



ROHS-Compliant Product

# TO-6000 Serie



1. Specification	
<b>Type:</b>	<b>TO-6XYZ</b>
Frequency range:	10.0 ... 200.0 MHz
Supply voltage $V_S$ (nominal values $\pm 5\%$ ): +5.0 V: +3.3 V:	X 1 2
Initial frequency tolerance @ $T_A = +25\text{ }^\circ\text{C}$ , $V_C = +2.5\text{ V}$ for $X=1$ ; $V_C = +1.65\text{ V}$ for $X=2$ : 24 h after reflow ( $T_{\text{peak}} = +260\text{ }^\circ\text{C}$ for 10 sec max):	$\leq \pm 1.0\text{ ppm}$ $\leq \pm 1.5\text{ ppm}$
Temperature range options: 0 $^\circ\text{C}$ to +50 $^\circ\text{C}$ : -10 $^\circ\text{C}$ to +60 $^\circ\text{C}$ : 0 $^\circ\text{C}$ to +70 $^\circ\text{C}$ : -20 $^\circ\text{C}$ to +70 $^\circ\text{C}$ : -30 $^\circ\text{C}$ to +85 $^\circ\text{C}$ : -40 $^\circ\text{C}$ to +85 $^\circ\text{C}$ :	Y 1 2 3 4 5 6
Frequency stability options: $\pm 0.5\text{ ppm}$ (for Temp.range options 1, 2, 3, 4): $\pm 1.0\text{ ppm}$ : $\pm 1.5\text{ ppm}$ : $\pm 2.0\text{ ppm}$ : $\pm 2.5\text{ ppm}$ : $\pm 3.0\text{ ppm}$ :	Z 1 2 3 4 5 6
Frequency stability vs. supply voltage changes $V_S \pm 5\%$ : vs. load changes $\pm 10\%$ :	$\leq \pm 0.1\text{ ppm}$ $\leq \pm 0.1\text{ ppm}$
Aging @ +40 $^\circ\text{C}$ :	$\leq \pm 1.0\text{ ppm / year}$
Frequency Pulling Options : Fixed frequency oscillator: > $\pm 5\text{ ppm}$ : > $\pm 10\text{ ppm}$ : > $\pm 15\text{ ppm}$ : > $\pm xx\text{ ppm}$ <sup>1)</sup> : 1) For custom specific requirements, please contact factory	X F E T S
Control voltage range $V_C$ : TO-61xx (+5 V): TO-62xx (+3.3 V):	+0.5 V to +4.5 V +0.3 V to +3.0 V
Transfer function / Linearity:	positive / 10 %

4				<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
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1		23.02.2010	Zupan	
ED	Description	Date	Name	



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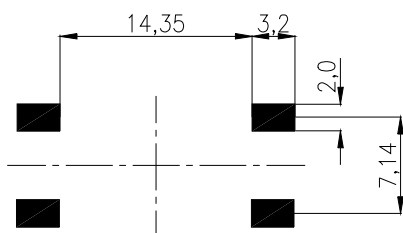
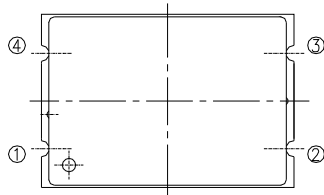
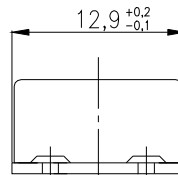
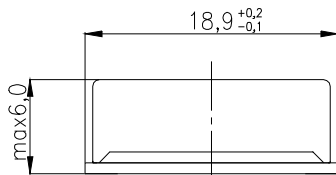
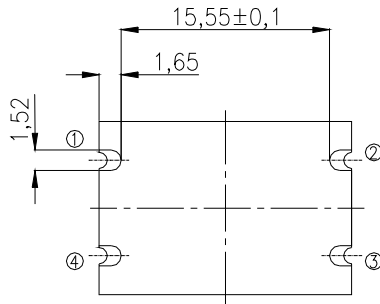


1. Specification continued	
Output signal Option <b>H</b> : (LV)HCMOS ( $\leq 100\text{MHz}$ ): high level : low level : load : duty cycle:	low $\geq 90\% V_S$ high $\leq 10\% V_S$ 1 kOhm // 15 pF 45 / 55 %
Current consumption for (LV)HCMOS:	< 40 mA
Output signal Option <b>P</b> : LVPECL ( $\leq 200\text{MHz}$ ): level: load : duty cycle :	High $\geq 2.275\text{ V}$ , Low $\leq 1.68\text{ V}$ 50 Ohm 45 / 55%
Current consumption for LVPECL:	< 100 mA
Output signal Option <b>L</b> : LVDS ( $\leq 200\text{MHz}$ ): level: load: duty cycle:	247 mV $\leq  V_{OD}  \leq 454\text{ mV}$ 100 Ohm sym. 45% / 55%
Current consumption for LVDS:	$\leq 40\text{ mA}$
Output signal Option <b>S</b> : Sinewave ( $\leq 200\text{MHz}$ ): Level: Load:	$\geq 0\text{ dBm}$ 50 Ohm
Current consumption for Sinewave:	$\leq 30\text{ mA}$
Harmonics:	$\leq -30\text{ dBc}$
Subharmonics (f > 100MHz) :	$\leq -40\text{ dBc}$
Storage temperature range:	-55 to +105 °C
2. Marking	
1. ww KVG yy 3. Specification / Part Number 2. Frequency	
3. Environmental conditions	
According to KVG Product Qualification Procedure AA-QM-200	

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## 4. Case

Case style (LV)HCMOS / Sinewave: BF169-6.0A



SMD-Lötflächen ( Anwender )

### Pin configuration

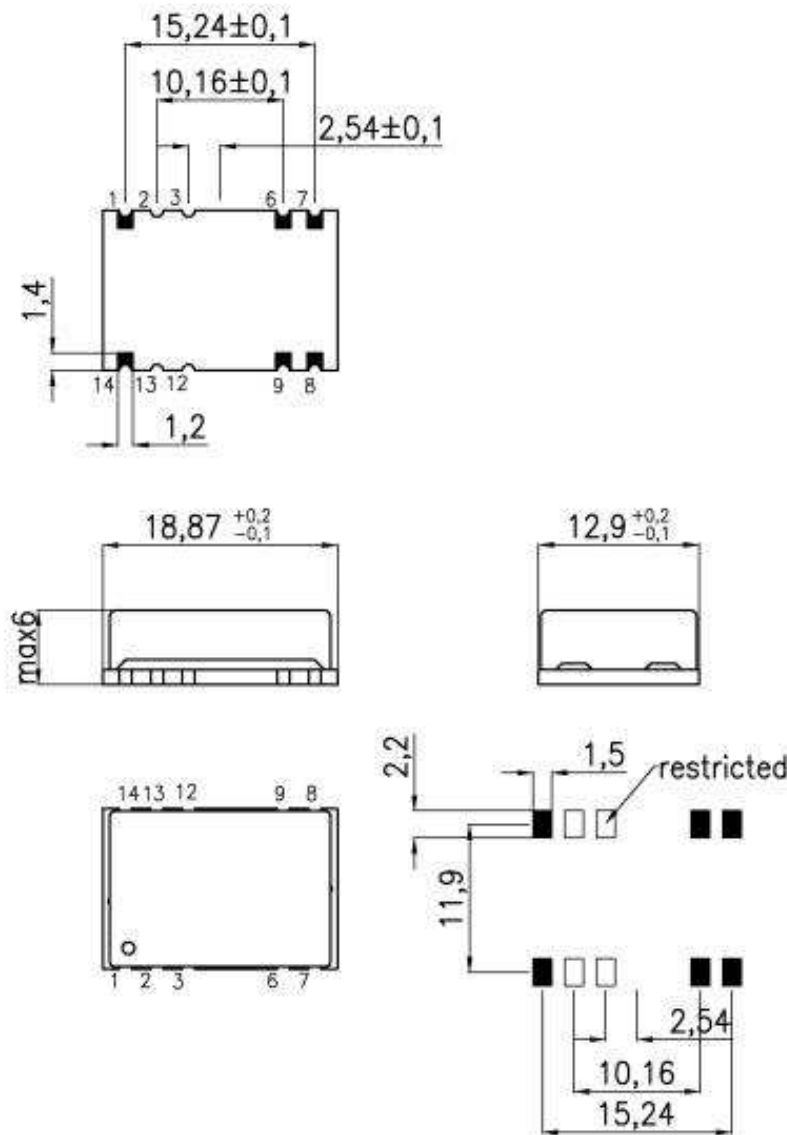
1. N.C. or control voltage  $V_C$
2. Ground, Case
3. RF Output
4. Supply voltage  $V_S$

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Case style LVPECL / LVDS: BF169-6.0E



Pin configuration

1. Control voltage input  $V_C$
2. via\*
3. via\*
6. N.C.
7. GND
8. RF output
9. Complementary RF output
12. via\*
13. via\*
14. Supply voltage  $V_S$

\* Vias used for calibration and testing by manufacturer only; please keep the restricted area around these vias off any lines or areas connected not to GND.

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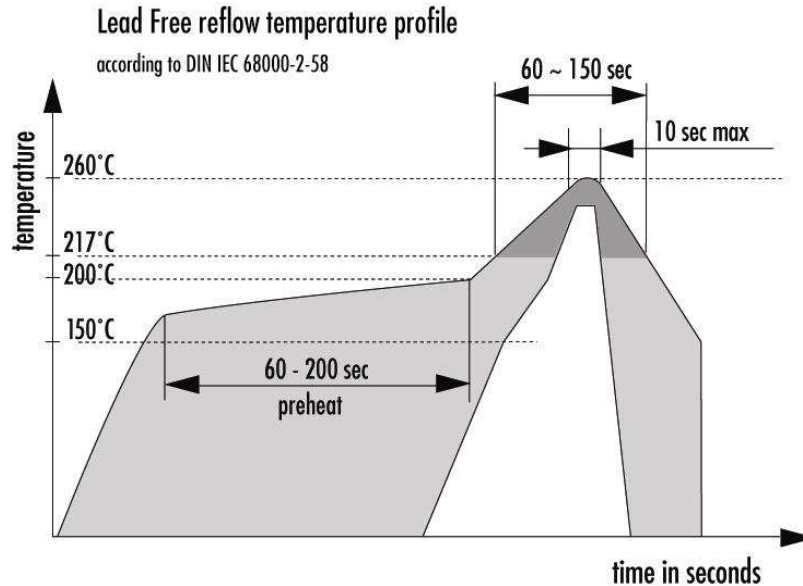


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## 5. Reflow Soldering Profile



## 6. Ordering Information

Package Code	Supply Voltage	Temp. Range	Frequ. Stability	Frequ. Control	Output Signal	RoHS compl.	Nominal Frequency
BF169-6.0A	3.3 V	-20/+70 °C	±1 ppm	±5 ppm	Sine		100 .000
TO-6	2	4	2	F	S	-LF	- XX.YYY MHz

Example: TO-6242FS-LF-100.000 MHz

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