

### CRYSTAL OSCILLATOR UNIT WITH HCSL OUTPUT IN CERAMIC SEAM SEAL SMD PACKAGE, SIZE 2.5 X 2.0MM WITH 6 PADS.

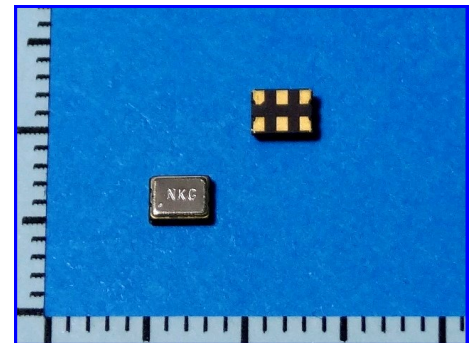
# SH07

#### PRODUCT FEATURES

- SMD PACKAGE SIZE 2.5 X 2.0 X 1.0MM WITH 6 PADS.
- FREQUENCY RANGE 13.5 TO 220MHZ
- ULTRA LOW JITTER TYPICAL 0.2PS AND PHASE NOISE.
- HIGHLY RELIABLE SEAM SEAL PACKAGE AND LOW AGING.

#### APPLICATIONS

- HIGH SPEED NETWORKING
- HIGH SPEED CLOCKS
- TELECOM EQUIPMENT



#### PRODUCT SPECIFICATIONS

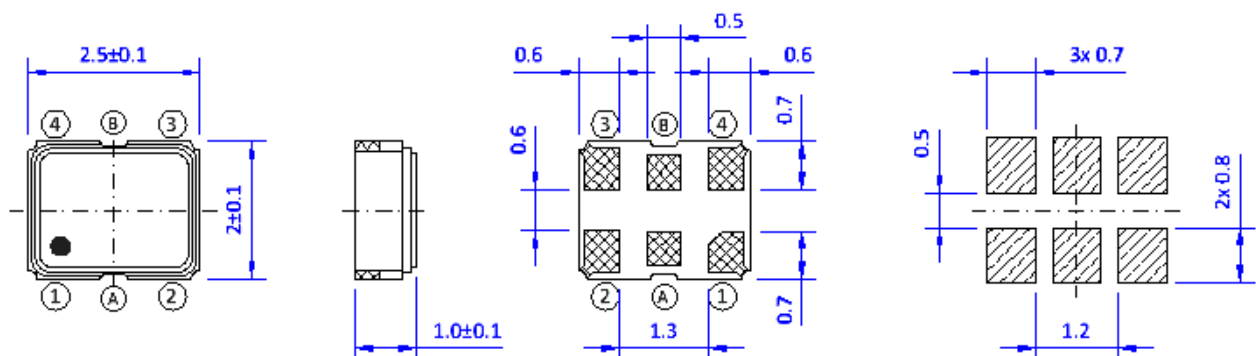
PARAMETER	SYMBOL	PARAMETER VALUES / LIMITS	CONDITIONS / REMARKS
NOMINAL FREQUENCY	$F_N$	<b>13.5 ~ 220.0MHZ</b>	FUNDAMENTAL OR 3RD OVERTONE DESIGN
SUPPLY VOLTAGE RANGE	$V_{DD}$	1.8V / 2.5V / 3.3V	—
SUPPLY CURRENT CONSUMPTION	$I_{DD}$	<30mA	SEE NOTE 1
OVERALL FREQUENCY STABILITY	$\Delta f/F_N$	$\pm 25$ PPM, $\pm 50$ PPM, $\pm 100$ PPM	SEE NOTE 2, OTHERS AVAILABLE
OPERATING TEMPERATURE RANGE	$T_{OP}$	-10°C ~ +70°C OR -40°C ~ +85°C	OTHER OPTIONS AVAILABLE
AGING FIRST YEAR	$(\Delta f/F_N)y1$	$\pm 3$ PPM	@+25°C
OUTPUT WAVEFORM / LOAD	— / $R_L$	HCSL / 50Ω	EACH OUTPUT TO GROUND (GND)
OUTPUT VOLTAGE LEVELS	$V_{OH}/V_{OL}$	0.740V TYP / 0V	TYPICAL
OUTPUT VOLTAGE SWING	$\Delta V_{OUT}$	400mV / 500mV / 600mV MIN	@ $V_{DD}1.8V$ / $V_{DD}2.5V$ / @ $V_{DD}3.3V$
RISE AND FALL TIMES	$t_R$ AND $t_F$	0.3ns TYP, 0.6ns MAX	@20%~80%~20% OF WAVE FORM
OUTPUT SYMMETRY (DUTY CYCLE)	DC	45 / 55%	@50% $V_{DD}$
PHASE JITTER (12KHZ≤FJ≤20MHZ)	$J_{RMS}$	0.2ps TYP / 0.5ps MAX	FOR 156.25MHZ
PHASE NOISE	$\ell(\Delta f)$	-50 / -80 / -115 / -135 / -142dBc	TYPICAL FOR 156.25MHZ @10Hz / 100Hz / 1kHz / 10kHz / 100kHz
STANDBY FUNCTION (E/D ON PIN 1)	E/D	PIN1=HIGH OR OPEN -> OUTPUTS ARE ACTIVE	PIN1=LOW -> OUTPUTS ARE HIGH IMPED.

NOTE 1: CURRENT CONSUMPTION IS MAXIMUM FOR 3.3V, AT LOWER SUPPLY VOLTAGES LESS CONSUMPTION APPLIES.

NOTE 2: OVERALL FREQUENCY STABILITY INCLUDES TOLERANCE @+25°C, DEVIATIONS OVER OPERATING TEMPERATURE RANGE, DEVIATIONS DUE TO OUTPUT LOAD VARIATIONS AND SUPPLY VOLTAGE FLUCTUATIONS.

#### MECHANICAL DIMENSIONS

#### RECOMMENDED LAND PATTERN



PAD	FUNCTION
1	ENABLE / DISABLE [E/D]
2	N.C.
3	GROUND [GND]
4	OUTPUT [CLK]
5	COMPLEMENTARY OUTPUT [CLK]
6	SUPPLY VOLTAGE [VDD]

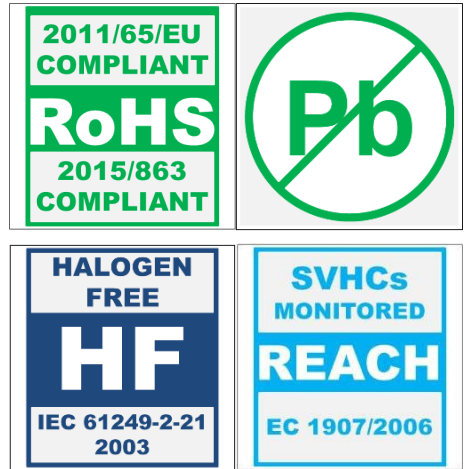
Ceramic seam seal oscillator package 2.5x2.0mm with 6 pads  
**CXDO22M-P6** 2021-04 A  
 No scale Unit: mm

CRYSTAL OSCILLATOR UNIT WITH HCSL OUTPUT IN CERAMIC SEAM SEAL SMD PACKAGE, SIZE 2.5 X 2.0MM WITH 6 PADS.

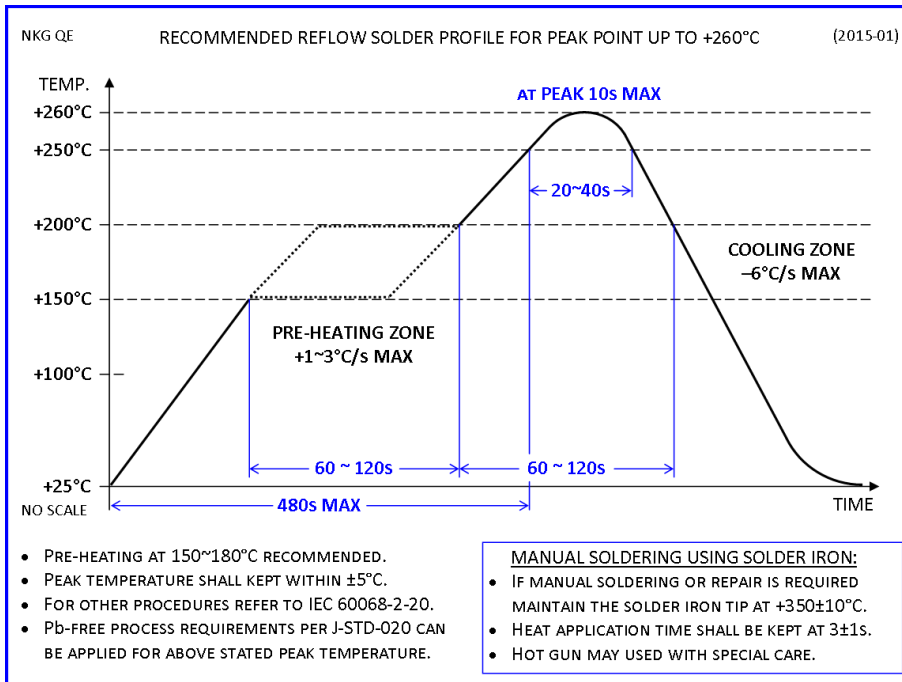
SH07

ENVIRONMENTAL COMPLIANCE INFORMATION

- ROHS 6/6 COMPLIANT (DIRECTIVE 2011/65/EC) AND LEAD-FREE.
- COMPLIANT TO ROHS 2/3 (DIRECTIVE 2015/863) (ALSO CALLED ROHS 10).
- HALOGEN-FREE PER DEFINITION OF IEC 61249-2-21 2033.
- NONE-USE OF SVHCs PER REACH IS CURRENTLY GIVEN, CONTINUOUSLY MONITORED AND UPDATED AS THE COMMISSION ISSUES NEW RELEASES.
- PRODUCT DOES NOT CONTAIN ANY PHTHALATES (PHS).
- PRODUCT DOES NOT CONTAIN PVC (POLYVINYL CHLORIDE).
- PRODUCT DOES NOT CONTAIN PFOS/PFOA NOR BEING SAME USED TO MANUFACTURE THE COMPONENTS OF THIS PRODUCT.
- MOISTURE SENSITIVITY LEVEL (MSL) 1 PER J-STD-020C.

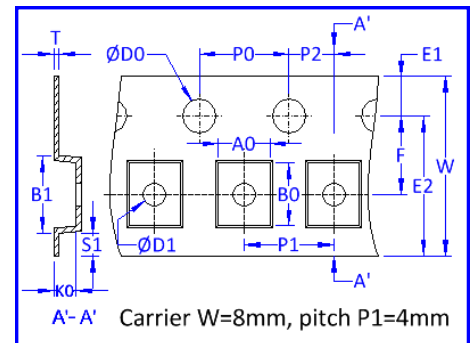


SOLDERING RECOMMENDATIONS



PACKAGING INFORMATION

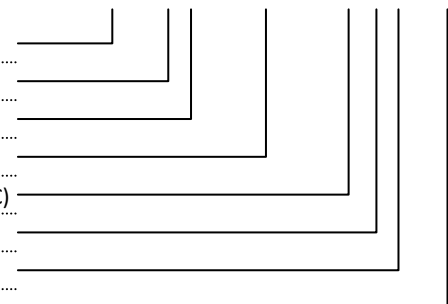
- PACKAGING IN TAPE & REEL IN COMPLIANCE TO EIA-481.
- QTY PER REEL: 3,000PCS
- REEL DIA A=180MM.
- EMBOSSED CARRIER TAPE WIDTH W = 8MM.
- COMPONENT PITCH P1 = 4MM.



PART NUMBER SYNTAX

- PART NUMBER FAMILY (REPRESENTS PRODUCT MODEL W/ HCSL OUTPUT AND PACKAGE SIZE)
- SUPPLY VOLTAGE NOMINATOR (I.E. 6= 3.3V, 7= 1.8V, 8= 2.8V, 9= 2.5V)
- FREQUENCY STABILITY CODE (I.E. A= ±25PPM, B= ±50PPM, C= ±100PPM, D= ±30PPM)
- NOMINAL FREQUENCY (IN MHZ WITH AT LEAST THREE DIGITS AFTER DECIMAL POINT)
- OPERATING TEMPERATURE RANGE CODE (I.E. E= -20~70°C, M= -10~70°C, W= -40~85°C)
- OUTPUT SYMMETRY INDICATOR (N= 40/60%, T= 45/55%)
- OUTPUT LOAD DESIGNATOR (I.E. S= STANDARD 50Ω)
- PART NUMBER EXTENSION (ONLY FOR NON-STANDARD OR CUSTOMIZED PARTS)

SH07 6 B 120.000 MTS-EXT



IF THERE IS A LARGE NUMBER OF CODES IN USE THE TABLE ABOVE MAY ONLY SHOW A FEW EXAMPLES.

FOR MORE INFORMATION PLEASE CONTACT US.

HONG KONG:  
NAKAGAWA ELECTRONICS LIMITED  
+852 2389 9201 sales@nkg.com.hk  
+852 2341 0001 www.nkg.com.hk

China Shenzhen office:  
深圳中川晶体电子有限公司  
+86(0)755 2598 2648 sales\_sz@nkg.cn  
+86(0)755 2598 2390 www.nkg.com.hk

China Suzhou office:  
中川电子(苏州)有限公司  
+86(0)512 8818 7890 sales\_nm@nkg.cn  
www.nkg.com.hk