



# T-32000 Series



1. Specification	
Frequency range:	10.0 ... 52.0 MHz
Supply Voltage $V_S$ (nominal values $\pm 5\%$ ):	
+1.8 V:	J
+2.4 V:	G
+2.7 V:	F
+2.8 V:	E
+3.0 V:	D
+3.3 V:	A
Temperature range options:	
0 °C to +50 °C :	0050
-10 °C to +60 °C :	1060
0 °C to +70 °C :	0070
-20 °C to +70 °C :	2070
-30 °C to +85 °C :	3085
-40 °C to +85 °C :	4085
Frequency stability options:	
$\pm 0.5$ ppm:	J
$\pm 1.0$ ppm:	K
$\pm 1.5$ ppm:	N
$\pm 2.0$ ppm:	O
$\pm 2.5$ ppm:	P
$\pm 3.0$ ppm:	Q
$\pm 4.0$ ppm:	R
$\pm 5.0$ ppm:	S
Initial frequency tolerance ( $T_A = +25$ °C; $V_C = +1.5$ V): 24 h after reflow ( $T_{peak} = +260$ °C for 10 sec max):	$\leq \pm 1.0$ ppm $\leq \pm 1.5$ ppm
Frequency stability vs. supply voltage changes $V_S \pm 5\%$ : vs. load changes $\pm 10\%$ :	$\leq \pm 0.2$ ppm $\leq \pm 0.2$ ppm
Aging @ +40 °C: 1 <sup>st</sup> year: 10 years:	$\leq \pm 1.0$ ppm $\leq \pm 5.0$ ppm

4	Supply voltage 1.8 V amended	04.04.2014	Rudolph	<b>KVG Quartz Crystal Technology GmbH</b> P.O. Box 61 D-74924 Neckarbischofsheim Tel. +49 (0) 7263 / 648-0 Fax. +49 (0) 7263 / 6196
7	HCMOS output amended	01.03.2018	Rudolph	
6	New product coding	01.06.2015	Dannenmaier	
5	Frequency Range ext. To 52 MHz	09.04.2014	Dannenmaier	
ED	Description	Date	Name	



# T-32000 Series



## 1. Specification continued

Frequency Control Options  Fixed frequency oscillator: ± 5 ppm: ± 8 ppm: ± 10 ppm: ± 12 ppm:	<b>X F E T U</b>	
Control voltage range $V_C$ :	+0.5 V to +2.5 V	
Transfer function / Linearity:	positive / 10 %	
Output signal type <b>S</b> : Level: Load:	Clipped Sinewave $\geq 0.8 V_{PP}$ 10 kOhm // 10 pF	
Current consumption for type <b>S</b> $f < 15$ MHz: $f \geq 15$ MHz:	$\leq 1.5$ mA $\leq 2.0$ mA	
Output signal Option <b>H</b> : level: load:	(LV)HCMOS $V_{OL} \leq 10\% V_S$ ; $V_{OH} \geq 90\% V_S$ 1 kOhm // 15 pF	
Current consumption for option <b>H</b> (HCMOS):	$\leq 6$ mA	
Phase Noise  100 Hz: 1 kHz: 10 kHz: 25 kHz:	(typical for 13 MHz)  -115 dBc/Hz -135 dBc/Hz -145 dBc/Hz -147 dBc/Hz	(typical for 26 MHz)  -108 dBc/Hz -128 dBc/Hz -140 dBc/Hz -142 dBc/Hz
Temperature Ranges Operable: Storage:	$-40$ °C to $+85$ °C $-55$ °C to $+105$ °C	

## 2. Marking

Nominal frequency

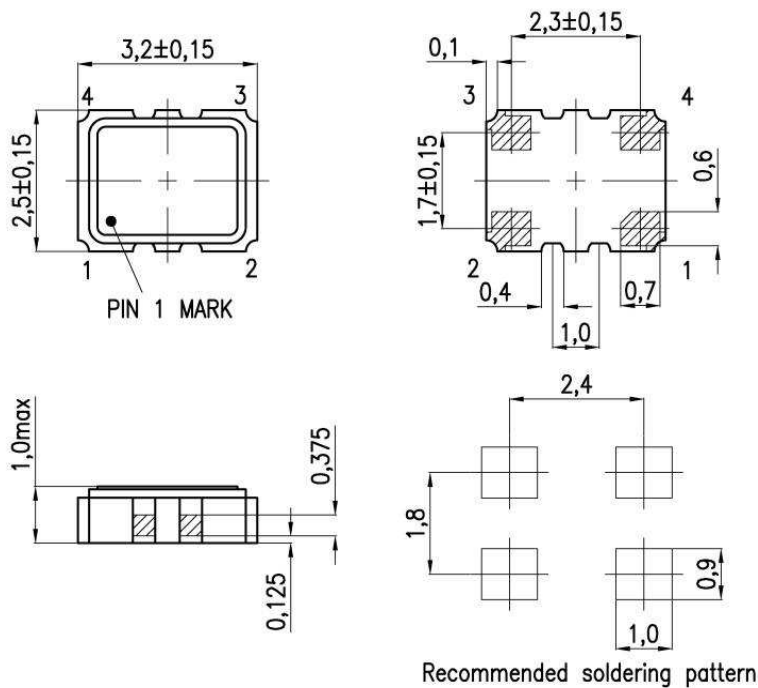
## 3. Environmental conditions

According to KVG Product Qualification Procedure AA-QM-200

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## 4. Case

### Case Style: BF201-1.0-SMD



### Pin configuration

1. GND (TCXO) or Control voltage  $V_C$  (VCTCXO)
2. GND, Case
3. RF output
4. Supply voltage  $V_S$

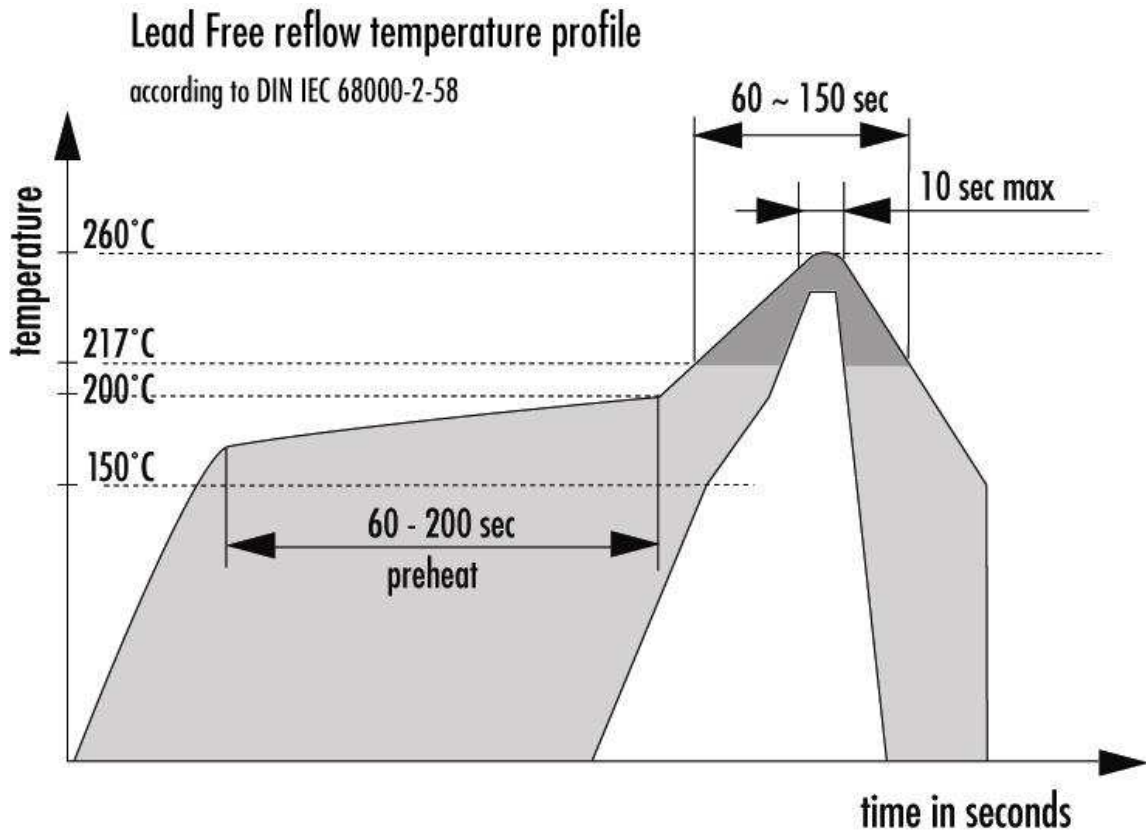
### Moisture Sensitivity Level: 1

Termination finish: Ni-Au  
(0.5 to 1.5  $\mu\text{m}$  Gold over Nickel)

Base Material: copper alloy

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## 5. Reflow Soldering Profile



## 6. Ordering Information

Type & Package code	Supply voltage	Temperature range LOW/HIGH	Freq. stability	Freq. Tuning Range	Output Signal	RoHS compl.	Nominal freq
T-32: BF-201-1.0- SMD	A...J:	2070: -20 / +70 °C 4085: -40 / +85 °C	J... S	X...U	S; H	-LF	- XX.YYY M

**Example: T-32A2070JXS-LF-26.000 MHz**

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