

## PRODUCT SPECIFICATION



CUSTOMER : ELECTRONICS SOURCE CO LTD  
CUSTOMER PART NO. : C4M2400033AFBH-0-ES08  
PRODUCT CODE : C4M2400033AFBH-0-ES08  
PRODUCT : CLOCK OSCILLATOR SMD 5x7mm 4 PADS TYPE

Customer Approval :

Hong Kong X'tals Limited

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Website: [www.hongkongcrystal.com](http://www.hongkongcrystal.com)

Date : 25/08/2016

Approved by :

A handwritten signature in black ink, appearing to read "黄春荣" (Huang Chunrong).

Mr. Stone Huang / FAE Engineer

## PRODUCT SPECIFICATION

Product Type : Clock Oscillator

Product Code : C4M2400033AFBH-0-ES08

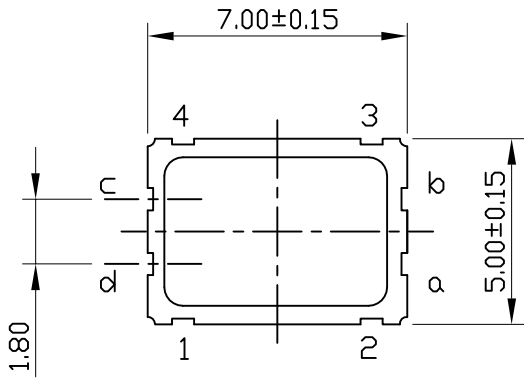
### Revision History

Rev.	Date	Reason	Issued By
0	25/08/2016		szom_xiaocui

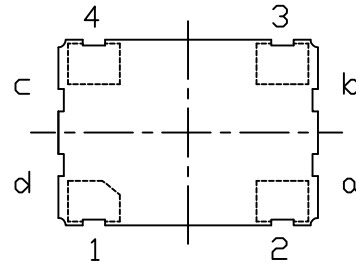
## PRODUCT SPECIFICATION

Customer : ELECTRONICS SOURCE CO LTD  
Customer Part No. : C4M2400033AFBH-0-ES08  
Product Code : C4M2400033AFBH-0-ES08  
Description : Clock Oscillator  
Nominal Frequency : 24.000 MHz  
Holder Type : C4  
Electrical Characteristics :

Frequency Tolerance	±50 ppm / -20 °C to +70 °C
Storage Temperature Range	-40 °C to +85 °C
Power Supply Voltage	3.3 V ± 10 %
Current Consumption	30 mA Max.
Rise and Fall Time	Tr/Tf < 5 nS
Output Level	15 pF CMOS
"0" Voltage	10% VDD
"1" Voltage	90% VDD
Symmetry	40~60% @ 50% VDC
Standby Mode Option	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Standby Current	10 µA
Ageing	5 PPM
Marking	HKC+24.000+TRACEABILITY CODE
SPQ / Pack Type	1000 / REEL

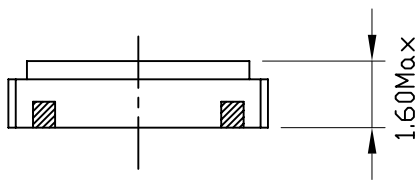


TOP VIEW



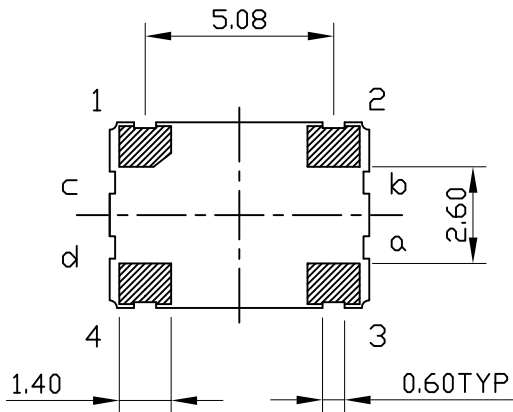
- 1--INH
- 2--GND
- 3--OUTPUT
- 4--VDD

a--INH      c--CRYSTAL  
b--VDD      d--CRYSTAL

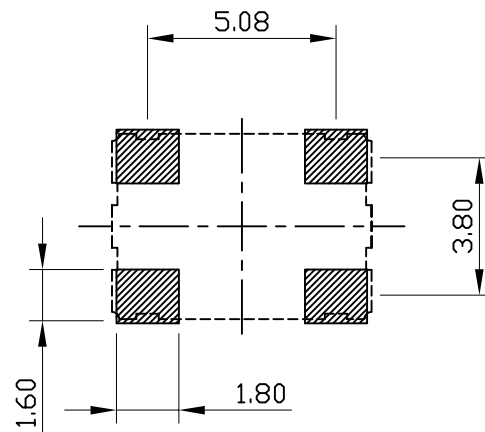


FRONT VIEW

INH	"H" Or Open	"L" (Standby)
OUTPUT	Enable	High Impedance

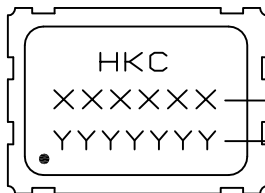


BOTTOM VIEW



RECOMMENDED LAND PATTERN

MARKING INFORMATION



XXXXXX = CRYSTAL FREQUENCY

YYYYYYY - 2~7 DIGITS TRACEABILITY CODE

ITEM		QTY.		DIMENSION AND DETAILS		MAT'L		HDN.		SURFACE		MAT'L SIZE		REMARK	
GENERAL TOLERANCE:		X=±0.5		X°=±0.5°		DRAWN		DATE		NAME		TITLE :		REMARK	
X=±0.1		X°=±0.1°		CHECK		2015-11-24		TAN				7x5 CERAMIC SMD OSCILLATORS			
.XX=±0.05		.XX°=±0.05°		APROV.		2015-12-15		PANG				PART No.:		C4	
PROPRIETARY NOTICE :		THIS DRAWINGS AND		SPECIFICATIONS ARE THE		PROPERTY OF HKC.				DRAWING No.:		12034987			
DO NOT SCALE DRAWING		ALL DIMENSIONS IN mm		UNLESS OTHERWISE STATED		SCALE: NA		SHT. 1		OF 1		REV. 05			



## 7050 Crystal Clock Oscillator

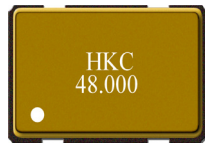
■ Holder Type: C4(7.0×5.0)

### Frequency Range:

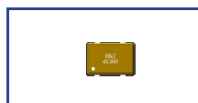
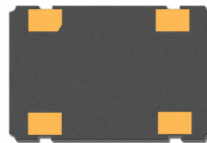
0.50MHz to 160.00MHz

### Features:

- High Reliability & Low Cost Unit
- Tight Stability & Extended Temperature Available
- Lead-free Type
- For automotive applications, please contact our sales representative



Actual Size



## ■ Standard Specifications

Item	Value	
Frequency Range	0.50 to 160.00MHz	
Frequency Tolerance @ 25 °C	±25ppm, ±50ppm, ±100ppm (tighter tolerance also available)	
Operating Temperature Range	0 °C to +70 °C / -40 °C to +85 °C (other operating range also available)	
Operable Temperature Range	-55 °C to +125 °C	
Output Type	HCMOS / TTL	
Output Load	0.5MHz to 50MHz: 50pF Max	10TTL
	>50MHz to 80MHz: 30pF Max	
	>80MHz to 160MHz: 15pF Max	
Operating Voltage	3.3V±10% / 5V±10%	
Output Symmetry	HCMOS:40~60%(at 50%V <sub>DD</sub> ) 45~55% is available	TTL: 40~60% (at 1.4V V <sub>DD</sub> ) 45~55% is available
“High” Output Voltage	HCMOS: 90%V <sub>DD</sub> Min	TTL: 2.4V Min
“Low” Output Voltage	HCMOS: 10%V <sub>DD</sub> Max	TTL: 0.4V Max
Current Consumption	0.50 to 7.00MHz	30mA Max
	>70.00 to 160.00MHz	50mA Max
Rise and Fall Time	0.50 to 160.00MHz	6ns Max
Tri-State	Yes	
Ageing	Max 5ppm / year	

\* For special requirements not included in our standard datasheet, please contact sales representative.

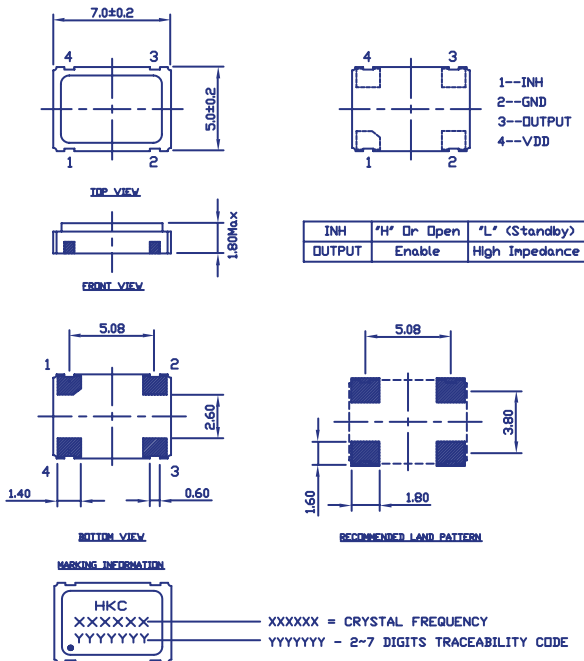
### Note:

1. Manufacturer reserves the right to change the specification and content of this product for improvement without notification.
2. Custom specification is welcome. Please contact our sales representative for further details.
3. If the crystal is intended for applications which have direct impact on human life and properties, and require a high degree of reliability and safety concerns, customers must provide full information such as but not limit to the application, electrical and reliability specification at the inquiry beginning stage.
4. Customers have to agree to the “Guideline for handling crystal units” and “Standard Terms and Condition of Sales” which is printed this catalog before placing orders to our company or our distributors. There are also unpredictable factors such as applied condition, oscillation margin and etc and customers must check them beforehand. In case of queries, please do not fail to send inquiry to our company before ordering.

Ver.1.1

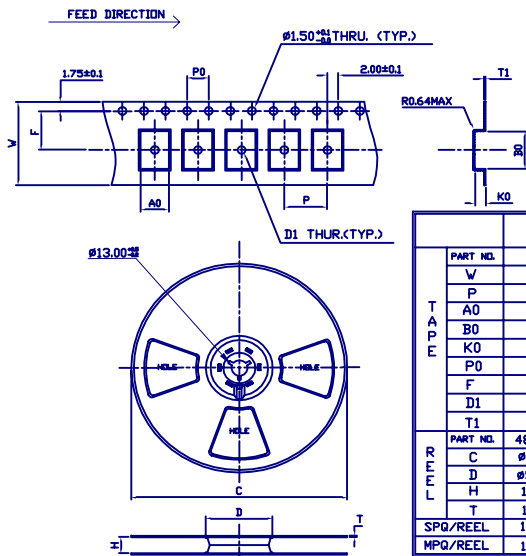


### ■ Dimensions (mm) and Solder Pad Layout (mm)



CLOCK OSCILLATORS

### ■ Tape & Reel (mm)



	7x5 QSC.	5x3.2 QSC.	3.2x2.5 QSC	2.5x2.0 QSC			
T A P E	PART NDL	48060041	48065023	48065011	48065024		
	W	16.00±0.1	12.00±0.1	8.00±0.1	8.00±0.1		
	P	8.00±0.1	8.00±0.1	4.00±0.1	4.00±0.1		
	A0	5.30±0.1	3.50±0.10	2.80±0.10	2.40±0.10		
	B0	7.80±0.1	5.40±0.10	3.60±0.10	2.85±0.10		
	K0	2.00±0.1	1.50±0.10	1.25±0.10	1.15±0.10		
	PD	4.00±0.1	4.00±0.10	4.00±0.10	4.00±0.10		
	F	7.50±0.1	5.50±0.10	3.50±0.10	3.50±0.10		
	D1	1.50±0.1	1.50±0.10	1.00±0.10	1.00±0.10		
	T1	0.30±0.05	0.30±0.05	0.20±0.05	0.25±0.05		
R E E L	PART NDL	48060024	48060050	48065026	48065015		
	C	φ178.0±1	φ330±1	φ178±1	φ178±1		
	D	φ50.0±0.5	φ100.0±1	φ60.0±0.5	φ60.0±0.5		
	H	16.5±0.5	16.5±0.5	13.1±0.2	9.5±0.8		
	T	1.50±0.2	2.3±0.3	1.2±0.2	1.2±0.2		
	SPQ/REEL	1000PCS	4000PCS	1000PCS	5000PCS	3000PCS	3000PCS
	MPQ/REEL	1100PCS	4100PCS	1400PCS	5500PCS	3500PCS	3800PCS