

### CRYSTAL OSCILLATOR UNIT WITH HCSL OUTPUT IN CERAMIC SEAM SEAL SMD PACKAGE, SIZE 5.0 X 3.2MM WITH 6 PADS.

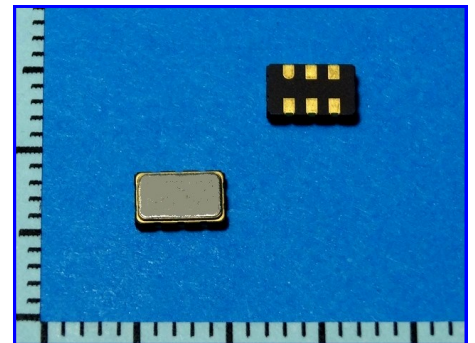
# SH05

#### PRODUCT FEATURES

- SMD PACKAGE SIZE 5.0 X 3.2 X 1.2MM WITH 6 PADS.
- WIDE FREQUENCY RANGE 12 TO 180MHZ
- ULTRA LOW JITTER 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>12.0 ~ 180.0MHZ</b>	FUNDAMENTAL OR 3RD OVERTONE DESIGN
SUPPLY VOLTAGE RANGE	$V_{DD}$	2.5V / 3.3V	—
SUPPLY CURRENT CONSUMPTION	$I_{DD}$	<50mA	TYPICAL, 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	—
OUTPUT VOLTAGE LEVELS	$V_{OH}/V_{OL}$	0.740V TYP / 0V TYP	—
OUTPUT VOLTAGE SWING	$\Delta V_{OUT}$	600mV / 650mV TYP	@ $V_{DD}$ 2.5V / @ $V_{DD}$ 3.3V
RISE AND FALL TIMES	$t_R$ AND $t_F$	0.3ns TYP, 0.7ns MAX	—
OUTPUT SYMMETRY (DUTY CYCLE)	DC	40/60% OR 45/55%	@50% $V_{DD}$
PHASE JITTER (12KHZ≤FJ≤20MHZ)	$J_{RMS}$	0.2ps TYP / 0.5ps MAX	FOR 156.25MHZ
PHASE NOISE	$\ell(\Delta f)$	-80 / -92 / -124 / -136 / -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 TYPICAL 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
5	COMPLEMENTARY OUTPUT
6	SUPPLY VOLTAGE [VDD]

Ceramic seam seal oscillator package 5.0x3.2mm with 6 pads

**CXDO53M** 2015-02 A

No scale Unit: mm

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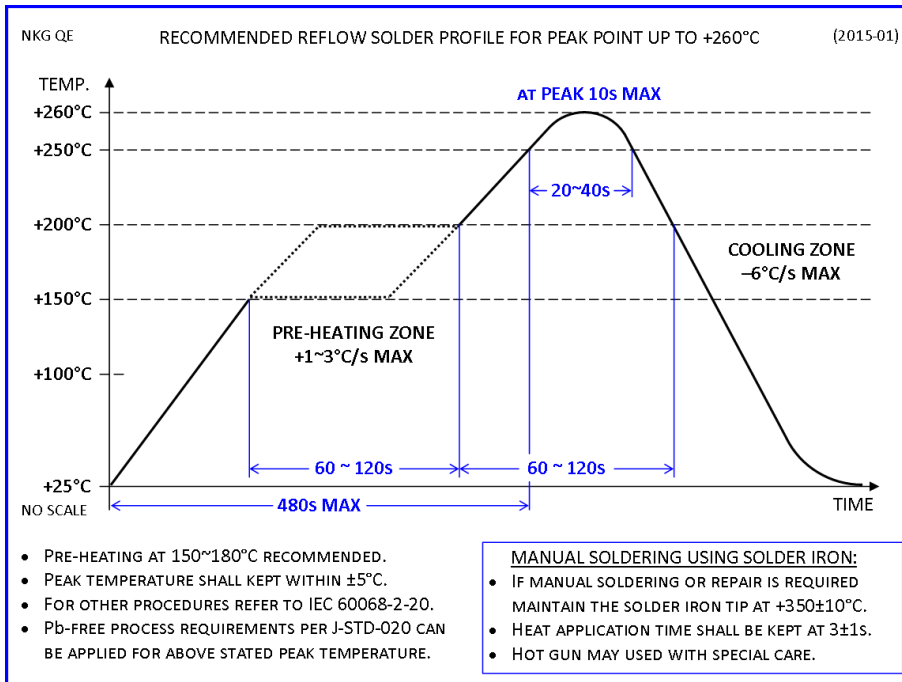
# SH05

#### ENVIRONMENTAL COMPLIANCE INFORMATION

- ROHS 6/6 COMPLIANT (DIRECTIVE 2011/65/EC) AND LEAD-FREE.
- COMPLIANT TO ROHS 2 (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.

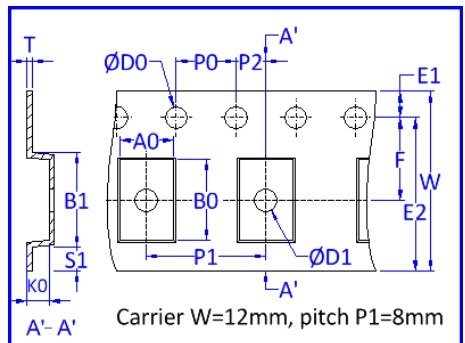


#### SOLDERING RECOMMENDATIONS



#### PACKAGING INFORMATION

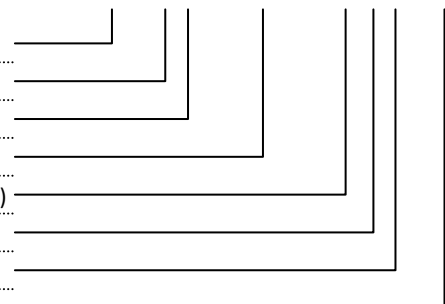
- PACKAGING IN TAPE & REEL IN COMPLIANCE TO EIA-481.
- QTY PER REEL: 1,000PCS
- REEL DIA A=180MM.
- EMBOSSED CARRIER TAPE WIDTH W = 12MM.
- COMPONENT PITCH P1 = 8MM.



#### 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)

### SH056B120.000 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.

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