

Development of multifunctional TCXO module, DSA322MB

Daishinku Corporation (President: Sohei Hasegawa) announced the development of multifunctional Temperature Compensated Crystal Oscillator (TCXO) module, the DSA322MB. Samples of the DSA322MB are available now.

KDS Daishinku has been developing the multifunctional TCXO by building peripheral circuits into a single chip die in the TCXO.

KDS Daishinku currently produces DSA322MA, 3.2x2.5mm Multifunction-TCXO module, for W-CDMA, CDMA2000 and other wireless applications. The mobile communication technology has become increasingly advanced and there has been more demand from the market to integrate more functions into the TCXO. So the DSA322MB was developed to provide more functionalities for the advanced mobile communication technologies

The DSA322MB is the TCXO built in effective functions for miniaturization and power saving design of mobile communication devices.

The product is effective for the miniaturization and power saving and expected for the big growing market of mobile communication devices.

The DSA322MB is a 3225 size TCXO (3.2*2.5*1.0mm), with a volume of 0.008cc. The DSA322MB has big advantages of reducing the board space and providing more precise power management with its integrated functions.

The followings are the integrated functions:

1, 3 outputs. (DSA322MA, the current model, has 2 outputs.)

The TCXO output is typically supplied to the PLL circuit of the RF/Logic circuit through a buffer amplifier.

The DSA322MB has integrated 3 buffers in the single die and provide less board space and less power consumption compare to the circuit with the external buffers.

The first output has clipped sin wave for PLL circuit in the RF sections and the output can be controlled with the enabled/disabled pin for power saving.

The second and the third output have C-MOS logic output and these can be used for the CPU/DSP in the base band sections and any other logic circuits in the systems.

The output level of those two CMOS outputs are independently controlled with applying required supply voltage to the output buffers and the logic level can be selectable anywhere from +1.4V to +3.3V.

2, Temperature sensor output

DSA322MB has a temperature sensor output for compensating temperature of PA/LCD on RF.

The output can be used for compensating temperature of output level of PA and contrast of LCD.

Therefore, the conventional external temperature sensing circuit (Temperature sensing ICs or thermistors) are no longer needed with the temperature sensor output from the DSA322MB and this provide a big advantage of saving the board space and reduce the BOM cost.

These above functions are integrated into the 10 terminals LCC package and 19.2MHz and 26MHz are prepared as standard frequencies.

The followings are the advantages of using the DSA322MB compare the circuit with a conventional TCXO:

1. Reducing current consumption and provide long battery life(longer standby time)
The integrated buffers can be controlled independently for more precise power management.
2. Miniaturizing the size of handsets by reducing mounting area of devices.
Mounting area of devices can be reduced with the integrated temperature sensor and build-in buffers. Approximately 40% of mounting space can be saved with the DSA322MB compare to the space with the conventional external devices.

The DSA322MB is lead-free and perfectly making consideration the environment.

■Features

1. Ultra miniature multifunctional TCXO module (3.2*2.5*1.0mm max.)
3225size TCXO built-in two optional functions
2. 3 output (Output 1 has ENABLE/DISABLE function)
3. Temperature output sensor
4. Lead-free

[Applications]

Various Cell phones (W-CDMA/ CDMA2000/ TD-SCDMA)

[Sample price]

1,000 yen

[Mass production]

December, 2007

[Manufacturing Capacity]

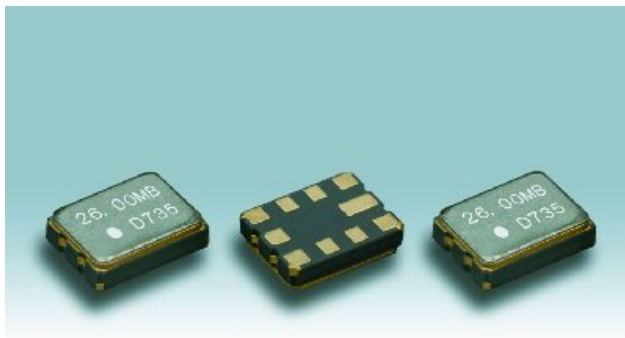
1 million/month

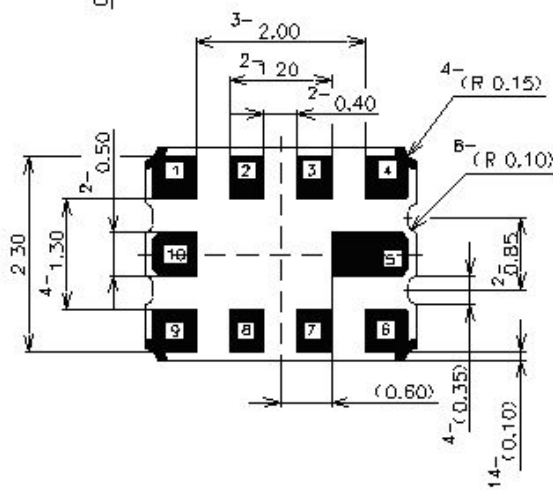
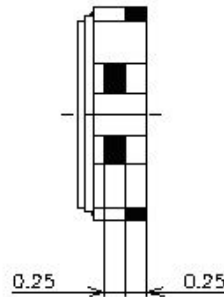
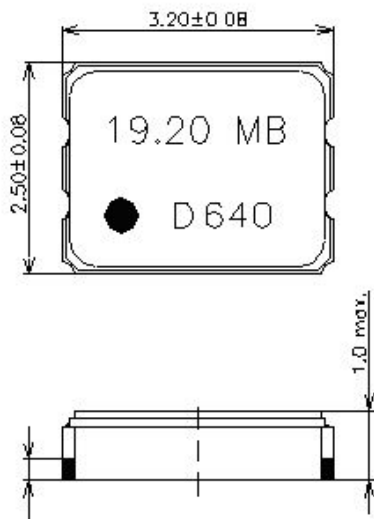
Electrical specification

Product	DSA322MB
Standard Frequency	19.2MHz/ 26MHz
Frequency range	9.6MHz to 40MHz
Supply Voltage (Vdd1)	+2.8V (range from +2.4V to +3.3V)
Current Consumption	+2.4mA typ.(F=26MHz/Output1-DISABLE Vdd2,Vdd3=+1.8V) +3.0mA typ.(F=26MHz/Output1-ENABLE Vdd2,Vdd3=+1.8V)
TCXO output voltage 1	0.8Vp-p min. Load:10kΩ//10pF
TCXO output voltage 2	C-MOS Level Load:15pF (Vdd2=+1.4V to +3.3V)
TCXO output voltage 3	C-MOS Level Load:15pF (Vdd3=+1.4V to +3.3V)
Frequency tolerance	$\pm 1.5 \times 10^{-6}$ (After 2 reflows)
Temperature tolerance	$\pm 2.0 \times 10^{-6}/-30^{\circ}\text{C} + 85^{\circ}\text{C}$
Supply Voltage Variation	$\pm 0.2 \times 10^{-6}/ (+2.8\text{V} \pm 0.2\text{V})$
Frequency Load Variation	$\pm 0.2 \times 10^{-6}/ (10\text{k}\Omega//10\text{pF}) \pm 10\%$
Frequency Adjustment Range (VC-TCXO)	$\pm 7.6 \times 10^{-6}$ to $\pm 12 \times 10^{-6}$ (Vcont=+1.4V±1V)
Aging characteristics	$\pm 1.0 \times 10^{-6}/\text{year}$
Start up Time	2.0msec max.

Consult our sales representative for other specifications.

<Product Photography>





Pin Connections

- 1 VCONT
- 2 VDD3
- 3 VDD2
- 4 OUTPUT2
- 5 GND
- 6 OUTPUT1
- 7 CONTROL
- 8 OUTPUT3
- 9 VDD1
- 10 TSENS

unit:[mm]
 Dimensional
 Tolerance: + / - 0.1
 (Unless otherwise noted)