



**LUCKI CM ELECTRONICS Co.,Ltd**



APPROVAL SHEET

Customer : \_\_\_\_\_  
 Part Number: 2016 Seam Sealing Crystal  
 LK Part No.: L214S320HH  
 Holder : SMD2016  
 Frequency: 32.000MHZ 10PF  $\pm$  10PPM  
 Manufacturer: Lucki Electronics  
 Date: 2021-11-06

Prepared	Checked	Approved
Chen Mohan	Zhang Dongwei	Zhang Bin

(For Customer Use)

Acceptable	



**LUCKI CM ELECTRONICS Co.,Ltd**



Revision History

No.	Revised Date	Change Content	Approved	Remark



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### 1. Electrical characteristics

Items	Symbol	Specification			Unit	Notes
		Min	Typ	Max		
Model No		Seam Seal 2016				
Blank Cutting Mode		AT FUND.				
Nominal Frequency	F0	32.000			MHz	
Oscillation Mode		<input checked="" type="checkbox"/> Fundamental <input type="checkbox"/> 3rd				
Frequency Tolerance	$\Delta F/F0$	-10		10	ppm	25°C ± 3°C
Load Capacitance	CL		10		pF	
Frequency Stability	TC	-10		10	ppm	
Operating Temperature	Topr	-20		75	°C	
Storage Temperature	Tstg	-55	~	125	°C	
Drive Level	DL		100	300	uW	
Effective Resistance RR	Rr	-	-	40	Ω	
Shunt Capacitance C0	C0	-	-	2	pF	
Trim Sensitivity TS	TS	-	-	-	ppm/PF	
Insulation Resistance	IR	500	-	-	MΩ	at DC 100 V
Aging:	Fa	-2		0	ppm	Per year
Weight			0.0126		g	

**Remark:** Sample Data See Attachment

#### Measure equipment :

Electrical characteristics measured by S&A 250B or equivalent.

#### Hermetically :

**Fine Leak:** Helium Bombing 4kg/cm<sup>2</sup> for 1 Hour, Leak ate Less Than <sup>-8</sup>atm. cc/sec 1×10

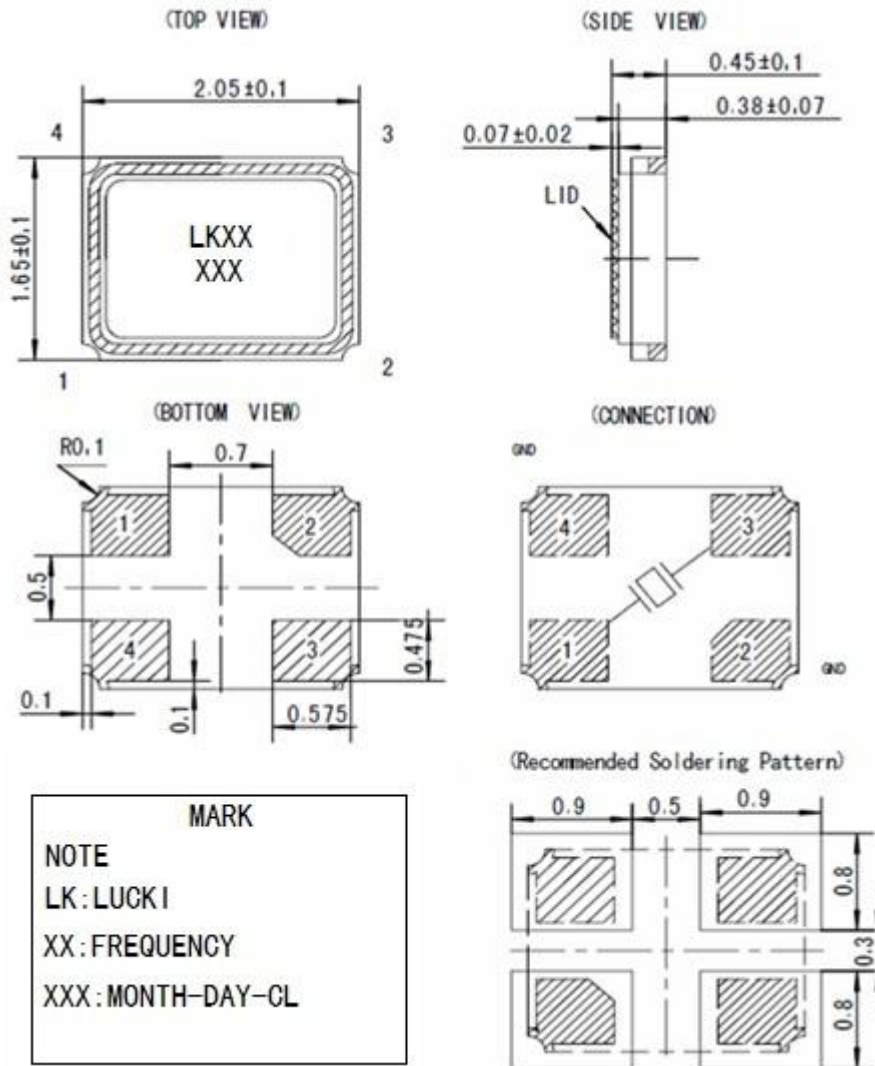
**Gross Leak:** 125°C FC#40 , 120 Seconds, No Bubble



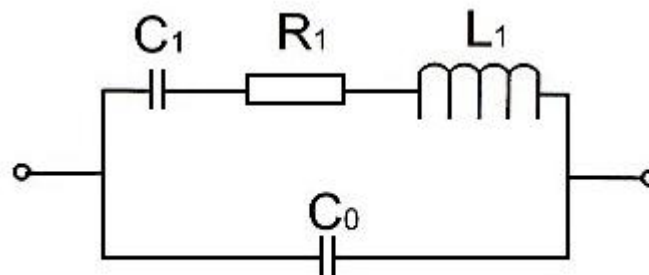
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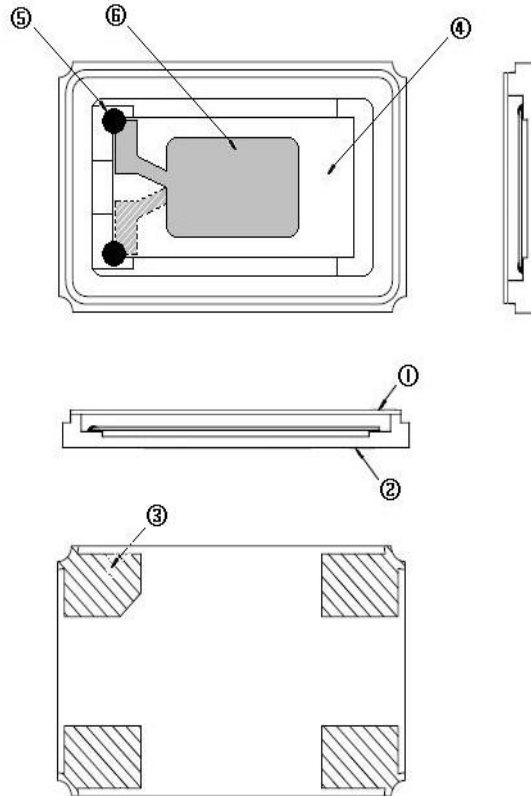
## 2. Solder Dimension And Pattern



## 3. Equivalent Circuit



Equivalent Circuit

**4. Structure drawing**


NO	COMPONENTS	MATERIALS	QTY	FINISH / SPECIFICATIONS
1	Cap	Metal ( Fe )	1	-
2	Base	Ceramic	1	Color black
3	PAD	Au	4	Tungsten metalize + Ni plating + Au plating
4	Crystal Blank	SiO <sub>2</sub>	1	-
5	Conductive Adhesive	Ag	4	Silicone
6	Electrode	Ag + Cr	2	-



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### 5. Reliability Specification

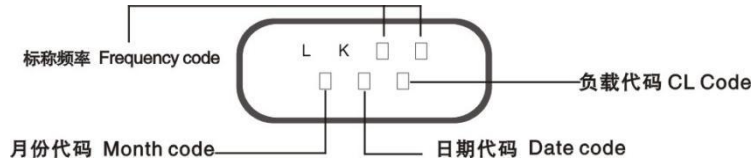
	Item	Condition	Standard
1.	Drop characteristics	Free drop from 75cm height on a hard wooden board for 3 times. (Board is thickness more than 30 mm.)	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
2	Mechanical shock	Device are shocked to half sine wave (1000g) three mutually perpendicular axes each 3 times	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
3.	Shake characteristics	Shake frequency 10~55Hz, cyc1~2 minutes, swing 1.5mm, direction x/y/z, all 30 minutes, test after 1 hours.	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
4.	Humidity characteristics	+40 $\pm$ 2 $^{\circ}\text{C}$ & 90%~95% R.H. 250 hours	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
5.	Low temperature characteristics	-40 $\pm$ 2 $^{\circ}\text{C}$ , 250 hours, put in room temperature, test after 1 hours.	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
6.	High temperature characteristics	+85 $\pm$ 2 $^{\circ}\text{C}$ , 250 hours, put in room temperature, test after 1 hours.	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
7.	Temperature cycling	-30 $\pm$ 3 $^{\circ}\text{C}$ /30 $\pm$ 3 min~+85 $\pm$ 2 $^{\circ}\text{C}$ /30 $\pm$ 3min, 5 cycles	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification
8.	Reflux examination	<p>1- Max 180 sec 2- Max 10 sec 3- Max 80 sec 4- Max 90 sec</p>	Frequency change: $\leq \pm 5\text{ppm}$ Rr as specification



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## 6. Marking specification



### Produce Time Code:

#### 负载代码 CL Code

负载 CL	6	6.1~6.5	7.1~7.5	8	8.5	9	9.1~9.5	10	10.5	11.2	11.5	12	12.5
代码 Code	A	B	C	D	E	F	G	H	I	J	K	L	M

负载 CL	13	14	15	16	17	18	19	20	22	28	30		
代码 Code	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

#### 月份代码 Month code

月份 Month	1	2	3	4	5	6	7	8	9	10	11	12
代码 code	1	2	3	4	5	6	7	8	9	O	N	D

#### 日期代码 Date code

日期 Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
代码 code	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P

日期 Date	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
代码 code	Q	R	S	T	U	V	W	X	Y	Z	1	2	3	4	5

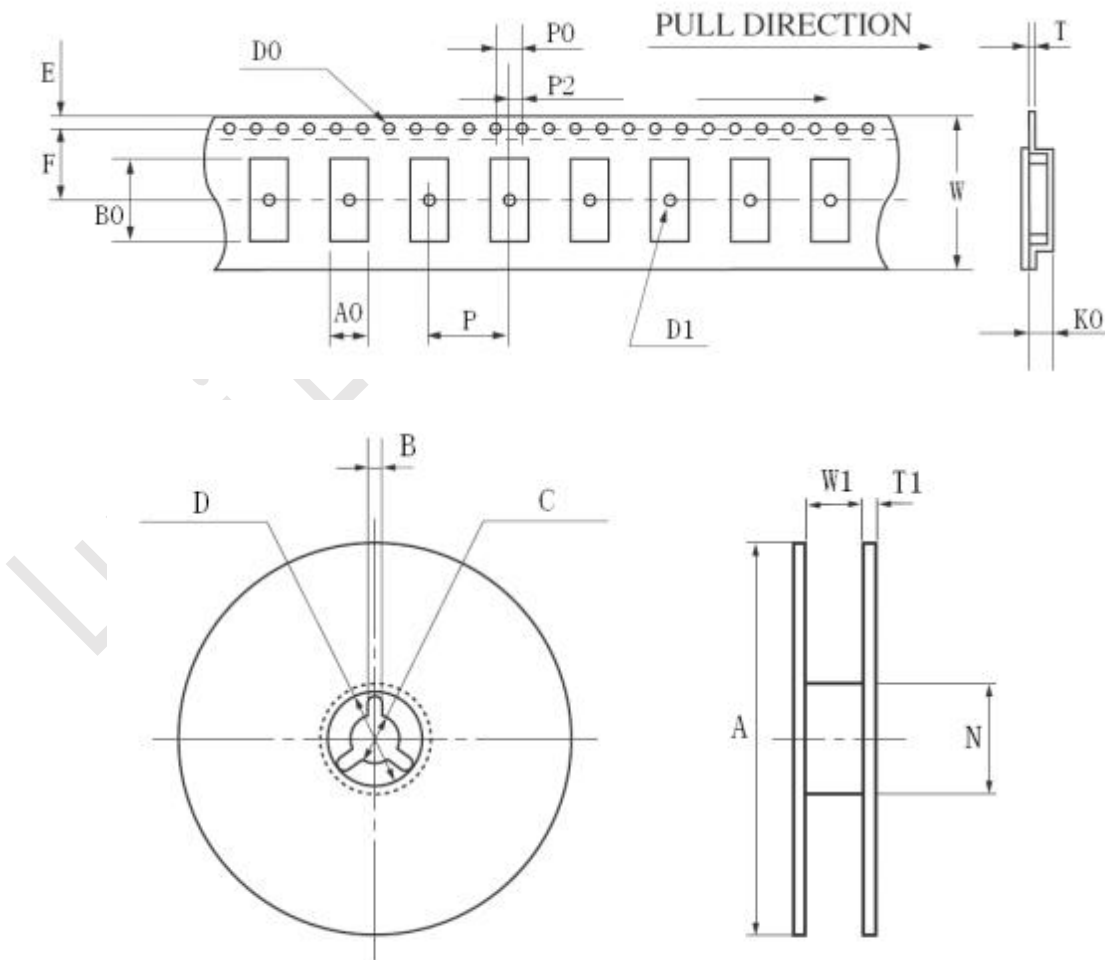


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## 7. Type & Reel

	HC-49SMD	7050	6035	5032	3225	2520	2016
W	24.00±0.30	16.00±0.05	12.00±0.05	12.00±0.05	8.00±0.05	8.00±0.05	8.00±0.05
E	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10
F	11.5±0.10	7.5±0.10	5.5±0.10	5.5±0.10	3.5±0.05	3.5±0.05	3.5±0.05
T	0.40±0.05	0.35±0.05	0.35±0.05	0.30±0.05	0.25±0.03	0.25±0.03	0.25±0.03
P	12.00±0.10	8.00±0.10	8.00±0.10	8.00±0.10	4.00±0.05	4.00±0.05	4.00±0.05
P0	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.05	4.00±0.05	4.00±0.05
P2	2.00±0.10	2.00±0.10	2.00±0.10	2.00±0.10	2.00±0.05	2.00±0.05	2.00±0.05
D0	φ1.50+0.10	φ1.50+0.10	φ1.50+0.10	φ1.50+0.10	φ1.50+0.10	φ1.50+0.10	φ1.50+0.10
D1	φ1.50MIN	φ1.50MIN	φ1.50MIN	φ1.50MIN	φ1.00MIN	φ1.00MIN	φ1.00MIN
A0	4.60±0.10	5.40±0.10	3.90±0.10	3.50±0.10	2.70±0.10	2.4±0.10	2.00±0.10
K0	4.40±0.10	1.80±0.10	1.50±0.10	1.60±0.10	1.50±0.10	1.10±0.10	1.10±0.10
B0	14.20±0.15	7.40±0.10	6.40±0.10	5.20±0.10	3.50±0.05	2.90±0.05	2.4±0.05







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	HC-49SMD	7050	6035	5032	3225	2520	2016
A	$\phi 330 \pm 1.0$	$\phi 178 \pm 2.0$	$\phi 178 \pm 2.0$	$\phi 178 \pm 2.0$	$\phi 178 \pm 2.0$	$\phi 178 \pm 2.0$	$\phi 178 \pm 2.0$
B	$2.30 \pm 0.20$	$2.00 \pm 0.50$	$2.00 \pm 0.50$	$2.00 \pm 0.50$	$2.50 \pm 0.50$	$2.50 \pm 0.50$	$2.50 \pm 0.50$
C	$\phi 13.5 \pm 0.20$	$\phi 13.2 \pm 0.20$	$\phi 13.2 \pm 0.20$	$\phi 13.2 \pm 0.20$	$\phi 13.5 \pm 0.20$	$\phi 13.5 \pm 0.20$	$\phi 13.5 \pm 0.20$
D	$\phi 21.5 \pm 0.20$	$\phi 20.0 \pm 0.50$	$\phi 20.0 \pm 0.50$	$\phi 20.0 \pm 0.50$	$\phi 56.8 \pm 0.50$	$\phi 56.8 \pm 0.50$	$\phi 56.8 \pm 0.50$
N	$\phi 100.0 \pm 0.5$	$\phi 60.5 \pm 1.0$	$\phi 60.5 \pm 1.0$	$\phi 60.5 \pm 1.0$	$\phi 60.5 \pm 1.0$	$\phi 60.5 \pm 1.0$	$\phi 60.5 \pm 1.0$
W1	$24.5 \pm 0.20$	$16.5 \pm 0.20$	$12.5 \pm 0.20$	$12.5 \pm 0.20$	$9.4 \pm 0.30$	$8.0 \pm 0.30$	$8.0 \pm 0.30$
T1	$2.30 \pm 0.20$	$1.80 \pm 0.20$	$1.80 \pm 0.20$	$1.80 \pm 0.20$	$1.40 \pm 0.20$	$1.40 \pm 0.20$	$1.40 \pm 0.20$

**8. Packing Specification**

