

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

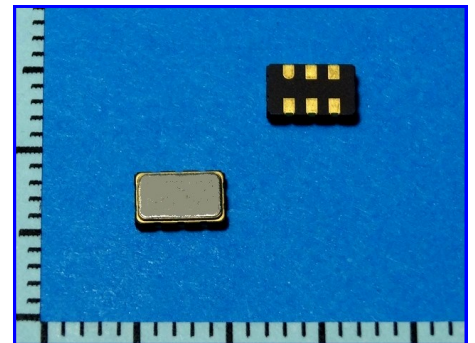
SDO5 / SDH5

PRODUCT FEATURES

- SMD PACKAGE SIZE 5.0 X 3.2 X 1.2MM WITH 6 PADS.
- WIDE FREQUENCY RANGE 10 TO 640MHZ
- 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	SDO5 PARAMETER VALUES	SDH5 PARAMETER VALUES
OSCILLATOR MODE	—	FUNDAMENTAL OR OVERTONE CIRCUIT	MULTIPLIER CIRCUIT
NOMINAL FREQUENCY	F_N	10 ~ 60MHz / 55 ~ 160MHz	100 ~ 640MHz
SUPPLY VOLTAGE	V_{DD}	2.5V _{DC} / 3.3V _{DC}	3.3V _{DC}
SUPPLY CURRENT CONSUMPTION ^(NOTE 1)	I_{DD}	<50mA	<90mA
OVERALL FREQUENCY STABILITY ^(NOTE 2)	$\Delta f/F_N$	$\pm 25\text{PPM}, \pm 50\text{PPM}, \pm 100\text{PPM}$	
OPERATING TEMPERATURE RANGE	T_{OP}	$-10^\circ\text{C} \sim +70^\circ\text{C} / -40^\circ\text{C} \sim +85^\circ\text{C}$ (TYPICALLY USED, OTHERS REQUEST)	
AGING FIRST YEAR	$(\Delta f/F_N)y_1$	$\pm 3\text{PPM}$	
OUTPUT WAVEFORM / LOAD	— / R_L	LVDS / 50Ω INTO $V_{CC}-2V = 100\Omega$ BETWEEN THE TWO OUTPUTS	
OUTPUT VOLTAGE LEVELS	V_{OH}/V_{OL}	1.4V TYP / 1.0 TYP (TIA/EIA-644)	
OUTPUT VOLTAGE SWING	ΔV_{OUT}	250mV (TYP @2.5V _{DD}) / 350mV (TYP @3.3V _{DD})	
RISE AND FALL TIMES	t_R AND t_F	0.3ns TYP, 0.5ns MAX (100~160MHz) / 0.6ns TYP, 1.5ns MAX (>160MHz)	
OUTPUT SYMMETRY (DUTY CYCLE)	DC	50±5%	
PHASE JITTER (12KHz≤Fj≤20MHz)	J_{RMS}	0.2ps TYP (for 156.250MHz)	1.6ps TYP (for 156.250MHz)
PHASE NOISE ^(NOTE 3)	$\mathcal{L}(\Delta f)$	-75 / -90 / -120 / -135 / -142dBc	-62 / -90 / -120 / -132 / -128dBc
STANDBY FUNCTION (E/D ON PIN 1)	E/D	PIN1=HIGH OR OPEN -> OUTPUTS ARE ACTIVE	PIN1=LOW -> OUTPUTS ARE HIGH IMPED.
POWER RAMP UP RATE (V_{DD} AT 90%)	t_{PU}	0.1 ~ 100ms (MONOTONIC RAMP UP)	

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 DEVIATIONS. OTHER OPTIONS PLEASE REQUEST.

NOTE 3: PHASE NOISE TYPICAL AT 10Hz / 100Hz / 1kHz / 10kHz / 100kHz FOR 156.25MHz

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 [V _{DD}]

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

CXD053M 2015-02 A

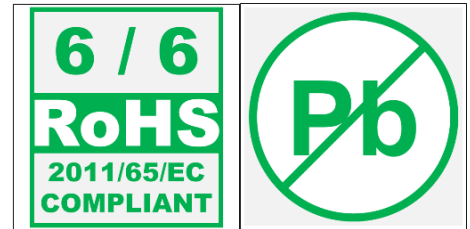
No scale Unit: mm

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

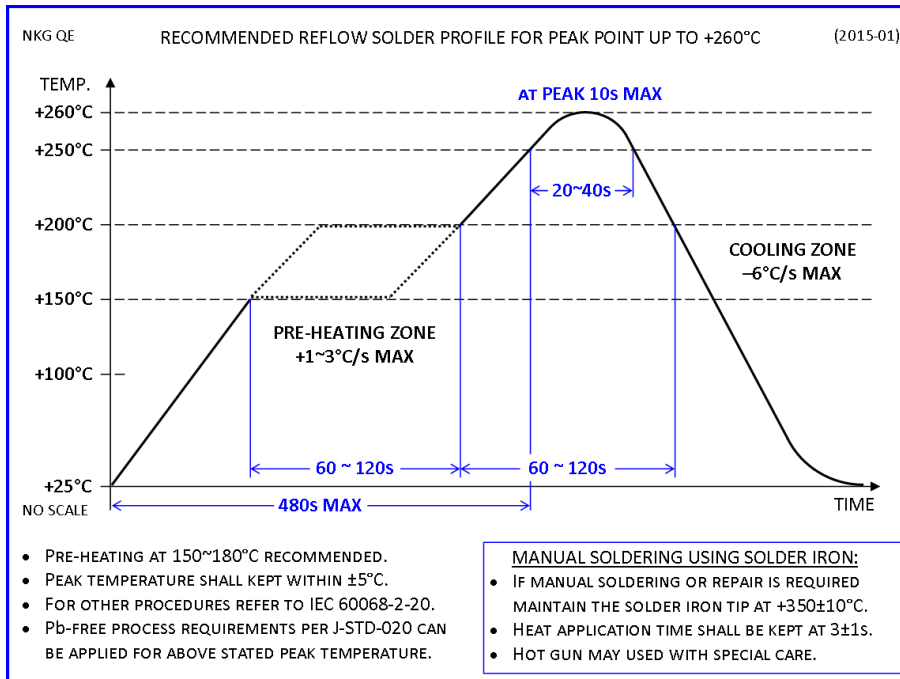
SDO5 / SDH5

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.

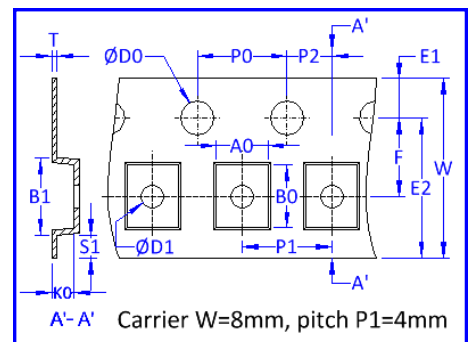


SOLDERING RECOMMENDATIONS



PACKAGING INFORMATION

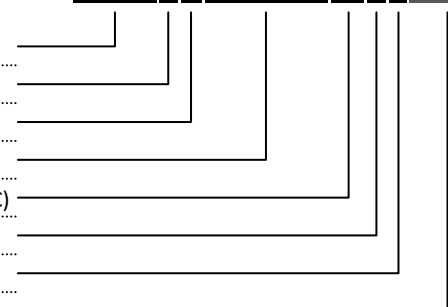
- PACKAGING IN TAPE & REEL IN COMPLIANCE TO EIA-481.
- QTY PER REEL: 1,000PCS
- REEL DIA A=180MM.
- EMBOSSED CARRIER TAPE WIDTH W = 8MM.
- COMPONENT PITCH P1 = 4MM.



PART NUMBER SYNTAX

- PART NUMBER FAMILY (REPRESENTS PRODUCT MODEL W/ LVDS 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= 50±10%, T= 50±5%)
- OUTPUT LOAD DESIGNATOR (I.E. S= STANDARD 50Ω)
- PART NUMBER EXTENSION (ONLY FOR NON-STANDARD OR CUSTOMIZED PARTS)

SDO56B125.000 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:
苏州纳美电子有限公司
+86(0)512 8818 7890 sales_nm@nkg.cn
+86(0)512 8818 7889 www.nkg.com.hk