

# TCXO (Temperature Compensated Crystal Oscillator)

M4511-SK20B-10.000MHz

## ■ Features

- Clipped Sine Wave
- 5.0V operation
- Very Low Phase Noise

## ■ Absolute Maximum Ratings

Item	Symbol	Unit	MIN.	TYP.	MAX.	Condition
Supply Voltage	V <sub>DD</sub>	V	-0.3		+7.0	V <sub>DD</sub> -GND
Storage temperature	T <sub>stg</sub>	°C	-55		+125	
Resistance to soldering	T <sub>sol</sub>	10sec at 225°C				

## ■ Operating Range

Item	Symbol	Unit	MIN.	TYP.	MAX.	Condition
Supply Voltage	V <sub>DD</sub>	V	4.75	5.0	5.25	
Operating temperature	T <sub>opr</sub>	°C	-30		+75	
Output load		10Ω//10pF				

## ■ Frequency characteristics

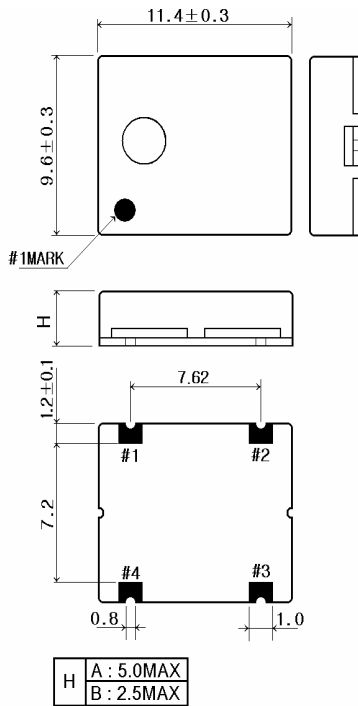
Item	Symbol	Unit	MIN.	TYP.	MAX.	Condition
Oscillation Range	f <sub>osc</sub>	MHz		10.000		
Stability vs. Temperature vs. Volt change vs. Aging vs. Load change	df/f <sub>0</sub>	ppm	-2.0		+2.0	T <sub>a</sub> =-30 to +75°C
		ppm	-0.5		+0.5	5.0V±5%
		ppm	-1.0		+1.0	1 year
		ppm	-0.2		+0.2	Load±10%
Frequency Adjustment	f <sub>adj</sub>	ppm	±3.0			by internal trimmer

## ■ Electrical characteristics

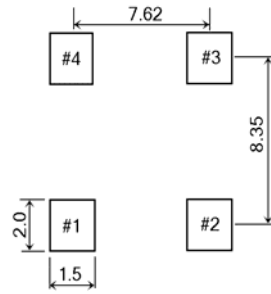
Item	Symbol	Unit	MIN.	TYP.	MAX.	Condition
Start up time	t <sub>osc</sub>	ms			10	
Input current	I <sub>DD</sub>	mA			3.0	Load=10KΩ//10pF
Output level		V <sub>p-p</sub>	1.0			
Phase noise		dBc/Hz			-60	@1 Hz offset from carrier
					-90	@10 Hz
					-120	@100 Hz
					-140	@1 KHz
					-145	@10 KHz
					-150	@100 KHz

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## Dimension (unit : mm)



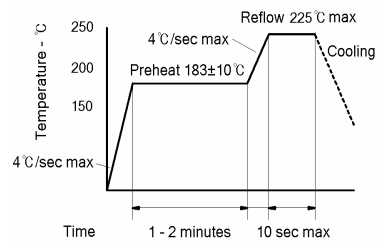
## Land Pattern (unit : mm)



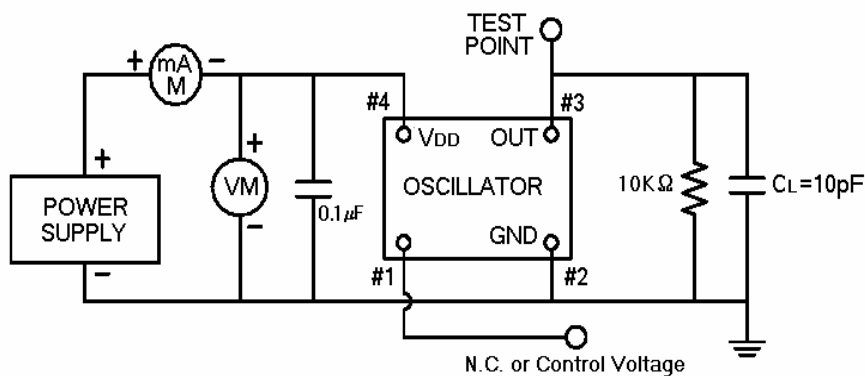
## Pin Connection

- Pin #1 N.C.
- Pin #2 Ground
- Pin #3 Output
- Pin #4 VDD

## Solder Reflow Guide



## Test circuit



NOTE:  $C_L$  includes probe and fixture capacitance

**Clipped Sine Wave**