

1.ELECTRICAL SPECIFICATIONS

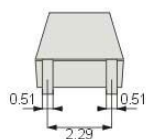
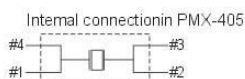
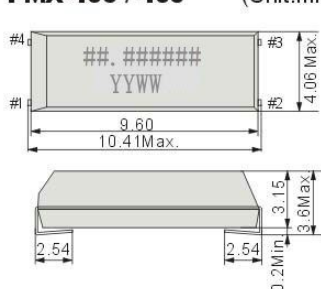
1.1 Hold Type: **PMX-405**

Parameter	Symb	Value	Condition
Frequency Range	F ₀	32.768Khz	
Frequency Tolerance	$\Delta f/f_0$	±20PPM	REF TO 25°C
Temperature Coefficient	$\Delta f/f_0$	-0.034±0.006 ppm/(°C)²	
Turnover temperature	T _m	25±5°C	
Operating Temperature Range	T _{OPR}	-40°C to 85°C	
Storage Temperature Range	T _{STG}	-55°C to 125°C	
Quality factor		50,000TYP	
Series resistance	R ₁	50 KΩ	REF TO 25°C
Shunt Capacitance	C ₀	1.65PF TYP	0.9~2.0PF
Motional Capacitance	C ₁	1.8TYP	
Load Capacitance	C _L	12.5PF	
Insulator Resistance	IR	500 MΩ	DC100V±15V
Drive Level	DL	1 μW	
Capacitance ratio	r	450TYP	
Aging	$\Delta f/f_0$	±5PPM	at 25°C±3°C
Lead Free	ROHS WITH EXEMPT PER ROHS 2011/7/11/EC ANNEX(7a)		

1.2 DIMENSION Unit:mm

External dimensions

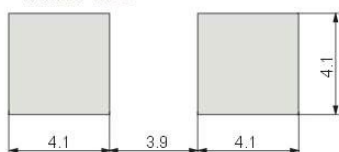
• **PMX-405 / 406** (Unit:mm)



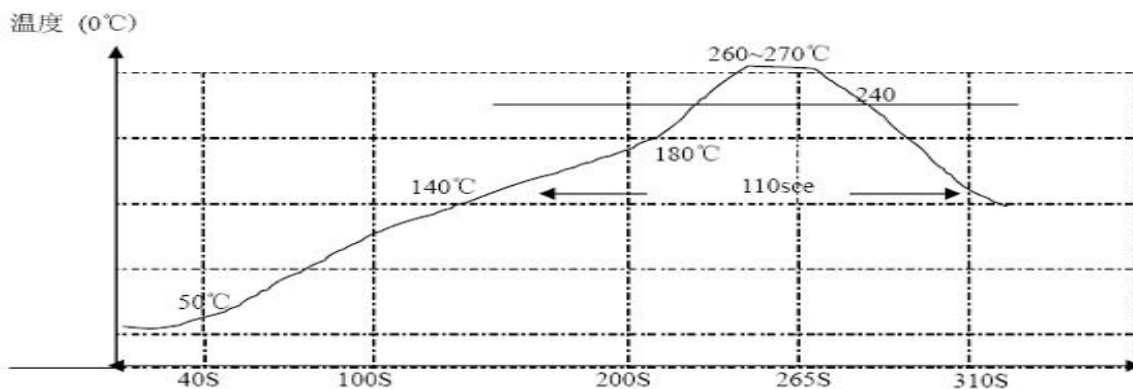
Do not connect #2 and #3 to external device.
 The first digit of N o. Means: 5xxxx PMX -405
 6xxxx PMX -406

Footprint(Recommended) (Unit:mm)

• **PMX-405**



1.3 Reflow solder



2. TEST STANDARD

2.1 GENERAL ELECTRICAL CHARACTERISTICS AND VISUAL TESTING

2.1.1 LOT CLASSIFICATION : If the quantity is 1000 PCS or more, 1,000 PCS is one lot.

2.1.2 SAMPLING TEST METHOD : MIL-STD-105E G—/II

2.1.3 TEST LEVEL

A] HIGH LEVEL DEFECT : AQL 0.065% [200 PCS]

B] MEDIUM LEVEL DEFECT : AQL 0.25% [50 PCS]

C] LOW LEVEL DEFECT : AQL 0.4% [32 PCS]

2.1.4 DEFECT CLASSIFICATION

A] HIGH LEVEL

@NO FREQUENCY

@MIXING

@LEAK DEFECT

B] MEDIUM LEVEL - ELECTRICAL CHARACTERISTIC DEFECT

@FREQUENCY

@OSCILLATION

@ELECTRICAL CURRENT

@OTHER ELECTRICAL CHARACTERISTICS DEFECT

C] VISUAL

@MARKING

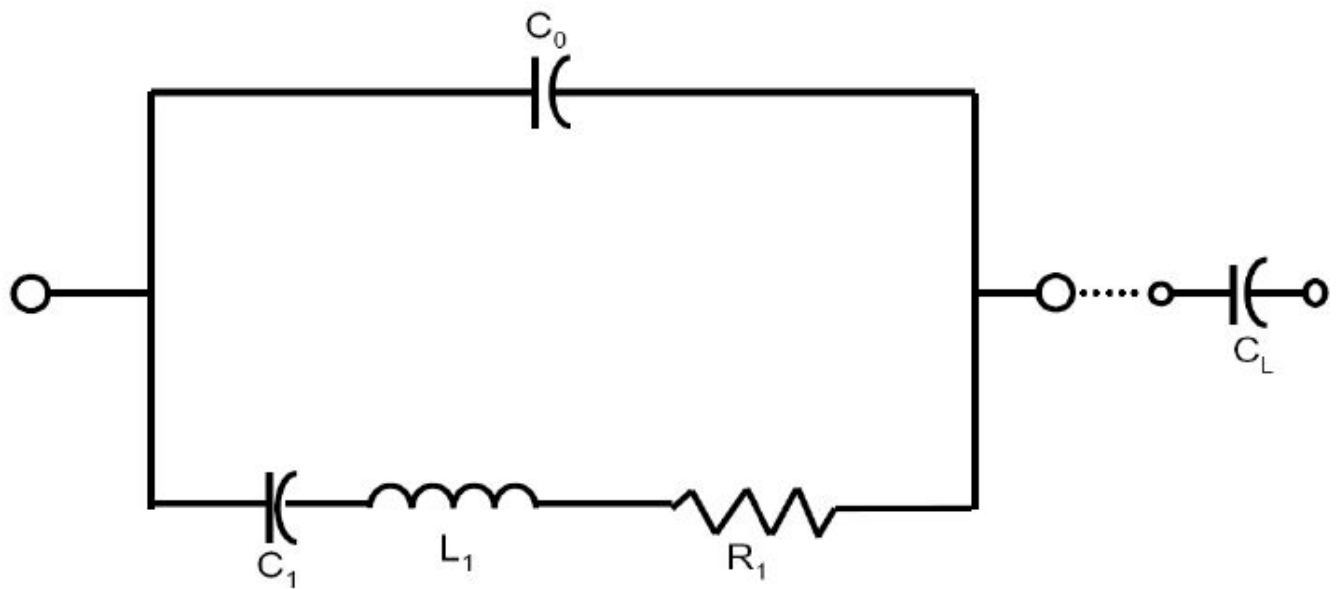
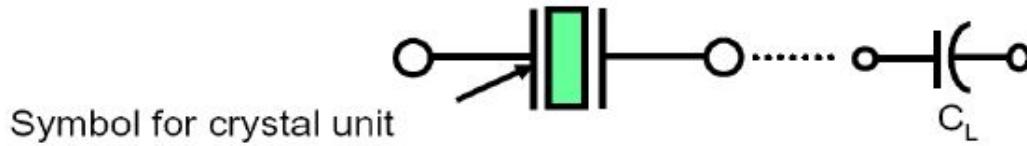
@WELDING

@LEADS

@OTHER VISUAL DEFECT

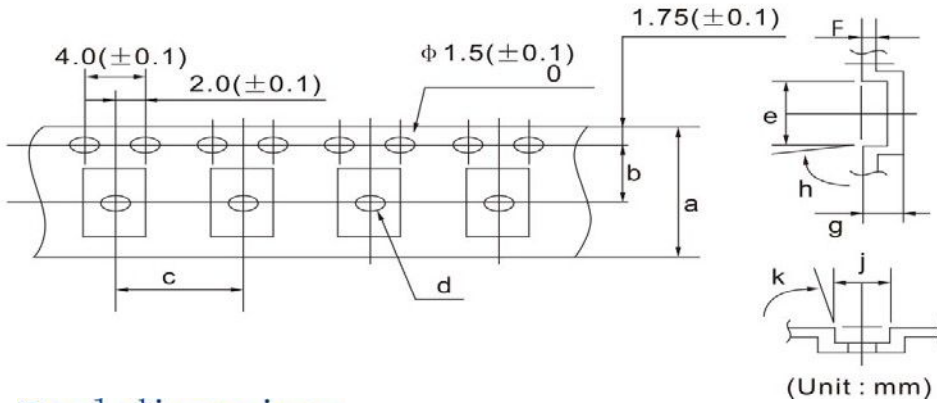
TESTING METHOD AND ITS STANDARD CAN BE MODIFIED DEPENDING ON THE CUSTOMER'S REQUEST.

2.2 EQUIVALENT CIRCUITS

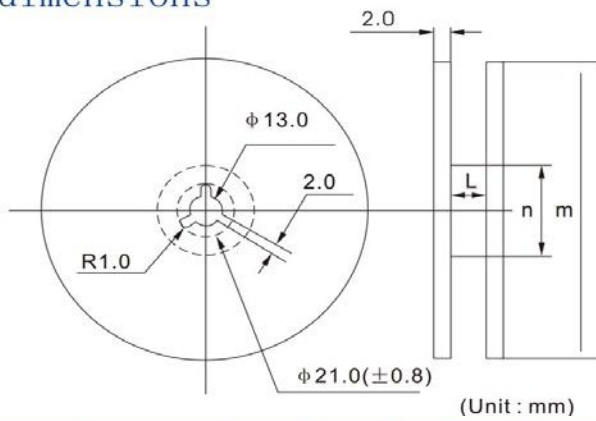


4. Packing

Taping dimensions



Reel dimensions



Model Region	Quantity (pcs / reel)	a	b	c	d (φ)	e	f	h (Max.)	j	k (Max.)	L	m (φ)	n (φ)
PMX-206F	3,000	16.0	7.5	8.0	-	9.7	2.15	3°	5.0	-	17.5	330	100
PMX-206F(AT)	3,000	16.0	7.5	8.0	-	9.7	2.15	3°	5.0	-	17.5	330	100
PMX-206FA	3,000	16.0	9.2	8.0	-	9.5	2.1	-	3.0	5°	17.5	330	100
PMX-206FA(AT)	3,000	16.0	9.2	8.0	-	9.5	2.1	-	3.0	5°	17.5	330	100
PMX-206	3,000	16.0	7.5	8.0	1.6	8.3	2.7	3°	4.05	3°	17.5	330	100
PMX-206(AT)	3,000	16.0	7.5	8.0	1.6	8.3	2.7	3°	4.05	3°	17.5	330	100
PMX-145	3,000	16.0	7.5	8.0	1.0	7.2	1.7	5°	1.7	5°	17.5	300	100
PMX-145(AT)	3,000	16.0	7.5	8.0	1.0	7.2	1.7	5°	1.7	5°	17.5	300	100
PSX-415	3,000	12.0	5.5	4.0	1.0	4.5	1.0	5°	1.9	5°	13.0	180	60
PSX-315	3,000	12.0	5.5	4.0	1.0	3.6	1.0	5°	1.9	5°	13.0	180	60
PMX-308F	1,000	24.0	11.5	12.0	2.05	13.2	3.5	3°	6.0	-	25.5	330	100
PMX-308F(AT)	1,000	24.0	11.5	12.0	2.05	13.2	3.5	3°	6.0	-	25.5	330	100
■ PMX-405	1,000	24.0	11.5	12.0	2.2	12.8	3.9	3°	4.8	3°	25.5	330	100
PMX-308(AT)	1,000	24.0	11.5	12.0	2.2	12.8	3.9	3°	4.8	3°	25.5	330	100
PMX-145FA	3,000	16.0	8.6	8.0	-	5.5	1.8	10°	1.95	10°	17.5	330	100

4.2 PACKAGING METHOD

4.2.1 TAPE & REEL AS SHOWN IN ABOVE DIMENSION,

4.2.2 INSERT 3,000 PCS OF TAPE & REEL COVERED WITH SHOCK ABSORBANT PAD INTO THE INNER BOX(INNER BOX SHOULD HAVE DESCRIPTION OF THE PART CONTAINED) AS SHOWN IN PICTURE1.

INNER-BOX CAN ACCOMODATE UPTO 3,000PCS.[PICTURE2]

4.2.3 INSERT SHOCK-ABSORBANT PAD ON ALL SIDES(INCLUDING TOP), AND THEN INSERT UPTO 5 INNER BOXES INTO THE OUTER BOX. [PICTURE3]

4.2.4 ON THE INNER-BOX COVER, LABEL CONTENTS OF THE BOX(FREQUENCY, LOAD CAPACITANCE, AND QUANTITY).

4.2.5 TO PREVENT INNER-BOX COVER OPENING DUE TO SHOCK, FASTEN THE COVER WITH A CLEAR TAPE AS SHOWN IN PICTURE4.



PICTURE1



PICTURE2



PICTURE3



PICTURE4

5. CAUTION

* IN ORDER TO MAINTAIN QUALITY , WITHOUT CHANGE IN CHARACTERISTICS OF THE CRYSTAL UNITS. PLEASE FOLLOW BELOW RECOMMENDATION.

5.1 SHOCK

5.1.1 ALL CRYSTAL UNITS HAVE A THIN CRYSTAL BLANKS WITHIN. IF IT IS DROPPED ABOVE THE RECOMMENDED DROPPING HEIGHT(500mm), THE SPECIFIC CHARACTERISTICS AND APPEARANCE CAN BE CHANGED. PLEASE PAY SPECIAL ATTENTION TO EXTERNAL SHOCK.

5.2. ENVIRONMENTAL

5.2.1 CRYSTAL UNITS' FREQUENCY CAN BE CHANGED DUE TO SURROUNDING TEMPERATURE. IF IT IS STORED NEXT TO A HIGH TEMPERATURE HEATER (ABOVE+85 C) OR BELOW 40t, AND A STRONG LIGHT SOURCE FOR LONG PERIOD OF TIME, THE ELECTRICAL CHARACTERISTICS CAN BE CHANGED_ IT IS SUGGESTED THAT THESE ENVIROMENTS BE AVOIDED.

5.2.2 IF THE UNIT IS PLACED IN A HUMID ENVIRONMENT ,LEAD TERMINAL CAN BE DAMAGED; THEREFORE , DO NOT STORE THE CRYSTAL UNITS IN A HUMID ENVIRONMENT.

5.2.3 CRYSTAL UNIT HAS VIBRATING CHARACTERISTICS. IF IT IS PLACED WHERE VIBRATION EXISTS,THE OPERATING CHARACTERISTICS CAN BE ALTERED; THEREFORE , THIS ENVIRONMENT SHOULD BE AVOIDED.

5.3 LEADS

5.3.1 IF THE LEADS ARE BENT 90.FROM ITS AXIS FOR MORE THAN 2 TIMES THE TERMINAL COULD BE DISCONNECTED; THEREFORE , DO NOT BENT THE LEADS EXCESSIVELY.

5.3.2 AFTER SOLDERING CRYSTAL UNITS INTO A PCB , IMPACTING THE UNIT FROM THE TOP .BOTTOM , LEFT OR RIGHT SIDE OF THE UNIT CAN SHATTER THE GLASS PORTION OF THE BASE,RENDERING THE UNIT USELESS.

5.4 ASSEMBLY METHOD

5.4.1 CORRECT ULTRASONIC FREQUENCY FOR CLEANING SHOULD BE LESS THAN 20KHz.

5.4.2 SOLDERING SHOULD BE DONE USING IEC 61760-1 OR Pb-Free Products.

5.5 STORAGE

5.5.1 IF THE CRYSTAL UNITS ARE STORED IN HUMID OR SALTY ENVIRONMENT , APPEARANCE CAN BE CHANGED AND SOLDERABILITY CAN DETERIORATE; THEREFORE , AVOID STORING IN SUCH ENVIRONMENT. DO NOT STORE THE CRYSTAL UNIT MORE THAN 3 MONTHS.