



ROHS-Compliant Product

# TO-400 Series

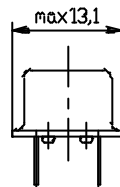
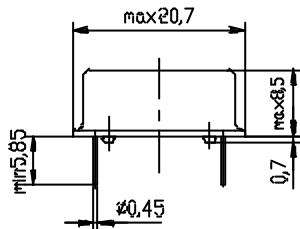
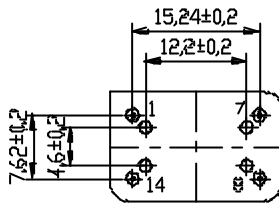


1. Specification				
Specification:	TO-401	TO-402	TO-411	TO-412
Frequency range:	2.0 ... 40.0 MHz			
Nominal frequency tolerance:	< ± 3 ppm		< ± 3 ppm U <sub>C</sub> =2.5V	
Stability in the temperature range - 20°C to + 70°C:	<± 1 ppm	<± 2 ppm	<± 1ppm	<± 2ppm
Frequency stability vs. supply voltage changes UB ± 5 %: vs. load changes ± 5 %:	< ± 1 ppm < ± 1 ppm			
Aging @ 25°C:	± 2 ppm first / ± 1 ppm following years			
Frequency correction:	± 5 ppm by int. trimmer		± 8 ppm by ext. voltage 0.5 ... 4.5V	
Transfer function / Linearity:	-		positive	
Supply voltage U <sub>B</sub> :	5 V ± 5 %			
Current consumption for f < 20MHz : f ≥ 20MHz :	≤ 20 mA ≤ 30 mA			
Output voltage : load : duty cycle: rise / fall time:	HCMOS; Low < 0.4 V; High > 4.0 V 1 kOhm // 15 pF 40 % ... 60 % 10 nsec.			
Phase noise @ 100 Hz: @ 1000 Hz	-105 dBc/Hz -120 dBc/Hz			
Operating Temperature range: Operable Temperature range: Storage Temperature range:	-20°C ... + 70°C -25°C ... + 75°C -40°C ... + 85°C			
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				KVG Quartz Crystal Technology GmbH
3	Lower frequency 2MHz	20.01.00	H.-J. Herzog	P.O.Box 61
2	Current consumption	14.10.97	M.Zupan	D-74924 Neckarbischofsheim
1	TO-400 series	04.07.96	H.-J. Herzog	Tel. +49 (0) 7263 / 648-0
ED	Description	Date	Name	Fax. +49 (0) 7263 / 6196

## 4. Case

### Case style: BF-100



### 1.Pin configuration

#### TO-401 / TO-402:

- 1. N.C.
- 7. Ground, case
- 8. RF-output
- 14. Supply voltage

#### TO-411 / TO-412:

- 1. Control voltage  $U_c$
- 7. Ground, case
- 8. RF-output
- 14. Supply voltage

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