RoHS Compliant

APPROVAL SHEET

Issued No. :

DESCRIPTION	:	**SMD 3215 TUNING FORK CRYSTAL**
NOMINAL FREQ.	:	**0.032768 MHz**
TAITIEN P/N	:	
TAITIEN MODEL	:	**XDMCZLNDDF-0.032768MHz**
REVISION	:	**1**
DATE	:	**01/03/2017**

QA	Checked	Prepared
Monica Jiang 數位簽署者 Monica Jiang DN：cn=Monica Jiang, c=<無>, o=QA, ou=QA, email=frjiang@taitien.com.tw 日期：2017.01.04 09:28:47 +08'00'	李成龍 數位簽署者 李成龍 DN：cn=李成龍, c=<無> 日期：2017.01.04 08:46:23 +08'00'	吳麗君 數位簽署者 吳麗君 DN：cn=吳麗君, c=<無> 日期：2017.01.03 16:06:05 +08'00'

CUSTOMER	:	
CUSTOMER P/N	:	

Customer Signature
Approved:
Date:

REVISION HISTORY

Rev.	Revised Page	Revision Content	Date	Ref. No.	Reviser
01	N/A	Initial Released	07/13/2007	N/A	YU PING MA

Please note that placing order with Taitien constitutes acknowledgement that you have read and agree to Taitien's Terms and Conditions. Please refer to our website for more details. Thank you for choosing Taitien!
Remedies and Limitation of Liability: BUYER'S SOLE AND EXCLUSIVE REMEDY AND TAITIEN'S SOLE LIABILITY, WITH RESPECT TO ANY BREACH OF WARRANTY, SHALL BE AT TAITIEN'S OPTION: (A) REPAIR OR REPLACEMENT OF THE DEFECTIVE OR NONCONFORMING CRYSTALS OR (B) REFUND OF BUYER'S PURCHASE PRICE FOR THE DEFECTIVE OR NONCONFORMING CRYSTALS.
IN NO EVENT SHALL TAITIEN'S TOTAL LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES ARISING OUT OF ANY CAUSE (INCLUDING, BUT NOT LIMITED TO, CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER TORT) EXCEED THE PURCHASE COST OF THE CRYSTALS. IN NO EVENT SHALL TAITIEN BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES.

CONTENT

SPECIFICATIONS	PAGE
ELECTRICAL SPECIFICATIONS	4~5
RECOMMENDED IR REFLOW PROFILE	6
PRODUCT DIMENSIONS	7
PACKAGE INFORMATION	8

ATTACHMENT

TESTING DATA	PAGE
ELECTRICAL CHARACTERISTICS TEST	9
OTHER DATA	
SUBSTANCE ANALYSIS LIST OF RAW MATERIAL	10

■ ELECTRICAL SPECIFICATIONS

	Parameter	Min.	Typ.	Max.	Units	Test Condition
1-1	Nominal Frequency		0.032768		MHz	
1-2	Frequency Tolerance.	-20.0		+20.0	ppm	at 25℃+/-3℃
1-3	Operating Temperature range	-40		+85	°C	
1-4	Storage Temperature range	-55		+125	°C	
1-5	Temperature Characteristics	Over -150		+10	ppm	at -40℃~85℃
1-6	Temperature coefficient	-0.04	-0.035		ppm/℃^{2}	
1-7	Nominal Load Capacitance		12.5		pF	
1-8	Series Resistance			70K	Ω	
1-9	Shunt Capacitance				pF	
1-10	Motion Capacitance				fF	
1-11	Motion Inductance				mH	
1-12	Q factor				K	
1-13	Spurious Response				dB	
1-14	Frequency Pull ability				ppm/pF	
1-15	C0/C1 Ratio					
1-16	Aging	-3		+3	ppm/year	
1-17	Insulation Resistance		500MΩ Min. @ DC100V			
1-18	Nominal Drive Level		0.1		μW	into Ω
1-19	Dependency Condition				μW	
1-20	Drive Level Dependency Resistance Max. Minus Min.				Ω	
1-21	Drive Level Dependency Frequency Max. Minus Min.				ppm	
1-22	Drive Level Dependency Resistance Max.				Ω	

■ CUSTOMER SPECIAL REQUIREMENT

2	Tuning Fork ; C0:1.5pF(typ.); C1:3.3pF(typ.)

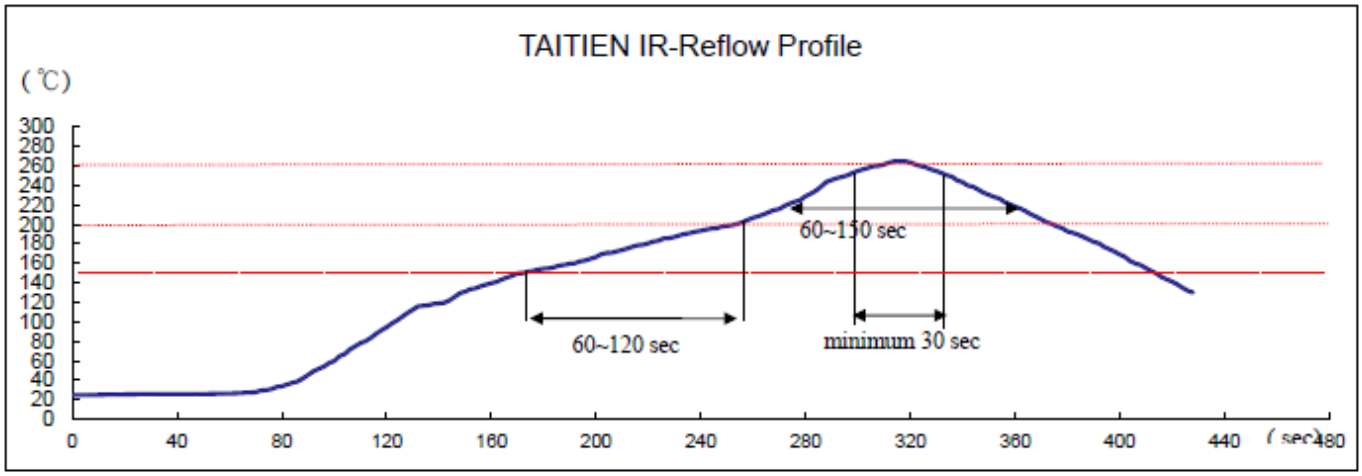
■ ENVIRONMENTAL

	Parameter	Reference Std.	Test Condition
3-1	Vibration Test	MIL-STD-883 2007 Condition A JESD22-B103 Condition 1	10~2000Hz, 1.52mm, 20g, each axis for 4 hrs
3-2	Thermal Shock	MIL-STD-883 1010 Condition B JESD22-A104 Condition B	-55℃, 125℃; soak time is 10 mins, with total 200 cycles
3-3	Mechanical Shock	MIL-STD-883 2002 Condition B JESD22-B104 Condition B	1500G, half-sine, 0.5ms, each axis for 3 times.

■ RECOMMENDED IR REFLOW PROFILE

➢ IR REFLOW PROFILE OF CERAMIC SMD PRODUCTS FOR Pb FREE PROCESS

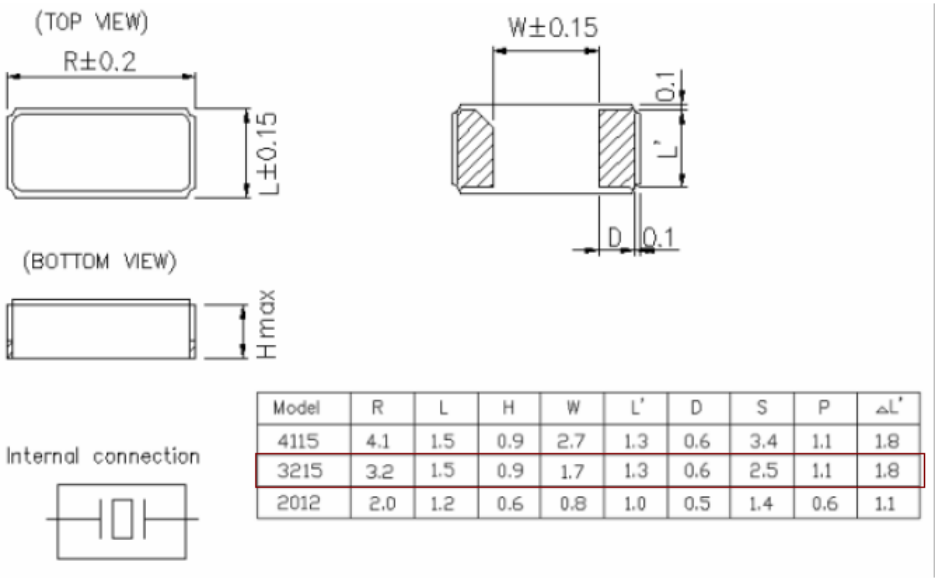
TAITIEN ELECTRONICS CO., LTD.



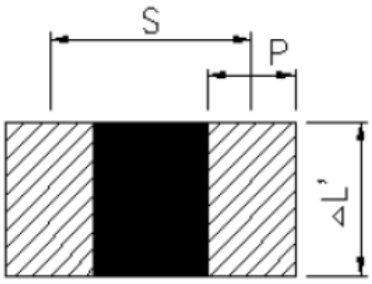
Reference Standard: JEDEC-STD 020
Test conditions: Pre-heating : 150℃ to 200℃, 60~120secs.
Heating : 217℃, 60~150sec.
Peak temperature at least : 260℃, The time above 255 ℃ : minimum 30sec.

■ PRODUCT DIMENSIONS

➢ DIMENSIONS



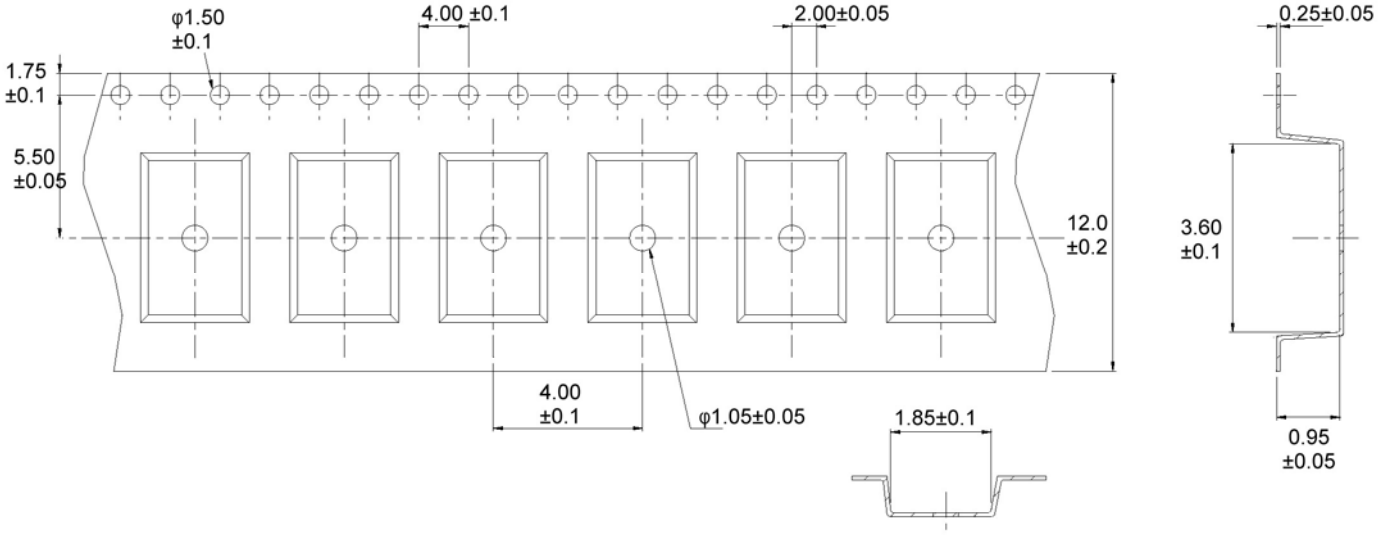
Model	R	L	H	W	L'	D	S	P	⊿L'
4115	4.1	1.5	0.9	2.7	1.3	0.6	3.4	1.1	1.8
3215	3.2	1.5	0.9	1.7	1.3	0.6	2.5	1.1	1.8
2012	2.0	1.2	0.6	0.8	1.0	0.5	1.4	0.6	1.1



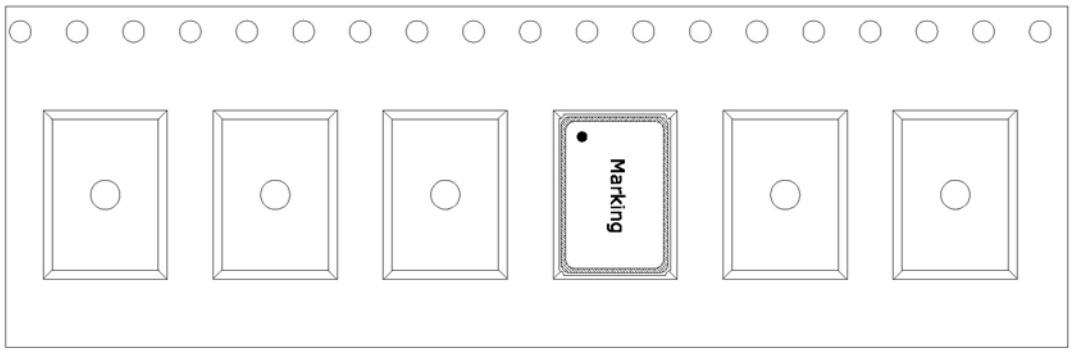
Do not design any patterns on shaded area
Recommended soldering pattern

■ PACKAGE INFORMATION

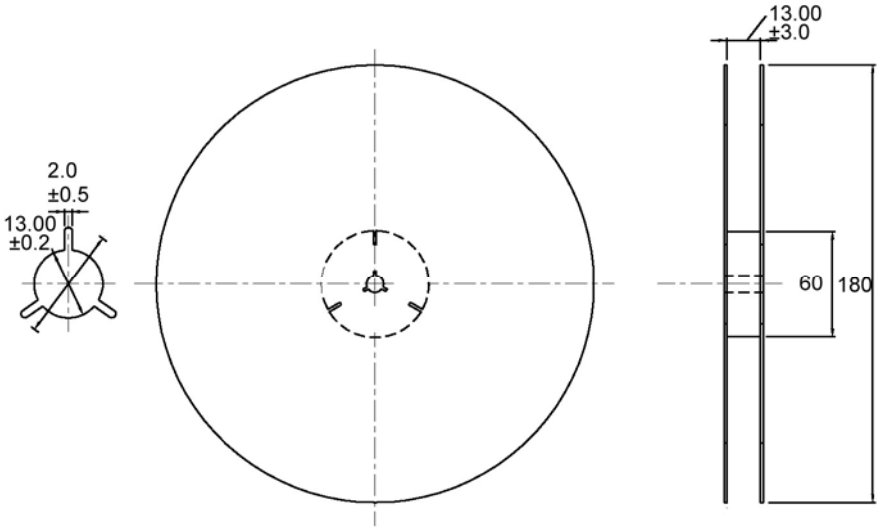
➢ TAPE (CARRIER) DIMENSIONS



➢ THE DIRECTION OF PACKING



➢ REEL DIMENSIONS



■ ATTACHMENT

➢ ELECTRICAL CHARACTERISTICS TEST

泰藝電子有限公司

測 試 報 告

出貨批號 NW1-161200461-001

物料名稱:音叉石英晶體諧振器	規格 型號：XD000003276806172013
測試項目:頻差、阻抗	測試溫度：T=25±3℃
測試儀器：CAN-LF網絡分析儀、CIM327A阻抗儀、ITC-5高清晰度計頻儀	
技術要求：±20PPM、 R≦70KΩ、 CL=12.5pF	

樣品測試記錄	編號	頻差(PPM)	阻抗(KΩ)
	1#	-3	47
	2#	-6	48
	3#	-2	47
	4#	0	47
	5#	-1	47
	6#	-3	46
	7#	-1	46
	8#	0	47
	9#	-2	46
	10#	-1	47

測試結果：合格

測試員：

確認：

■ ATTACHMENT

➢ SUBSTANCE ANALYSIS LIST OF RAW MATERIAL

TAITIEN ELECTRONICS (NANJING) CO.,LTD.

物料質成分分解表(Hazardous Substance Analysis List of Raw Material)

型號(Model): XD3215

重量(weight): 13.47557mg ±20%

序号 No.	部件名稱 Name of Part	均质物料 Homogeneous Materials	均質材料質量 Material Mass (mg)	化學成份 (Chemical element)	化學成份質量 Element weight (mg/pc)	化學成份 PPM Element (%)	CAS No.	均质材料供应商 Materials Supplier	检测机构 Test institution	检测报告编号 Test report No.	送检日期 Test date	有毒有害物质或元素的含量 Hazardous substances content (ppm)													
												ROHS										Halogen		PFOS	PFOA
												Pb	Cd	Hg	Cr6+	PBBs	PBDEs	DBP	BBP	DEHP	DIBP	Br	Cl		
1	XD3215	Base	10.2	Al2O3	7.5133098	73.6599	1344-28-1	Kyocera	SGS	SHAEC1608832705	2016/5/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
				SiO2	0.366894	3.597	7631-86-9																		
				CaO	0.0535704	0.5252	1305-78-8																		
				MgO	0.0495108	0.4854	1309-48-4																		
				Cr2O3	0.0568242	0.5571	1308-38-9																		
				Mo	0.1195134	1.1717	7439-98-7																		
				Tl	0.0000102	0.0001	7440-28-0																		
				Co	0.1216554	1.1927	7440-48-4																		
				Au	0.0612408	0.6004	7440-57-5			SHAEC1608832703	2016/5/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
				Ni	0.4866114	4.7707	7440-02-0			SHAEC1608832707	2016/5/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
				W	1.3708596	13.4398	7440-33-7			SHAEC1608832709	2016/5/11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		Lid	2.691	Ni	0.538367251	20.0062152	7440-02-0	HITACHI	SGS	CE/2016/23861 CE/2016/23862	2016/3/2 2016/3/2	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
				Fe	0.736363143	27.3639221	7439-89-6																		
				Co	0.228404367	8.48771338	7440-48-4																		
				Mn	0.003268998	0.12147893	7439-96-5																		
				Si	0.000581094	0.02159398	7440-21-3																		
				C	0.000015147	0.00056288	7440-44-0																		
				Cu	0.91616	34.0453363	7440-50-8																		
				Ag	0.26784	9.95317726	7440-22-4																		
		Crystal Blank (TUNING FORK CHIPS)	0.187	SiO2	0.187	100	14808-60-7	Siward	SGS	CE/2015/C5933A	2016/1/14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		Electrode	0.00557	Au	0.003133125	56.25	7440-57-5	SOLAR	SGS	CE/2016/95146	2016/10/6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
				Cr	0.000208875	3.75	7440-47-3	KOHSEI	SGS	JP/2016/120314	2016/12/19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA
				Ag	0.002228	40	7440-22-4	福田海洋特貴金屬	SGS	CANEC1615972501	2016/8/18	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
		Silver Glue	0.262	Ag	0.2096	80	7440-22-4	FUJIKURA	SGS	CE/2016/15988 CE/2016/15991 CE/2016/15992	2016/2/1 2016/2/1 2016/2/1	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND	ND	ND
				Silicone Resin	0.024366	9.3	63148-62-9																		
				n-Tridecane	0.023842	9.1	629-50-5																		
				SiO2	0.004192	1.6	7631-86-9																		
		Getter	0.13	dimethyl adipate	0.052	40	627-93-0	Alpha Advanced Materials	SGS	CE/2016/C0426A	2016/12/12	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND	ND	ND
				thermoplastic resin	0.0364	28	N.D																		
				inorganic filler	0.0351	27	N.D																		
				N- methyl- 2-	0.00325	2.5	872-50-4																		
				silica amorphous	0.00325	2.5	7631-86-9																		
			13.47557																						