



RoHS-Compliant Product

**TO-900-S3-LF**



**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:	<b>TO-950-S3</b>	<b>TO-930-S3</b>
Power supply voltage $V_S$ :	<b>+5.0 V <math>\pm</math> 5 %</b>	<b>+3.3 V <math>\pm</math> 5 %</b>
Frequency range:	10.0 MHz... 40.0 MHz	
Frequency tolerance at +25 °C:	$\leq \pm 1.0$ ppm	
Frequency stability options: $\pm 0.14$ ppm (for temp. range R, S) $\pm 0.28$ ppm $\pm 0.5$ ppm $\pm 1.0$ ppm	<b>TO-950-1-S3</b> <b>TO-950-2-S3</b> <b>TO-950-5-S3</b> <b>TO-951-0-S3</b>	<b>TO-930-1-S3</b> <b>TO-930-2-S3</b> <b>TO-930-5-S3</b> <b>TO-931-0-S3</b>
Temperature range options: -10 °C to +60 °C: -20 °C to +70 °C: -40 °C to +85 °C:	<b>R</b> <b>S</b> <b>E</b>	
Frequency stability vs. supply voltage changes $V_S \pm 5$ %: vs. load changes $\pm 10$ %:	$\leq \pm 0.04$ ppm $\leq \pm 0.02$ ppm	
Holdover stability (TO-950-2 & TO-930-2) (incl. freq. stab. vs. temp. & supply voltage changes & 24 hours aging):	$\leq \pm 0.34$ ppm	
Aging @ +25 °C: per day: 1st year: after 15 years:	$\leq \pm 0.02$ ppm $\leq \pm 1.0$ ppm $\leq \pm 2.5$ ppm	
Total stability over all causes incl. 15 years aging:	$< \pm 4.6$ ppm	
Frequency control options fixed frequency: frequency tuning range $\geq \pm 5$ ppm: (by external control voltage)	<b>X</b> <b>F</b>	
Frequency control voltage $V_c$ :	+0.5 V to +4.5 V	+0.3 V to +3.0 V
Transfer function / Linearity:	positive / 10 %	
Current consumption:	$\leq 15$ mA < 20.0 MHz $\leq 30$ mA $\geq 20.0$ MHz	$\leq 15$ mA < 20.0 MHz $\leq 20$ mA $\geq 20.0$ MHz

4	Current consumption TO-930-S3	29.07.10	Zupan	<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
3	Case Option BF157-5.5H added	02.07.10	Zupan	
2	TO-9x1-0-S3 added	17.12.07	Rudolph	
5	TO-9X0-1-S3 added	02.10.12	Rudolph	
ED	Description	Date	Name	



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Output signal: voltage swing: load: duty cycle: rise & fall time	<b>HCMOS</b> $V_{OL} \leq 0.5 \text{ V} / V_{OH} \geq 4.5 \text{ V}$ $1 \text{ k}\Omega // 15 \text{ pF}$ $40 \% / 60 \%$ $\leq 8 \text{ ns}$	<b>LVHCMOS</b> $V_{OL} \leq 0.33 \text{ V} / V_{OH} \geq 2.97 \text{ V}$ $1 \text{ k}\Omega // 15 \text{ pF}$ $40 \% / 60 \%$ $\leq 8 \text{ ns}$
Output <b>E/D (Tri-State)</b> function Control input Pin 2 Logic HIGH or N.C: Control input Pin 2 Logic LOW:	Output Enable Output Disable	
Phase Noise at $\Delta F$ : 10 Hz : 100 Hz: 1 kHz: 10 kHz:	(typical at 10 MHz) -90 dBc -125 dBc -140 dBc -145 dBc	

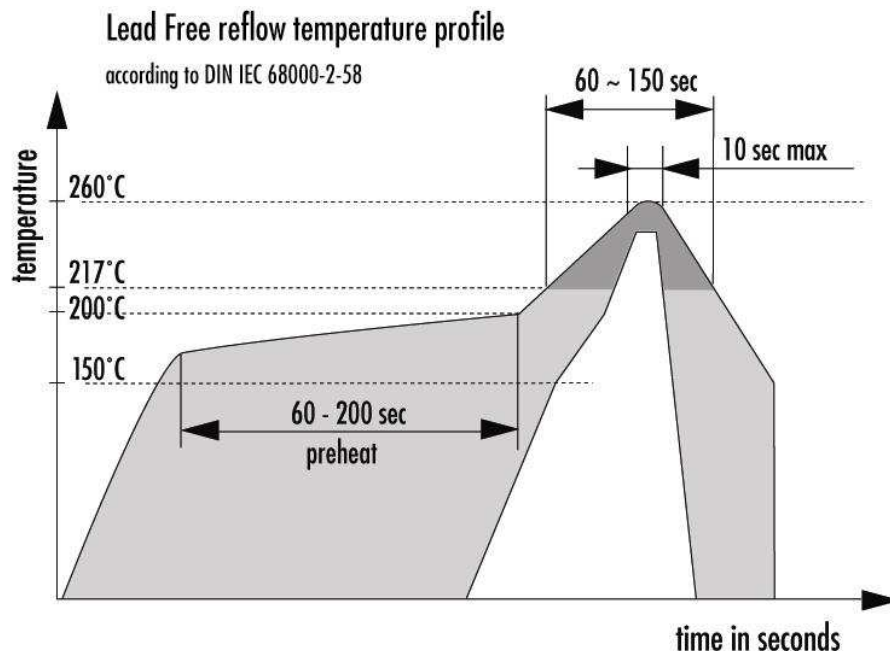
## 2. Environmental conditions

According to KVG Product Qualification Procedure AA-QM-200

## 3. Marking

Manufacturer's name, date code (week/year); Specification; Center frequency

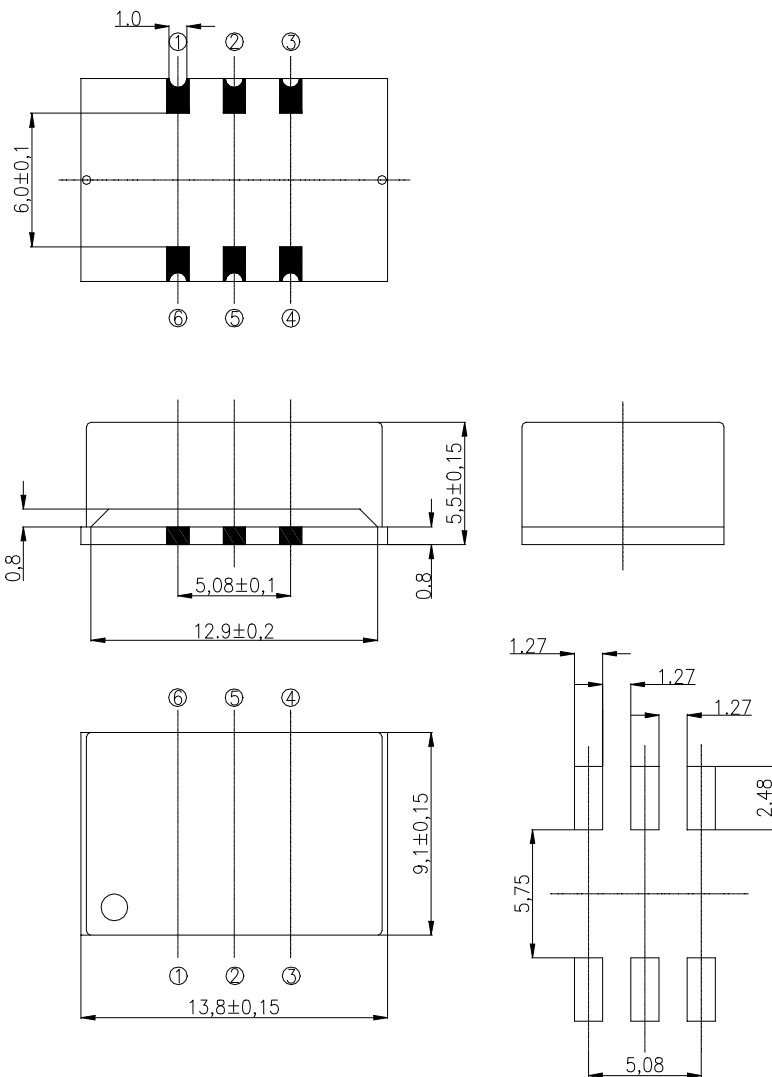
## 4. Reflow Soldering Profile



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## 5. Available Case Options

### Option a) Case Style: BF 157-5.5D

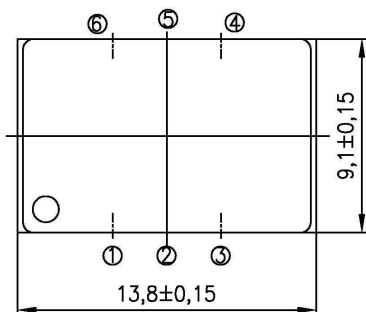
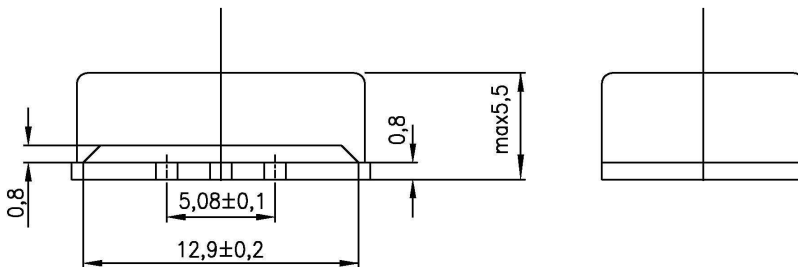
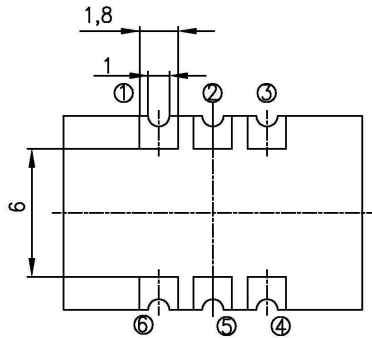


### 1. Pin configuration

1. CV-in ( $V_C$ ) or N.C.
2. Output E/D Control Input
3. GND, Case
4. RF Output
5. N.C.
6. Supply Voltage  $V_S$

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**Option b) Case Style: BF 157-5.5H**



**1.Pin configuration**

1. CV-in ( $V_C$ ) or N.C.
2. Output E/D Control Input
3. GND, Case
4. RF Output
5. N.C.
6. Supply Voltage  $V_S$

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