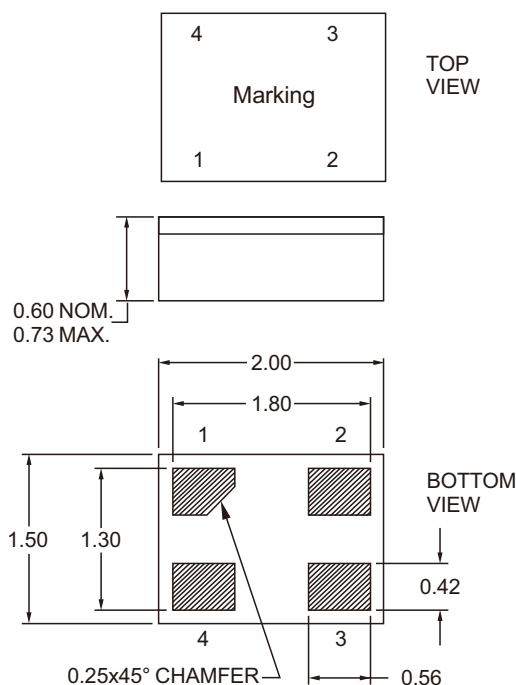
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item		Specifications	Unit
Frequency Range	f_c	800~3600MHz	MHz
Standard Frequency		1575.42, 1582.4, 1568, 2655	MHz
Useful Band Width		3, 25, 48 or specify	MHz
Insertion Loss (min)	IL	0.9, 1.3, 1.8, 2.2 or specify	dB
VSWR(max)		2.0	dB
Operating Temperature Range		-40~+85	°C
Storage Temperature Range		-40~+85	°C

PACKAGE OUTLINE / DIMENSIONS



Pin No.	Description
1	Input
3	Output
2,4	Case Ground

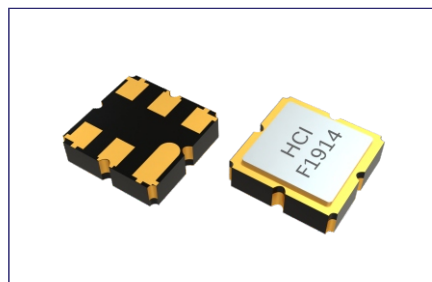


SMD 3.0X3.0 CERAMIC SEAM SEAL PACKAGE

PRODUCT FEATURES

- Small size 3.0x3.0x1.25mm
- Welding can be done with Auto-SMD
- Low-loss SAW component
- Low amplitude ripple
- Sharp rejections at both out-bands
- RoHS compliant

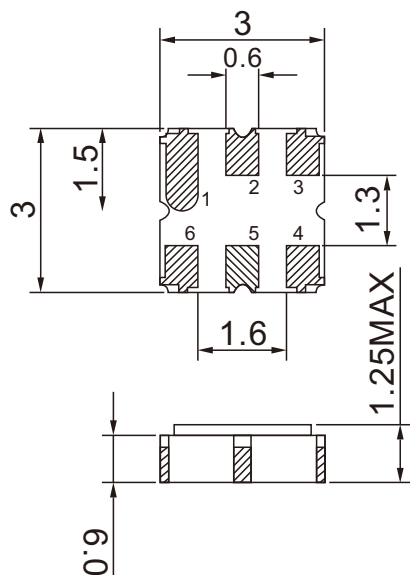
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item		Specifications	Unit
Frequency Range	f_c	100~3600MHz	MHz
Standard Frequency		1575.42, 1582.4, 1568, 2655	MHz
Useful Band Width		3, 25, 48 or specify	MHz
Insertion Loss (min)	IL	0.9, 1.3, 1.8, 2.2 or specify	dB
VSWR(max)		2.0	dB
Operating Temperature Range		-40~+85	°C
Storage Temperature Range		-40~+85	°C

PACKAGE OUTLINE / DIMENSIONS



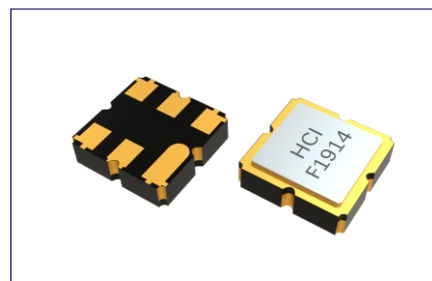
Pin No.	Description
2	Input
5	Output
1, 3, 4, 6	Ground

SMD 3.8X3.8 CERAMIC SEAM SEAL PACKAGE

PRODUCT FEATURES

- Small size 3.8x3.8x1.5mm
- Welding can be done with Auto-SMD
- Low-loss SAW component
- Low amplitude ripple
- Sharp rejections at both out-bands
- RoHS compliant

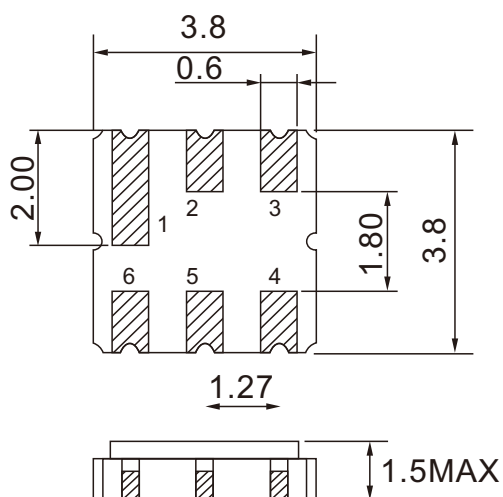
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item		Specifications	Unit
Frequency Range	f_c	100~1000MHz	MHz
Standard Frequency	f_c	315,433.92,480,500,866.5	MHz
Band Width		2, 3,5,10,20,40, or specify	MHz
Insertion Loss (min)		1.5,1.8,2.0,3.0, 6.5 or specify	dB
Operating Temperature Range	IL	-40~+85	°C
Storage Temperature Range		-55~+125	°C

PACKAGE OUTLINE / DIMENSIONS



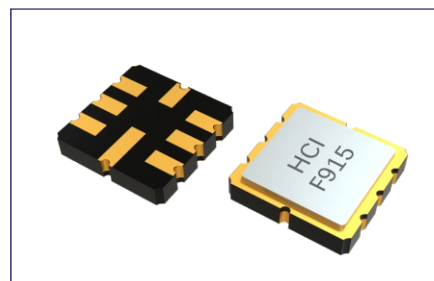
Pin No.	Description
2	Input/Output
5	Output/Input
1,3,4,6	Case Ground

SMD 5.0X5.0 CERAMIC SEAM SEAL PACKAGE

PRODUCT FEATURES

- Size 5.0x5.0x1.5mm
- Welding can be done with automatic mounting
- Low-loss SAW component
- Low amplitude ripple
- Sharp rejections at both out-bands
- RoHS compliant

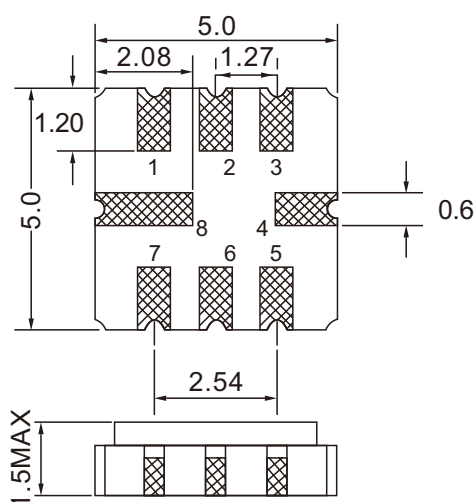
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item		Specifications	Unit
Frequency Range	f_c	100~1000MHz	MHz
Standard Frequency	f_c	315,433.92,480,500,866.5	MHz
Band Width		2, 3, 5, 10, 20, 40, or specify	MHz
Insertion Loss (min)		1.5, 1.8, 2.0, 3.0, 6.5 or specify	dB
Operating Temperature Range	IL	-40~+85	°C
Storage Temperature Range		-55~+125	°C

PACKAGE OUTLINE / DIMENSIONS



2	Input/Output
6	Output/Input
1,3,5,7	To be grounded
4,8	Case Ground

F11 RESISTANCE WELDED PACKAGE

PRODUCT FEATURES

- Size 8.4x3.5x2.9mm
- IF filter for DSB receivers
- Constant group delay
- Improved ESD capability by integrated shunt resistors
- Optimized group delay time
- Stable performance
- Simple circuit

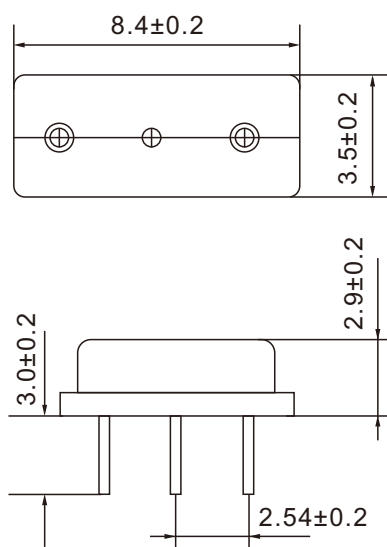
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item		Specifications	Unit
Frequency Range	f_c	100~1000MHz	MHz
Band Width		$\pm 2, \pm 5, \pm 20, \pm 50$, or specify	MHz
Insertion Loss (min)	IL	1.0, 1.5, 3.0, 6.5 or specify	dB
Operating Temperature Range		-40~+85	°C
Storage Temperature Range		-55~+125	°C

PACKAGE OUTLINE / DIMENSIONS



Pin No.	Description
1	Input
3	Output
2	Case Ground

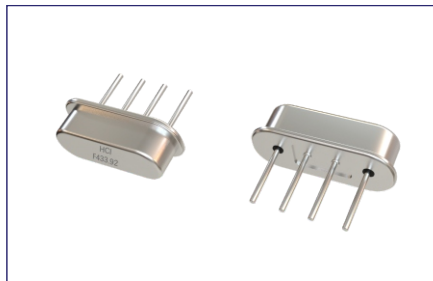


F11 RESISTANCE WELDED PACKAGE

PRODUCT FEATURES

- Size 11x4.5x3.2mm
- IF filter for DSB receivers
- Constant group delay
- Improved ESD capability by integrated shunt resistors
- Optimized group delay time
- Stable performance
- Simple circuit

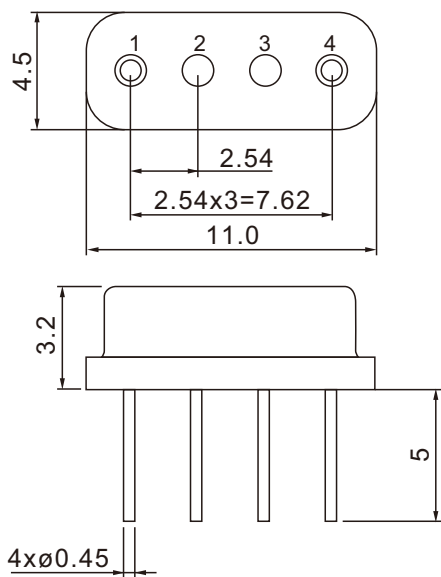
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item		Specifications	Unit
Frequency Range	f_c	100~1000MHz	MHz
Band Width		± 2 , ± 5 , ± 20 , ± 50 , or specify	MHz
Insertion Loss (min)	IL	1.0, 1.5, 3.0, 6.5 or specify	dB
Operating Temperature Range		-40~+85	°C
Storage Temperature Range		-55~+125	°C

PACKAGE OUTLINE / DIMENSIONS



Pin No.	Description
1	Input/ Output
4	Output/ Input
2,3	Case Ground

TO39 RESISTANCE WELDED PACKAGE

PRODUCT FEATURES

- Size $\phi 9.15 \times 3.3\text{mm}$
- IF filter for DSB receivers
- Constant group delay
- Improved ESD capability by integrated shunt resistors
- Optimized group delay time
- Stable performance
- Simple circuit

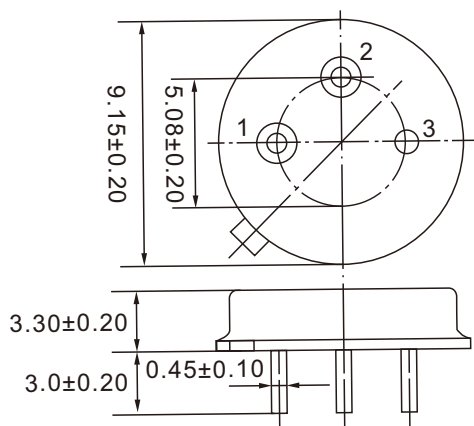
PRODUCT PHOTO



PRODUCT SPECIFICATIONS

Item		Specifications	Unit
Frequency Range	f_c	100~1000MHz	MHz
Band Width		$\pm 2, \pm 5, \pm 20, \pm 50$, or specify	MHz
Insertion Loss (min)	IL	1.0, 1.5, 3.0, 6.5 or specify	dB
Operating Temperature Range		-40~+85	°C
Storage Temperature Range		-55~+125	°C

PACKAGE OUTLINE / DIMENSIONS



Pin No.	Description
1	Input/ Output
2	Output/ Input
3	Case Ground