

OVEN CONTROLLED CRYSTAL OSCILLATOR UNIT IN METAL CAN DIP-14 THD PACKAGE, SIZE 20 X 13MM.

OCO1 / OCO3

PRODUCT FEATURES

- THD PACKAGE SIZE 20 X 13 X 11MM WITH 4 PINS.
- EXCELLENT LOW AGING RATES AND LOW PHASE NOISE.
- OPTIONAL CONTROL VOLTAGE FUNCTION AVAILABLE.
- LOW COST VERSION USING AT-CUT CRYSTAL IS AVAILABLE.

APPLICATIONS

- BASE STATIONS / GSM&CDMA
- TEST EQUIPMENT
- SATELLITE COMMUNICATION
- SYNTHESIZERS



PRODUCT SPECIFICATIONS

PARAMETER	SYMBOL	PARAMETER VALUES / LIMITS	CONDITIONS / REMARKS
NOMINAL FREQUENCY	F_N	5.0 ~ 100MHZ	SEE NOTE 1
SUPPLY VOLTAGES	V_{DD}	3.3V OR 5.0V OR 12.0V	±5%, PLEASE CHOOSE
POWER CONSUMPTION WARM-UP AT STEADY STATE	P_{WUP}	<2.5W	—
	P_{OP}	<1.0W	@+25°C
WARM UP TIME	t_{WUP}	<180S	TO 5PPB FOR SC-CUT, TO 50PPB FOR AT-CUT
OPERATING TEMPERATURE RANGE	T_{OP}	-20~+70°C / -30~+75°C / -40~85°C	OTHER OPTIONS POSSIBLE, PLEASE ASK
OUTPUT WAVEFORM HCMOS	V_{OH}/V_{OL}	≥90% V_{DD} / ≤10% V_{DD}	@ OUTPUT LOAD $CL = 15PF$ OCO1
OUTPUT WAVEFORM SINEWAVE	V_{P-P}	6dBm MIN / 10dBm MAX	@ OUTPUT LOAD $RL = 50\Omega$ OCO3

NOTE 1: TYPICAL AVAILABLE FREQUENCIES ARE: 10MHZ, 12.8MHZ, 13.0MHZ 15.36MHZ, 16.384MHZ, 19.2MHZ, 19.44MHZ, 20MHZ, 25MHZ, 26MHZ, 38.88MHZ,

FREQUENCY CHARACTERISTICS

PARAMETER	SYMBOL	SC-CUT CRYSTAL	AT-CUT CRYSTAL
FREQ. STABILITY OVER T_{OP} (NOTE 1)	$\Delta f/F_N$	±3PPB / ±5PPB / ±10PPB	±30PPB / ±50PPB / ±100PPB
SHORT TERM STABILITY	$(\Delta f/F_N)/S$	±0.01PPB/S	±0.1PPB/S
AGING RATE	DAILY	±0.5ppb / ±1.0ppb	±3ppb / ±5ppb / ±10ppb
	ANNUALLY	±50ppb / ±100ppb	±300ppb / ±500ppb / ±1.0ppm
VOLTAGE STABILITY ($V_{DD} \pm 5\%$)	$(\Delta f/F_N)/V$	±0.5PPB	±5PPB
FREQUENCY ADJUSTMENT (NOTE 2)	$(\Delta f/F_N)/V_C$	±0.5 ~ 1.0PPM	±5 ~ 10PPM
PHASE NOISE TYPICAL EXAMPLE FOR 10MHZ UNIT	@1HZ	-92DBC/HZ	-80DBC/HZ
	@10HZ	-122DBC/HZ	-113DBC/HZ
	@100HZ	-145DBC/HZ	-143DBC/HZ
	@1KHZ	-152DBC/HZ	-152DBC/HZ
	@10KHZ	-160DBC/HZ	-160DBC/HZ
	@100KHZ	-162DBC/HZ	-162DBC/HZ

NOTE 1: FREQUENCY STABILITY IS THE DEVIATIONS OVER OPERATING TEMPERATURE RANGE T_{OP} IN REFERENCE TO FREQUENCY READING @+25°C.

NOTE 2: FREQUENCY ADJUSTMENT CAPABILITY APPLIES FOR UNITS WITH THE OPTION OF CONTROL VOLTAGE V_C FUNCTION (REFER TO BELOW TABLE).

NOTE 3: FOR THE PARAMETERS IN ABOVE TABLE IS THE BEST PERFORMANCE SHOWN, OTHER OPTIONS ARE AVAILABLE, SOME DESIGNS MAY REQUIRE WIDER TOLERANCES.

OPTIONS FOR 3.3V AND 5.0V SUPPLY VOLTAGES (FOR 12V SEE NOTE 1)

PARAMETER	SYMBOL	FOR 3.3V		FOR 5.0V	
CONTROL VOLTAGE RANGE	V_C	0 ~ 2.8V _{DC}	0 ~ 3.3V _{DC}	0 ~ 4.0V _{DC}	0 ~ 5.0V _{DC}
CONTROL CENTER VOLTAGE	V_{CEN}	1.4V _{DC}	1.65V _{DC}	2.0V _{DC}	2.5V _{DC}

NOTE 1: THE V_{DD} 12V VERSION IS AVAILABLE WITH A CONTROL VOLTAGE RANGE OF 0~5V, CENTER AT 2.5V, AND OPTIONAL REFERENCE VOLTAGE OUTPUT OF 5V.

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MECHANICAL DIMENSIONS

20.5 MAX
13.0 MAX
5.0 MIN (4x)
10.3^h
11.0 MAX^h
15.24±0.15 CENTERED
7.62±0.15 CENTERED

PIN	FUNCTION
1	CONTROL VOLTAGE [Vc] * or N.C.
7	GROUND [GND]
8	RF OUTPUT [CLK]
14	SUPPLY VOLTAGE [Vdd]

* Check for part numbers to determine one that has this function is available.

Notes:
The metal case is connected to pin 7 and therefore grounded (GND).
^h The package height may vary depending on design, check specification sheet for information.

Metal can DIP-14 oscillator package
20x13mm with 4 pins
DIP14OC-P4 2017-09 C
No scale Unit: mm

ENVIRONMENTAL COMPLIANCE INFORMATION

- ROHS COMPLIANT PER (DIRECTIVE 2011/65/EC).
- COMPLIANT TO ROHS 2 (DIRECTIVE 2015/863) (ALSO CALLED ROHS 10).
- NONE-USE OF SVHCS PER REACH IS CURRENTLY GIVEN, CONTINUOUSLY MONITORED AND UPDATED AS THE COMMISSION ISSUES NEW RELEASES.
- PRODUCT DOES NOT CONTAIN PVC (POLYVINYL CHLORIDE).
- PRODUCT DOES NOT CONTAIN PFOS/PFOA NOR BEING SAME USED TO MANUFACTURE THE COMPONENTS OF THIS PRODUCT.
- NONE-USE OF CONFLICT MINERALS PER THE DODD-FRANK WALL STREET REFORM AND CONSUMER PROTECTION ACT (WALL STREET REFORM ACT).
- MOISTURE SENSITIVITY LEVEL (MSL) 1 PER J-STD-020C.

PACKAGING INFORMATION

- THE UNITS ARE PACKAGES INTO ESD CONFORM TUBES, 25PCS PER TUBE.
- ALTERNATE PACKING INTO AN ESD CONFORM FOAM TRAY CAN BE USED.
- THE FOAM TRAY FITS INTO AN APPROPRIATE CARDBOARD BOX FOR SHIPMENT IN A LARGER SHIPPING CARTON.

PART NUMBER SYNTAX

PART NUMBER FAMILY (REPRESENTS PRODUCT MODEL, PACKAGE SIZE AND OUTPUT TYPE)

SUPPLY VOLTAGE NOMINATOR (I.E. 0= 12V, 2= 5.0V, 5= 3.3V)

FREQUENCY STABILITY CODE (I.E. B=±50PPB, C=±100PPB, D=±30PPB, N=±5PPB, T=±10PPB)

NOMINAL FREQUENCY (IN MHZ WITH AT LEAST THREE DIGITS AFTER DECIMAL POINT)

OPERATING TEMPERATURE RANGE (I.E. E= -20~70°C, L= -30~75°C, W= -40~85°C)

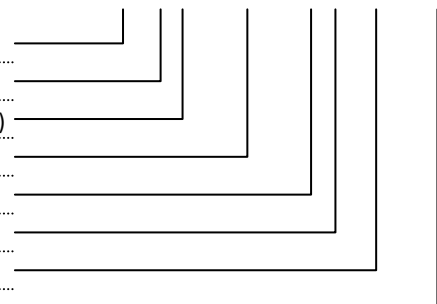
OUTPUT WAVE FORM INDICATOR (H= HCMOS, S= TRUE SINE WAVE)

FREQUENCY MINIMUM PULLABILITY (OPTIONAL VC FUNCTION) (1.0= 1.0PPM MIN)

PART NUMBER EXTENSION (ONLY FOR NONE-STANDARD OR CUSTOMIZED PARTS)

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

OCO15B10.000EH1.0-EXT



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