ROHS-Compliant Product

T-53000 Series

SMD TCXO according to Telcordia GR-1244 and GR-253-Core Stratum 3, ANSI Clock T1.101, ITU-T G.812 Type IV and G.813 Option 1

1. Specification

Type:	**T-53XYZ**
Frequency range:	10.0 … 52.0 MHz
Standard frequencies:	10.0, 12.8, 19.2, 20.0, 26.0 MHz
Supply Voltage V_C (nominal values ±5%):	**X**
+3.3 V:	6
+5.0 V	7
Initial frequency tolerance (T_A = +25 °C; V_C = +1.5 V):	≤ ±1.0 ppm
24 h after reflow (T_{peak} = +260 °C for 10 sec max):	≤ ±1.5 ppm
Temperature range options:	**Y**
0 °C to +50 °C :	1
–10 °C to +60 °C :	2
0 °C to +70 °C :	3
–20 °C to +70 °C :	4
–30 °C to +85 °C :	5
–40 °C to +85 °C :	6
Frequency stability options:	**Z**
±0.10 ppm (available for temp.range 1 to 4):	0
±0.14 ppm (available for temp.range 1 to 4):	1
±0.28 ppm:	2
±0.37 ppm:	3
±0.5 ppm:	4
±1.0 ppm:	5
±0.2 ppm:	6
Frequ. stab. vs. supply voltage changes V_S ± 5 %:	
Clipped Sinewave output:	≤ ± 0.02 ppm
(LV)HCMOS output:	≤ ± 0.3 ppm
Frequ. stability vs. load changes ± 10 %:	≤ ± 0.1 ppm
24 hours aging at 25 °C after 10 days continuous operation:	≤ ± 0.02 ppm
Overall stability incl. nominal freq. tol., frequ. stab. vs. temp., vs. supply voltage, vs. load changes and 15 years aging :	≤ ± 4.6 ppm
Holdover Stability incl. frequency stab. vs. temp and 24-hours aging (available for stability option 1 and 2) :	≤ ± 0.30 ppm
Storage Temperature Range:	-55 °C to +105 °C

ED	Description	Date	Name
4	Freq. Stability +/- 0.2ppm added	15.01.2014	Mueller
3	Freq. Tuning range +/-10ppm added (T)	24.09.2013	Dannenmaier
2	Amended Frequ. Stab. Option 0	06.12.2012	Rudolph
5	Freq. Range ext. to 52 MHz	09.04.2014	Dannenmaier

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Subject to technical modification

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1. Specification continued

Frequency Control Options : Fixed frequency oscillator: Frequ. tuning range ≥ ± 5 ppm: Frequ. tuning range ≥ ± 10 ppm:	Suffix **X** **V** **T**	
Control voltage range V_C: V_C input impedance:	+0.5 V to +2.5 V ≥ 100 kOhm	
Transfer function / Linearity:	positive / 10 %	
Output signal Option **H**: level: load:	(LV)**H**CMOS V_{OL} ≤ 10% V_S; V_{OH} ≥ 90% V_S 1 kOhm // 15 pF	
Current consumption for **H**CMOS:	≤ 6 mA	
Output signal Options **S**: Type: Level: Load:	 Clipped **S**ine wave ≥ 0.8 V_{PP} 10 kOhm // 10 pF	
Current consumption for Clipped **S**ine wave:	≤ 3.5 mA	
Phase Noise 100 Hz: 1 kHz: 10 kHz:	(typical for 10.00 MHz) ≤ -125 dBc/Hz ≤ -145 dBc/Hz ≤ -153 dBc/Hz	(typical for 20.00 MHz) ≤ -117 dBc/Hz ≤ -137 dBc/Hz ≤ -150 dBc/Hz

2. Marking

ww KVG yy
Frequency

3. Environmental conditions

According to KVG Product Qualification Procedure AA-QM-200

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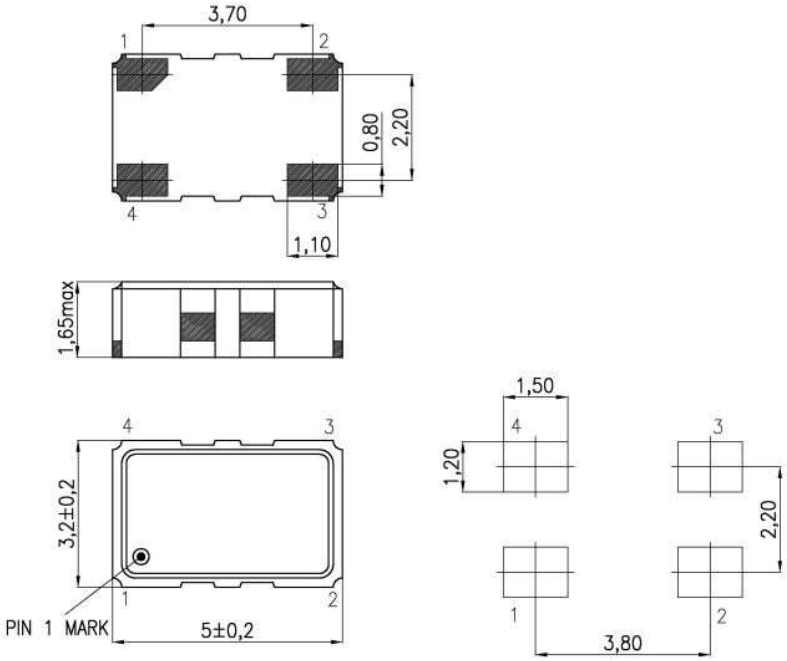
4. Case

Case Style: BF193-1.65



Pin configuration

1. N.C. or Control Voltage Vc
2. Ground, Case
3. RF Output
4. Supply Voltage V_S

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5	Freq. Range ext. to 52 MHz	09.04.2014	Dannenmaier	Tel. +49 (0) 7263 / 648-0
2	Amended Frequ. Stab. Option 0	06.12.2012	Rudolph	D-74924 Neckarbischofsheim
3	Freq. Tuning range +/-10ppm added (T)	24.09.2013	Dannenmaier	P.O. Box 61
4	Freq. Stability +/- 0.2ppm added	15.01.2014	Mueller	**KVG Quartz Crystal Technology GmbH**

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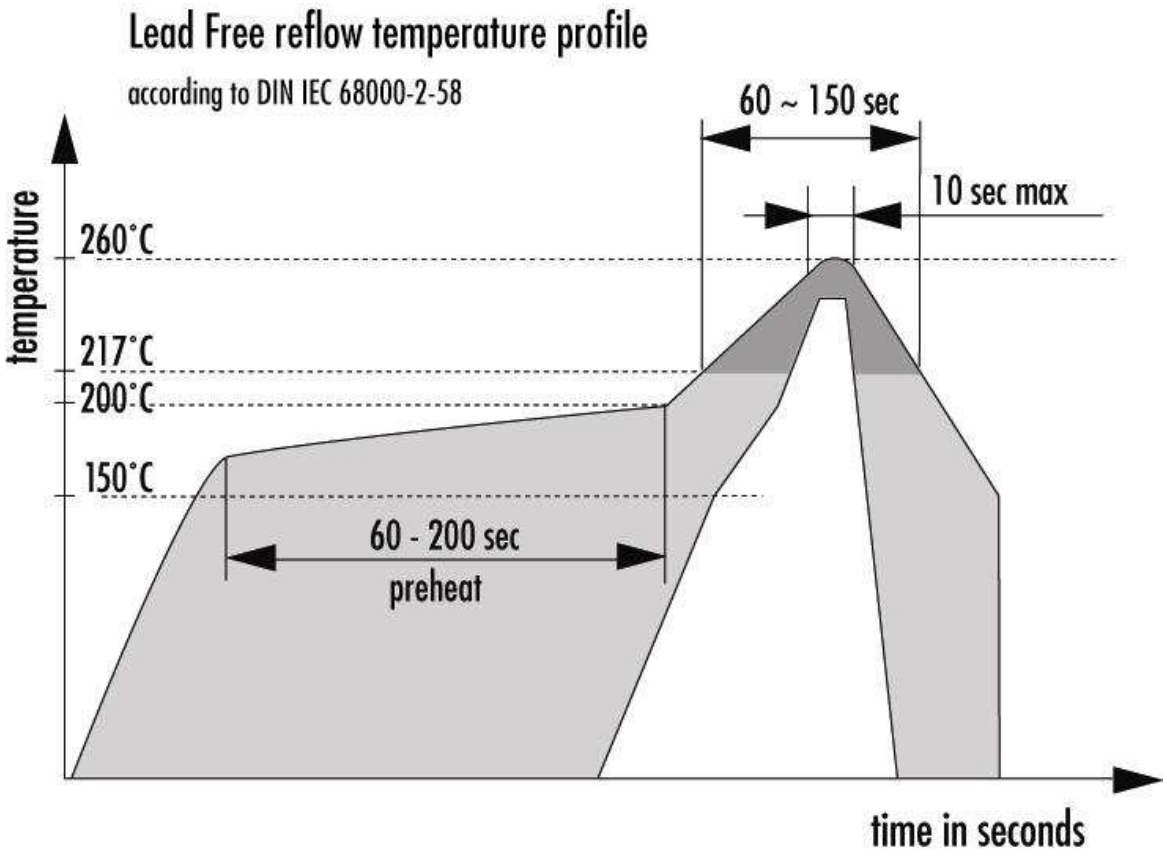
5. Reflow Soldering Profile



6. Ordering Information

Package Code	Supply Voltage	Temp. Range	Frequ. Stability	Frequ. Control	Output Signal	RoHS compl.	Nominal Frequency
5.0 x 3.2 mm	3.3 V	-30/+85 °C	± 0.28 ppm	± 5 ppm	Sine		16.000
T-53	**6**	**5**	**2**	**F**	**S**	**-LF**	**– XX.YYY MHz**

Example: T-53652FS-LF-16.000 MHz

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