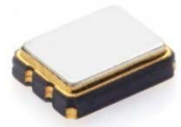


# Automotive Grade SCO-A32

- AEC-Q200 Compliant
- External Dimensions : 3.2 × 2.5 mm
- Wide Temperature Range from -40 to +125 °C
- Low Power Consumption
- CMOS Output
- Pb-free and RoHS Compliance
- TS-16949 Certified



## ELECTRICAL SPECIFICATIONS

Item	Value	Remarks
Output Logic Type	CMOS	CMOS XO
Frequency Range*	2.000 MHz to 50.000 MHz	
Supply Voltage(V <sub>DD</sub> )	1.8 V <sub>DC</sub> ± 5 %, 2.5 V <sub>DC</sub> ± 5 %, 3.3 V <sub>DC</sub> ± 10 %	
Operating Temperature Range	-40 to +85 °C, -40 to +105 °C, -40 to +125 °C	
Storage Temperature Range	-55 to +125 °C	
Frequency Stability(Overall)**	±100 ppm Max.	
Input Current	3.0 mA(1.8 V), 4.0 mA(2.5 V), 5.0 mA(3.3 V) Max. 4.0 mA(1.8 V), 5.0 mA(2.5 V), 6.0 mA(3.3 V) Max. 5.0 mA(1.8 V), 7.0 mA(2.5 V), 8.0 mA(3.3 V) Max.	2.000 to 25.000 MHz 25.001 to 39.999 MHz 40.000 to 50.000 MHz
Output Voltage Logic High(V <sub>OH</sub> )	90 % of V <sub>DD</sub> Min.	
Output Voltage Logic Low(V <sub>OL</sub> )	10 % of V <sub>DD</sub> Max.	
Rise / Fall Time	7 ns Max. 5 ns Max.	V <sub>DD</sub> = 1.62 V to 2.52 V V <sub>DD</sub> = 2.52 V to 3.63 V
Duty Cycle	40 to 60 %	Measured at 50 % of waveform
Start-up Time	10 ms Max.	
Output Load Condition(CMOS)	15 pF Max.	
Output Enable Function (V <sub>IH</sub> and V <sub>IL</sub> )	70 % of V <sub>DD</sub> Min. to Enable Output 30 % of V <sub>DD</sub> Max. to Disable Output	High Impedance
RMS Phase Jitter	1 ps Max.	BW : 12 kHz to 20 MHz
Frequency Aging	±5 ppm Max.	25 °C, First year

\* Please contact us about developed standard frequencies

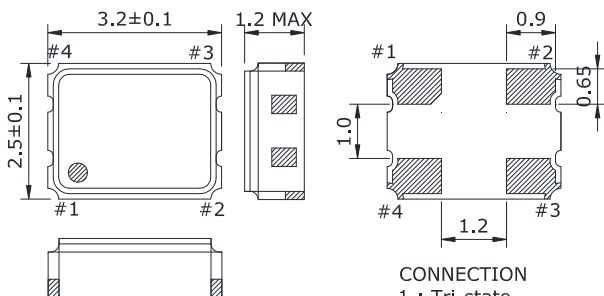
\*\* Frequency Stability(Overall) : Inclusive of Tolerance, Operating Temperature, Load and V<sub>DD</sub>

## MECHANICAL DIMENSIONS (mm)

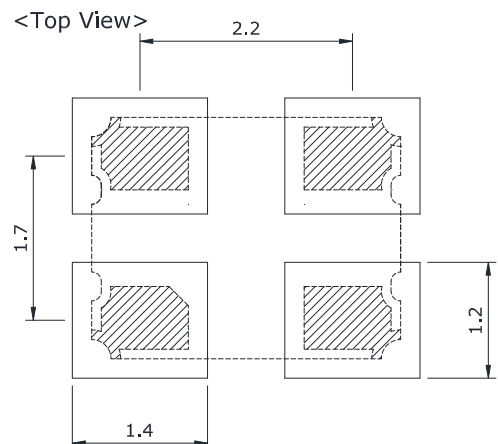
(mm)

## LAND PATTERN (mm)

(mm)



CONNECTION  
1 : Tri-state  
2 : GND  
3 : OUTPUT  
4: V<sub>DD</sub>



**PART NUMBERING GUIDE**

SCO - A32 33 50 D D S R - 27.000M

**SUPPLY VOLTAGE(V<sub>DD</sub>)**  
 33 : 3.3 V, 25 : 2.5 V  
 18 : 1.8 V

**FREQUENCY STABILITY**  
 50 : ±50 ppm, BLANK : ±100 ppm

**OPERATING TEMPERATURE RANGE**  
 A : -40 to 85 °C, B : -20 to 70 °C, C : -40 to 105 °C  
 D : -40 to 125 °C, BLANK : 0 to 70 °C

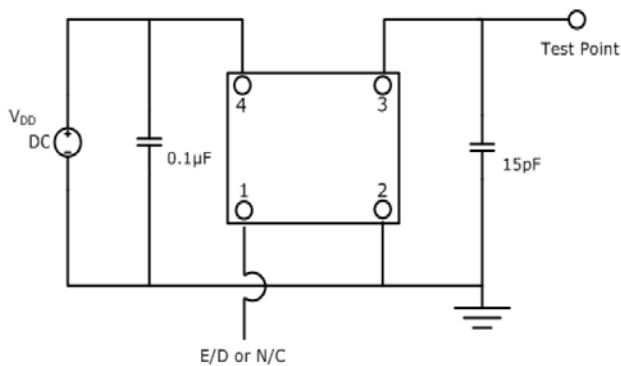
**DUTY CYCLE**  
 D : 45/55, E : 40/60

**FREQUENCY**  
 M : MHz

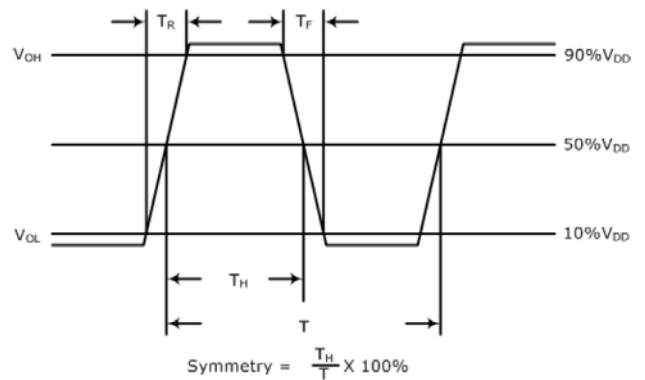
**PACKAGE OPTION**  
 R : TAPE AND REEL  
 BLANK : BULK

**PIN 1 CONNECTION**  
 S : TRI-STATE, E/D  
 BLANK : NO CONNECTION

**TEST CIRCUIT (CMOS)**



**WAVEFORM (CMOS)**

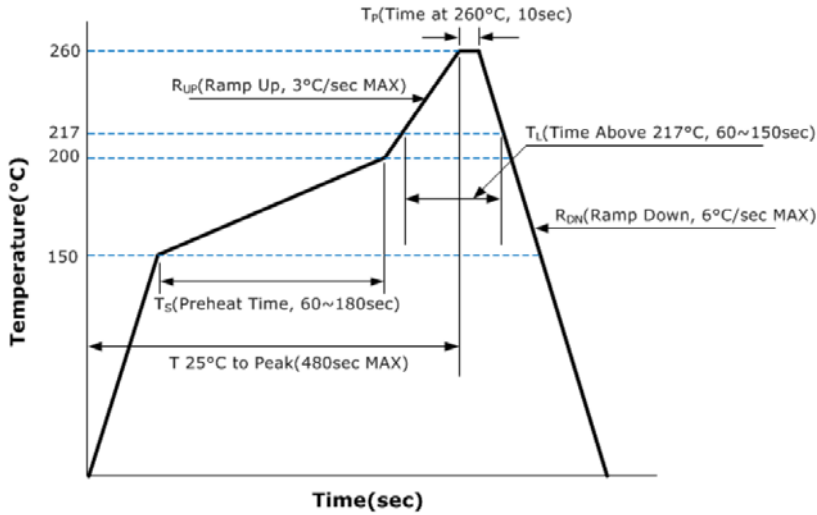


**ENVIRONMENTAL & MECHANICAL SPECIFICATIONS**

High Temperature Exposure	MIL-STD-202 Method 108
Temperature Cycling	JESD22 Method JA-104
Biased Humidity	MIL-STD-202 Method 103
Operational Life	MIL-STD-202 Method 108
Mechanical Shock	MIL-STD-202 Method 213, Conditions C
Vibration	MIL-STD-202 Method 204
Resistance to Soldering Heat	MIL-STD-202 Method 210, Condition B
Solderability	J-STD-002, Method B, D

REFLOW PROFILE

MARKING GUIDE



LINE 1 : XX.XX

LINE 2 : ● S Y WW

Sunny

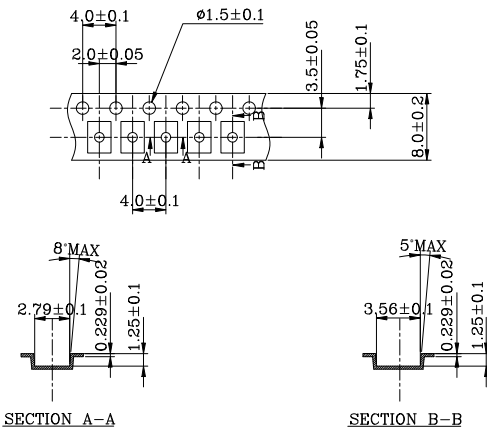
Year

Week

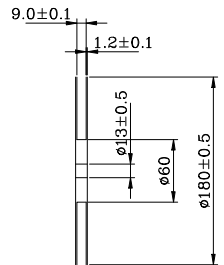
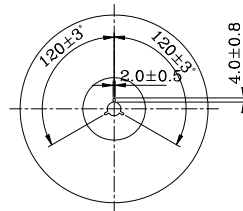
Frequency in MHz

TAPE AND REEL DIMENSIONS

MAT'L : P.S  
COLOR : BLACK  
REFERENCE R=0.2



MAT'L : P.S  
COLOR : BLACK



NOTE

- 1. COVER TAPE : 5.4mm(WIDTH)X0.06mm(t) MAT'L : PET
- 2. COLOR : WHITE