Automotive Grade
SCO-A53

- AEC-Q200 Compliant
- External Dimensions : 5.0 × 3.2 mm
- Wide Temperature Range from –40 to +125 ℃
- Low Power Consumption
- CMOS Output
- Pb-free and RoHS Compliance
- TS-16949 Certified

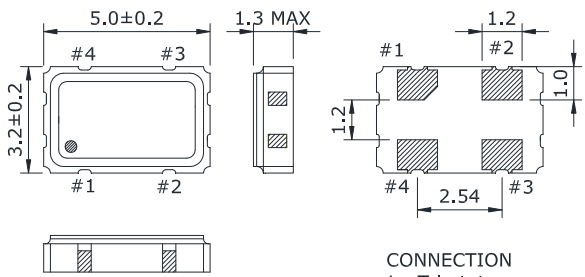
■ ELECTRICAL SPECIFICATIONS

Item	Value	Remarks
Output Logic Type	CMOS	CMOS XO
Frequency Range*	2.000 MHz to 50.000 MHz	
Supply Voltage(V_{DD})	1.8 V_{DC} ± 5 %, 2.5 V_{DC} ± 5 %, 3.3 V_{DC} ± 10 %	
Operating Temperature Range	-40 to +85 ℃, -40 to +105 ℃, -40 to +125 ℃	
Storage Temperature Range	-55 to +125 ℃	
Frequency Stability(Overall)**	±50 ppm Max, ±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_{OH})	90 % of V_{DD} Min.	
Output Voltage Logic Low(V_{OL})	10 % of V_{DD} Max.	
Rise / Fall Time	7 ns Max. 5 ns Max.	V_{DD} = 1.62 V to 2.52 V V_{DD} = 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_{IH} and V_{IL})	70 % of V_{DD} Min. to Enable Output 30 % of V_{DD} Max. to Disable Output	 High Impedance
RMS Phase Jitter	1 ps Max.	BW : 12 kHz to 20 MHz
Frequency Aging	±5 ppm Max.	25 ℃, First year

* Please contact us about developed standard frequencies

** Frequency Stability(Overall) : Inclusive of Tolerance, Operating Temperature, Load and V_{DD}

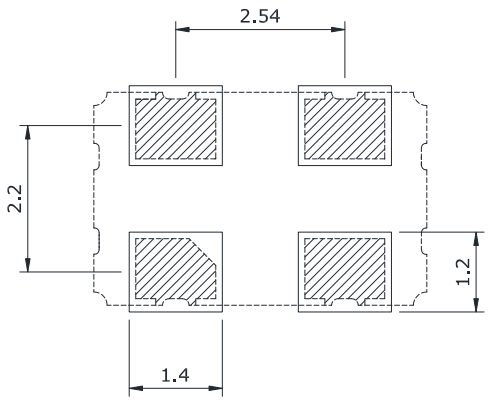
■ MECHANICAL DIMENSIONS (mm)



CONNECTION
1 : Tri-state
2 : GND
3 : OUTPUT
4: V_{DD}

■ LAND PATTERN (mm)

<Top View>



■ PART NUMBERING GUIDE

SCO – A53 33 50 D D S R – 27.000M

SUPPLY VOLTAGE(V_{DD})
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 ℃, B : -20 to 70 ℃, C : -40 to 105 ℃
D : -40 to 125 ℃, BLANK : 0 to 70 ℃

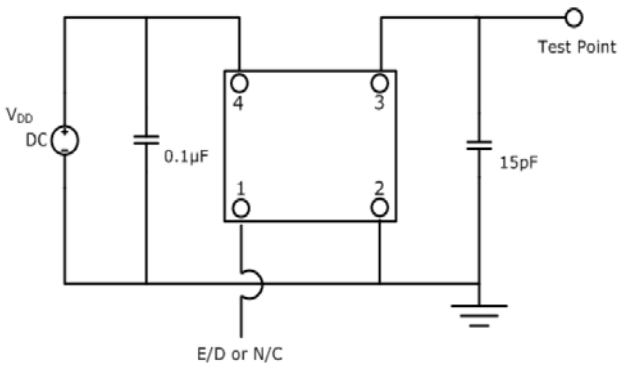
DUTY CYCLE
D : 45/55, E : 40/60

FREQUENCY
M : MHz

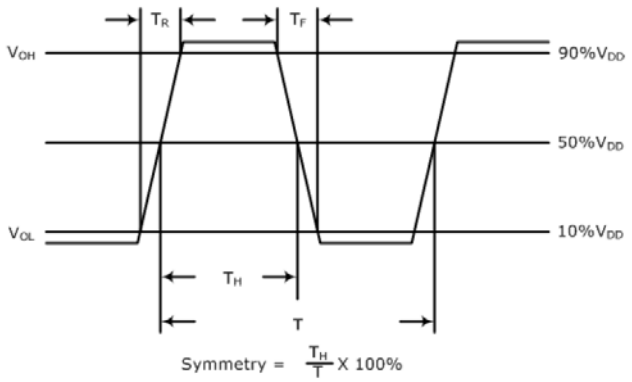
PACKAGE OPTION
R : TAPE AND REEL
BLANK : BULK

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

■ TEST CIRCUIT (CMOS)



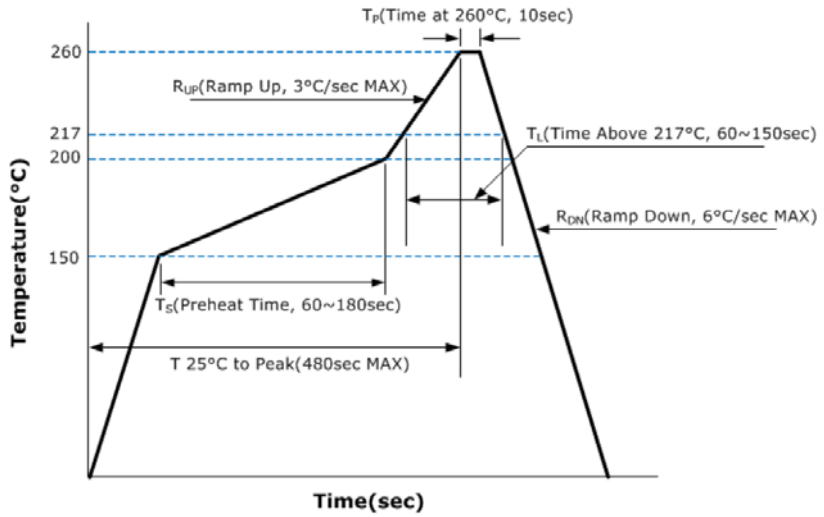
■ WAVEFORM (CMOS)



■ 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.XXX

LINE 2 : ●S Y WW

Sunny

Year

Week

Frequency in MHz

■ TAPE AND REEL DIMENSIONS