

CRYSTAL OSCILLATOR UNIT WITH 4 SWITCHABLE LVPECL OUTPUT FREQUENCIES IN CERAMIC SMD PACKAGE, SIZE 7 X 5MM.

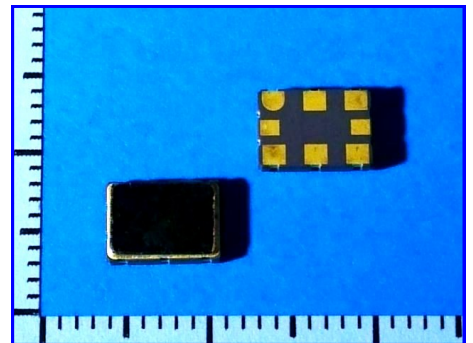
SPM3

PRODUCT FEATURES

- 4 SWITCHABLE FREQUENCIES IN A RANGE FROM 15 TO 2100MHZ
- INTEGRATED PHASE JITTER PERFORMANCE OF 150fs RMS.
- SMD PACKAGE SIZE 7.0 X 5.0 X 1.8MM WITH 8 PADS.
- 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	15.0 ~ 2,100.0MHZ	—
SUPPLY VOLTAGE RANGE	V_{DD}	2.5V / 3.3V	—
SUPPLY CURRENT CONSUMPTION	I_{DD}	<120mA	MAX @3.3V _{DC}
OVERALL FREQUENCY STABILITY	$\Delta f/F_N$	± 25 PPM, ± 50 PPM, ± 100 PPM	SEE NOTE 1, OTHERS AVAILABLE
OPERATING TEMPERATURE RANGE	T_{OP}	-10°C ~ +70°C OR -40°C ~ +85°C	OTHER OPTIONS AVAILABLE
AGING FIRST YEAR	$(\Delta f/F_N)y1$	± 3 PPM	@+25°C
OUTPUT WAVEFORM / LOAD	— / R_L	LVPECL / 50Ω	INTO $V_{DD}-2V$ OR THEVENIN EQUIVALENT
OUTPUT VOLTAGE LEVELS	V_{OH}/V_{OL}	-1.03V TYP / -1.85V TYP	-0.6V MAX / -1.6V MAX
RISE AND FALL TIMES	t_R AND t_F	0.4ns MAX	20 TO 80% OF WAVEFORM
OUTPUT SYMMETRY (DUTY CYCLE)	DC	45/55%	@50% V_{DD}
PHASE JITTER (12KHZ≤FJ≤20MHZ)	J_{RMS}	148fs / 147fs / 141fs	FOR 156.25 / 312.5 / 644.53MHZ
FREQUENCY SELECT INPUTS FS0 / FS1	V_{OH}/V_{OL}	70% of V_{DD} / 30% OF V_{DD}	FOR LOGIC LEVEL HIGH AND LOW, NOTE 2
FREQUENCY SELECTING TIME	t_{FS}	2.5ms MAX	SWITCHING TIME BETWEEN FREQUENCIES
STANDBY FUNCTION (E/D ON PIN 1)	E/D	PIN1=HIGH OR OPEN -> OUTPUTS ARE ACTIVE	PIN1=LOW -> OUTPUTS ARE HIGH IMPED.

NOTE 1: OVERALL FREQUENCY STABILITY INCLUDES TOLERANCE @+25°C, DEVIATIONS OVER OPERATING TEMPERATURE RANGE, DEVIATIONS DUE TO OUTPUT LOAD VARIATIONS AND SUPPLY VOLTAGE FLUCTUATIONS.

NOTE 2: THE FREQUENCY SWITCHING OF OUTPUT IS BASED ON LOGIC LEVELS ON FREQUENCY SELECT INPUTS (FS0 & FS1), REFER TO LOGIC TABLE IN DRAWING BELOW.

MECHANICAL DIMENSIONS

RECOMMENDED LAND PATTERN

PS1	FS0	OUTPUT
0	0	FREQUENCY 1
0	1	FREQUENCY 2
1	0	FREQUENCY 3
1	1	FREQUENCY 4

PAD	FUNCTION
1	ENABLE / DISABLE [E/D]
2	N.C.
3	GROUND [GND]
4	RF OUTPUT [CLK]
5	COMPLEMENTARY OUTPUT [CLR]
6	SUPPLY VOLTAGE [V _{DD}]
7	FREQUENCY SELECT [FS1]
8	FREQUENCY SELECT [FS0]

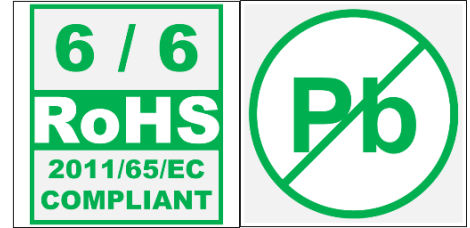
Ceramic seam seal oscillator package 7.0x5.0mm with 8 pads
CMD075M-P8 2017-11 A
 No scale Unit: mm

CRYSTAL OSCILLATOR UNIT WITH 4 SWITCHABLE LVPECL OUTPUT FREQUENCIES IN CERAMIC SMD PACKAGE, SIZE 7 X 5MM.

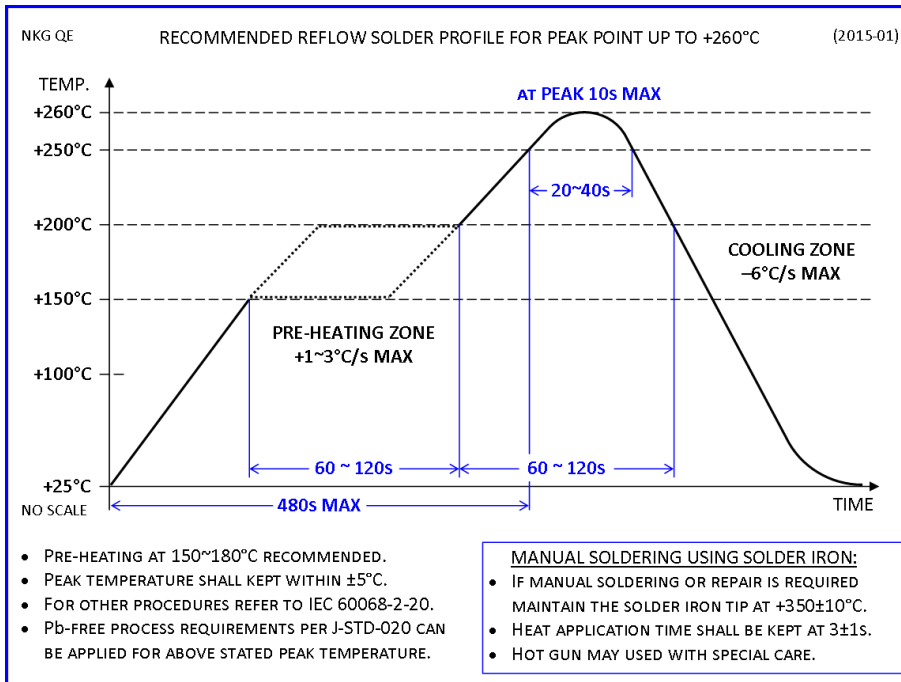
SPM3

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.

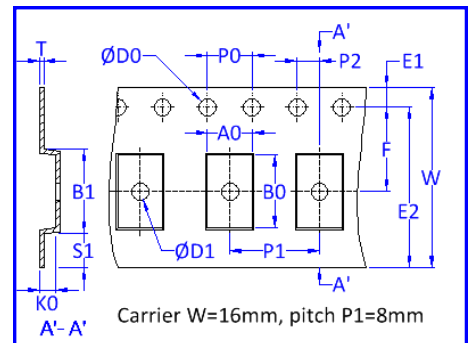


SOLDERING RECOMMENDATIONS



PACKAGING INFORMATION

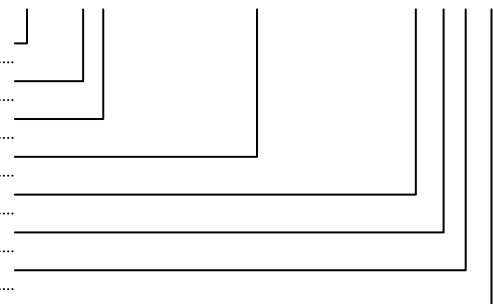
- PACKAGING IN TAPE & REEL IN COMPLIANCE TO EIA-481.
- QTY PER REEL: 1,000PCS
- REEL DIA A=180MM.
- EMBOSSED CARRIER TAPE WIDTH W = 16MM.
- COMPONENT PITCH P1 = 8MM.



PART NUMBER SYNTAX

- PART NUMBER FAMILY (REPRESENTS PRODUCT MODEL W/ LPECL 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)
- 4 SWITCHABLE FREQUENCIES (FREQUENCY 1 TO 4 IN MHZ ONLY SEPARATED WITH A DASH)
- OPERATING TEMPERATURE RANGE CODE (I.E. 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)

SPM36B128-256-512-1024MTS-E



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