ROHS-Compliant Product

TO-8000 Serie

1. Specification

Test Conditions: TA = +25 ±3 °C; $V_S = V_{Snom}$; VC = $V_{Ccenter}$

Type:	**TO-8XYZ**
Frequency range:	100.0 MHz … 1500.0 MHz
Supply voltage V_S (nominal values ± 5%):	**X**
+5.0 V:	1
+3.3 V:	2
+12 V:	3
Initial frequency tolerance (Note 1):	≤ ±1.0 ppm
24 h after reflow (T_{peak} = +260 °C for 10 sec max):	≤ ±1.5 ppm
Note 1: V_C = +2.5 V for **X**=1; V_C = +1.65 V for **X**=2; V_C = +5.0 V for **X**=3	
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**
≤ ±0.5 ppm :	1
≤ ±1.0 ppm:	2
≤ ±1.5 ppm:	3
≤ ±2.0 ppm:	4
Frequency stability	
vs. supply voltage changes V_S ± 5 %:	≤ ±0.1 ppm
vs. load changes ± 10 %:	≤ ±0.1 ppm
Aging @ +40 °C:	≤ ±1.0 ppm / year
Low **A**ging option:	≤ ±3.0 ppm / 10 years
Frequency Tuning Options :	
Fixed frequency oscillator:	X
≥ ± 5 ppm :	F
≥ ±10 ppm :	E
≥ ±15 ppm :	T
Control voltage range V_C:	
TO-61xx (+5 V):	+0.5 V to +4.5 V
TO-62xx (+3.3 V):	+0.3 V to +3.0 V
TO-63xx (+12 V):	+0.5 V to +9.5 V
Transfer function / Linearity:	positive / 10 %

4				**KVG Quartz Crystal Technology GmbH**
3				P.O. Box 61
2				D-74924 Neckarbischofsheim
1		27.08.2012	Rudolph	Tel. +49 (0) 7263 / 648-0
ED	Description	Date	Name	Fax. +49 (0) 7263 / 6196

Subject to technical modification

1. Specification continued

Output signal Option **H**: (LV)HCMOS (≤ 100MHz): high level : low level : load : duty cycle:			low ≥ 90% V_S high ≤ 10% V_S 1 kOhm // 15 pF 45 / 55 %
Current consumption for (LV)HCMOS:			< 40 mA
Output signal Option **P**: LVPECL (≤ 200MHz): level: load : duty cycle :			High ≥ 2.275 V, Low ≤ 1.68 V 50 Ohm 45 / 55%
Current consumption for LVPECL:			< 100 mA
Output signal Option **L**: LVDS (≤ 200MHz): level: load: duty cycle:			247 mV ≤ $IV_{OD}I$ ≤ 454 mV 100 Ohm sym. 45% / 55%
Current consumption for LVDS:			≤ 40 mA
Output signal Option **S**: Sinewave : Level: Load:			≥ +3 dBm 50 Ohm
Current consumption for Sinewave:			≤ 30 mA
Harmonics:			≤ -30 dBc
Subharmonics (f > 120 MHz) :			≤ -40 dBc
RMS Jitter (12 kHz to 20 MHz):			≤ 0.1 ps
Typical Phase Noise:		100 MHz	500 MHz / 1 GHz
10 Hz:		≤ -90 dBc/Hz	≤ -70 dBc/Hz / ≤ -60 dBc/Hz
100 Hz:		≤ -125 dBc/Hz	≤ -110 dBc/Hz / ≤ -100 dBc/Hz
1 kHz:		≤ -140 dBc/Hz	≤ -130 dBc/Hz / ≤ -120 dBc/Hz
10 kHz:	(1)	≤ -160 dBc/Hz	≤ -145 dBc/Hz / ≤ -140 dBc/Hz
100 kHz:	(1)	≤ -165 dBc/Hz	≤ -150 dBc/Hz / ≤ -150 dBc/Hz
1 MHz:	(1)	≤ -165 dBc/Hz	≤ -150 dBc/Hz / ≤ -150 dBc/Hz
Note (1): phase noise values are depending on supply voltage and output signal type			
Storage temperature range:			-55 to +105 ℃

2. Marking

1. ww KVG yy
3. Specification / Part Number
2. Frequency

4				**KVG Quartz Crystal Technology GmbH**
3				P.O. Box 61
2				D-74924 Neckarbischofsheim
1		27.08.2012	Rudolph	Tel. +49 (0) 7263 / 648-0
ED	Description	Date	Name	Fax. +49 (0) 7263 / 6196

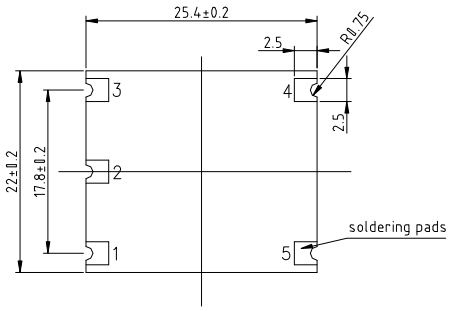
Subject to technical modification

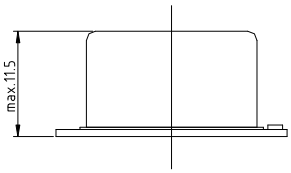
3. Environmental conditions

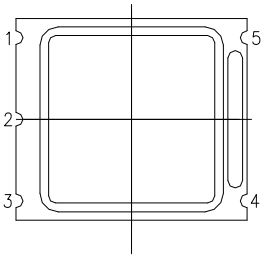
According to KVG Product Qualification Procedure AA-QM-202

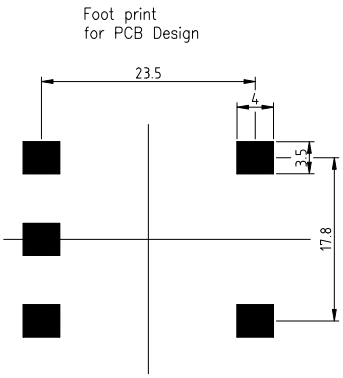
4. Case

BF144-11.5-SMD









Pin configuration

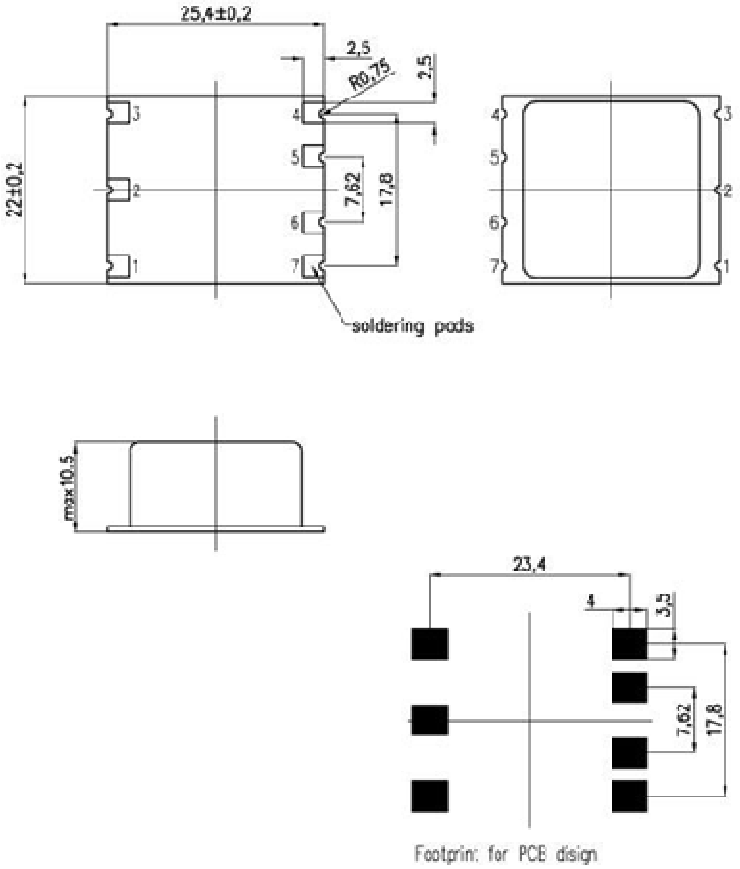
1. Supply voltage V_S
2. RF output
3. Ground, case
4. Control voltage V_C or N.C.
5. Ground, case

4				**KVG Quartz Crystal Technology GmbH**
3				P.O. Box 61
2				D-74924 Neckarbischofsheim
1		27.08.2012	Rudolph	Tel. +49 (0) 7263 / 648-0
ED	Description	Date	Name	Fax. +49 (0) 7263 / 6196

ROHS-Compliant Product

TO-8000 Serie

BF144-SMD-10.5 (for compl. output signals LVPECL, LVDS)



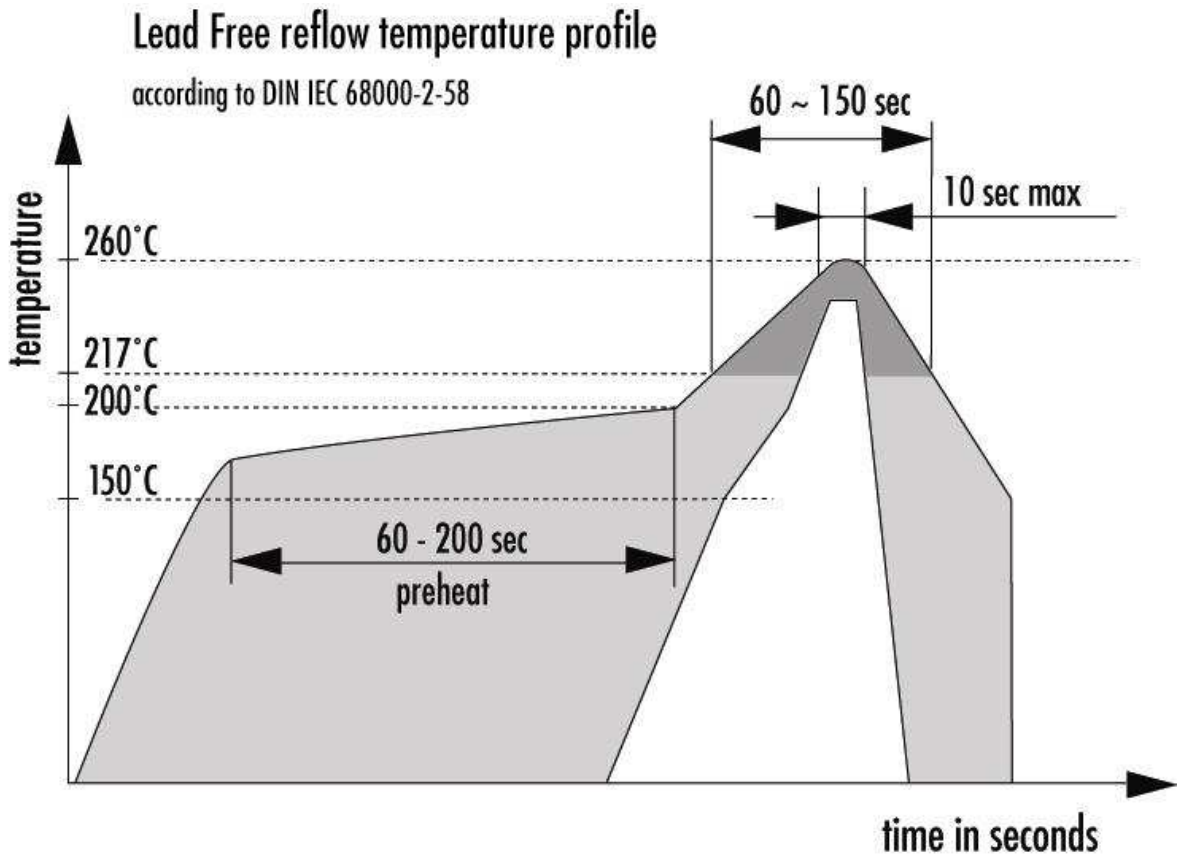
Pin configuration

1. Control Voltage V_C or N.C.
2. N.C.
3. Supply voltage V_S
4. $V_{E/D}$ option
5. RF out 1
6. RF out 2 (complementary)
7. GND

4				**KVG Quartz Crystal Technology GmbH**
3				P.O. Box 61
2				D-74924 Neckarbischofsheim
1		27.08.2012	Rudolph	Tel. +49 (0) 7263 / 648-0
ED	Description	Date	Name	Fax. +49 (0) 7263 / 6196

Subject to technical modification

5. Reflow Soldering Profile



6. Ordering Information

Package Code	Supply Voltage	Temp. Range	Frequ. Stability	Frequ. Control	Output Signal	RoHS compl.	Nominal Frequency
BF144-SMD-10.5A	3.3 V	-20/+70 ℃	±1 ppm	±5 ppm	Sine		100.000
TO-8	**2**	**4**	**2**	**F**	**S**	**-LF**	**– XX.YYY MHz**

Example: TO-8242FS-LF-100.000 MHz