

CRYSTAL OSCILLATORS UNIT SPECIFICATION

HELE P/N : SSW002048F3CHC-T

Customer P/N:

Date : 2014/06/04

Type Name : HSO321S

Output Frequency : 2.048000MHz



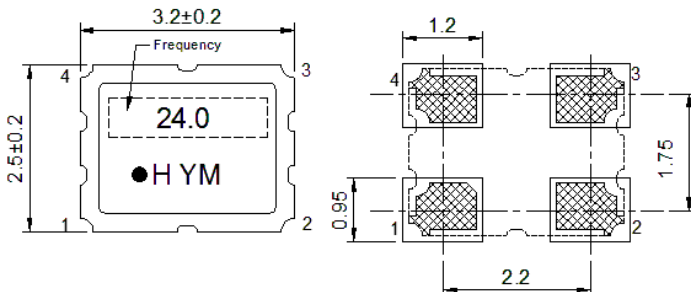
Absolute Maximum Ratings :

Item	Symbol	Value	Unit
Vdd terminal voltage	Vdd	-0.5 ~ 4.0	V
Input terminal voltage	Vcont	-0.5 ~ Vdd+0.5	V
Output terminal voltage	Vout	-0.5 ~ Vdd+0.5	V
Output terminal current	Iout	15	mA
Storage temp. range	Tstr	-55 ~ 125	°C

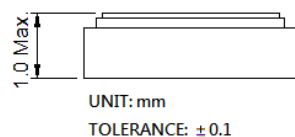
Electric Specifications :

Item	Symbol	Value			Unit	Condition			
		Min	Typ	Max		Vdd	Temp		
Frequency tolerance	$\Delta f/F$	-30	-	+30	ppm	3.3+/-0.3V	-20~+70°C		
Operating temp. range	Topr	-20	25	+70	°C				
Supply voltage	Vdd	3.0	3.3	3.6	V				
Current consumption 1 (#1 pin: open or "H")	Idd1	-	-	10	mA	3.3V	25+/-3°C		
Current consumption 2 (#1 pin: "L" level)	Idd2	-	-	0.01	mA				
Symmetry	Duty	40	50	60	%				
Low level output voltage	Vol	-	-	0.1xVdd	V				
High level output voltage	Voh	0.9xVdd	-	-	V				
Rise & Fall time	Tr & Tf	-	-	7	ns				
Pin #1 options	YES								
Output load	C-MOS CL=15pF (Idd1, Idd2 test at No Load)								
Low level input current	Iil	-	-	10	uA	3.3V	25+/-3°C		
High Level input current	Iih	-	-	10	uA				
Low level input voltage	Vil	-	-	Vddx0.3	V				
High level input voltage	Vih	Vddx0.7	-	-	V				
Output disable time	Tplz	-	-	150	nsce				
Output enable time	Tpzl	-	-	5	msce				
Aging	-	-3	-	3	ppm/year				

F: Output Frequency Δf =Oscillation Frequency – F
 Frequency Stability is inclusive of 25°C
 Tolerance, operating temperature range, input voltage change,
 Load change, first of aging , shock and vibration.



Pin Connections	
1	OE(Output Enable)
2	GND
3	Output
4	Vdd



Marking:

Lot No. :

Year: Last digit of the year

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Code	0	1	2	3	4	5	6	7	8	9

Month: Alphabet assign below

Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
A	B	C	D	E	F	G	H	J	K	L	M

Marking: Laser marking.



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