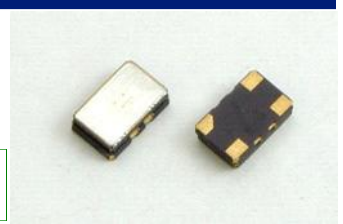


ULTRA MINIATURE SPREAD SPECTRUM SMD OSCILLATOR (5.0 x 3.2 x 1.05mm)

FEATURES:

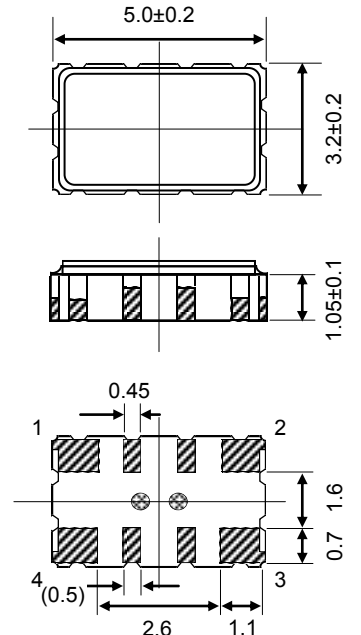
- LOW EMI / EMC
- CMOS OUTPUT
- LOW VOLTAGE

RoHS
Compliant



MODEL		
OUTPUT FREQUENCY RANGE		1.0000MHz to 166.0000MHz (VDD= +2.5V) 1.0000MHz to 200.0000MHz (VDD= +3.3V)
MODULATION RATIO		Center spread: $\pm 0.125\%$ to $\pm 2\%$ (0.125 step) Down spread: -0.25% to -0.4% (0.25 step)
FREQUENCY STABILITY		± 50 ppm to ± 100 ppm
OPERATING CONDITIONS	OPERATING TEMPERATURE	-20°C to 75°C
	INPUT VOLTAGE(VDD)	+2.5V DC $\pm 10\%$ to +3.3V DC $\pm 10\%$
INPUT CURRENT		30 mA max
STAND-BY CURRENT (Pin#1-VIL)		10 μA max.
OUTPUT (-20°C to $+75^{\circ}\text{C}$)	SYMMETRY	45% to 55% at 1/2VDD level
	RISE AND FALL TIMES	3 ns max. (10% VDD to 90% VDD level)
	"0" LEVEL	VOL : 10% VDD max
	"1" LEVEL	VOH : 90% VDD min
OUTPUT LOAD		15 pF max. (CMOS)
TRI-STATE CONTROL VOLTAGE		30% VDD max (ViL) 70% VDD min (ViH)
START-UP TIME		10 ms max
ENABLE/DISABLE PHASE DELAY TIME		10 ns max
AGING		± 5 ppm/year max. at $+25^{\circ}\text{C} \pm 3\%$
JITTER (CYCLE TO CYCLE)		100 ps max

PACKAGE DIMENSIONS

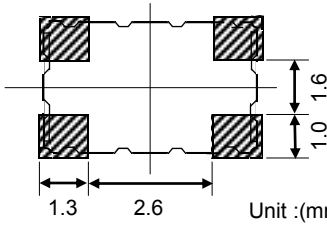


Unit : mm

Pin Configuration	
1	"L" OPEN or "H"
2	GND
3	Z OUTPUT
4	VDD

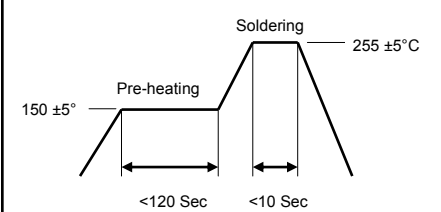
Z: high impedance

SOLDER PATTERN



Unit : (mm)

REFLOW PROFILE



Note: Consult factory for details

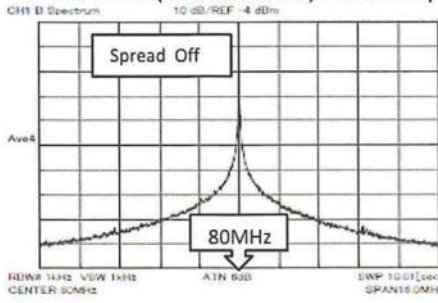
PART NUMBERING GUIDE

TCP53 - H 50 HM 33 S T - A - 24.000M - TR

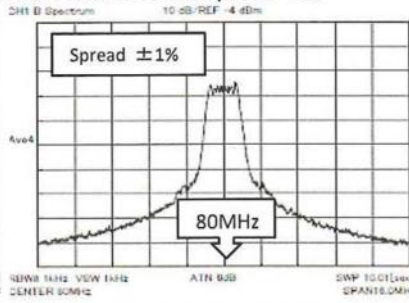
Product series	TCP53	Frequency	M: MHz	Tape and Reel	TR: 1000/reel Blank: Cut tape
Output	H: HCMOS	Stability	00: ± 100 ppm 50: ± 50 ppm 25: ± 25 ppm	Spread Spectrum	A: $\pm 0.25\%$ Center Spread B: $\pm 0.50\%$ Center Spread C: $\pm 1.0\%$ Center Spread D: -0.5% Down Spread E: -1.0% Down Spread F: -2.0% Down Spread
Stability	00: ± 100 ppm 50: ± 50 ppm 25: ± 25 ppm	Tristate	T: En/Disable	Symmetry	S: 45/55%
Operating Temperature	FM: 20°C to 70°C CQ: -40°C to 85°C Other options available	Supply Voltage	25: 2.5 Volt 33: 3.3 Volt		

Transko Electronics, Inc reserves the right to make changes to the product (s), service (s), and specification (s) described herein without notice. See "Terms of Sale" for details on our website.

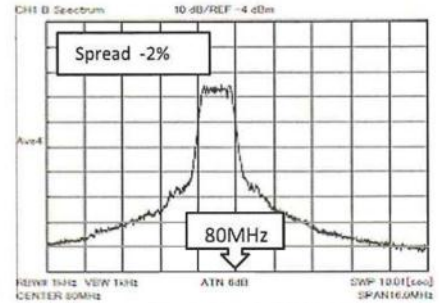
EXAMPLE(SS osc 80MHz) : Center spread $\pm 1\%$ & Down spread -2%



Peak: -6.5dBm



Peak: -28.5dBm Peak Down: -22dB



Peak: -29.5dBm Peak Down: -23dB