

PRODUKT-INFO

SCO-16 SMD CRYSTAL OSCILLATOR

FEATURES

1. The world's smallest quartz crystal oscillator: 1.6 x 1.2 x 0.7 mm max.
Weight: 4.1 mg
2. Wide range of operating supply voltage: 1.8 V, 2.5 V & 3.3 V
3. Ceramic package and metal lid sealed by electron beam ensure high reliability.
4. Lead-free reflow soldering is available.



APPLICATION

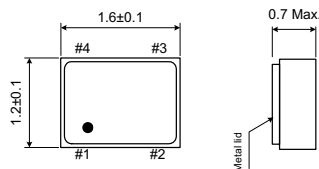
Mobile communication, wireless modules.

ELECTRICAL SPECIFICATIONS		SCO-16
Model	SCO-16	
Frequency Range	1.0 MHz ~80.0 MHz	
Frequency Stability	±7 ppm / ±10 ppm / ±15 ppm / ±20 ppm / ±30 ppm / ±50 ppm	
Operating Temperature Range	-20°C to +70°C, -30°C to +85°C, -40°C to +85°C option	
Storage Temperature Range	-40°C to +85°C, -40°C to +105°C option	
Supply Voltage (V_{DD})	1.8 V _{DC} ±10%	2.5 V _{DC} ±10% 3.3 V _{DC} ±10%
Current Consumption during Operation	2.0 mA max.; F = 40MHz, V _{DD} = 3.0V, no load 10 µA max.; Stand-by = „L“	
Output Load	15 pF, max., CMOS	
Output Voltage	V _{OH} V _{OL}	V _{DD} - 0.4 V min.; I _{OH} = -4 mA 0.4 V max.; I _{OL} = +4 mA
Rise Time	10% V _{DD} ~ 90% V _{DD}	4.5 ns max.
Fall Time	90% V _{DD} ~ 10% V _{DD}	
Duty Cycle	50% ± 5%	
Startup Time	2.0 ms max.; V _{DD} = 3.3V 5.0 ms max.; V _{DD} = 1.8V	
Random Jitter* (RJ)	2.9 ps; V _{DD} = 3.3V	
Total Jitter* (TJ)	40 ps; V _{DD} = 3.3V, TJ = n x RJ (n ≈ 14.1, BER = 10 ⁻¹⁸)	
Phase Jitter	1.0 ps; V _{DD} = 3.3 V Offset Frequency 12kHz ~ 5MHz	
Stand-by Terminal Function (V)	High	0.7 V _{DD} min.; Output enable
	Low	0.3 V _{DD} max.; Oscillation stop and high impedance output

■ **OPTIONS:** * Measured by wave crest 3100C.

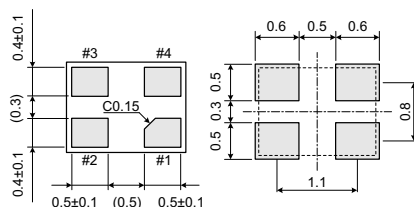
■ **OPTIONS:** For operational stability, the bypass capacitor (0.01 µF ~ 0.1 µF) between V_{DD} and GND should be placed as close to the product as possible. Other specifications can be available.

Dimensions (Units: mm)



Top View

Recommended Solder Pattern



1.6 x 1.2 x 0.7

Terminal	Connection
#1	Enable/Disable
#2	GND
#3	OUTPUT
#4	V _{DD}

■ #2 is connected to the metal lid.

*Crystals...
and more*

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All specifications subject to change without notice.