

Helping Customers Innovate, Improve & Grow



TX-400

Features

- EFC Standard
- Hermetic
- Wide Frequency Range
- Frequency Range: 2 MHZ to 200 MHZ
- Previous Model: C2400, TQDILTC; 979; 979W, 959; 959W, TC-400

Applications

- PCS Base Stations
- Land Mobile Radio
- Cellular Telephony
- Radio in the Local Loop

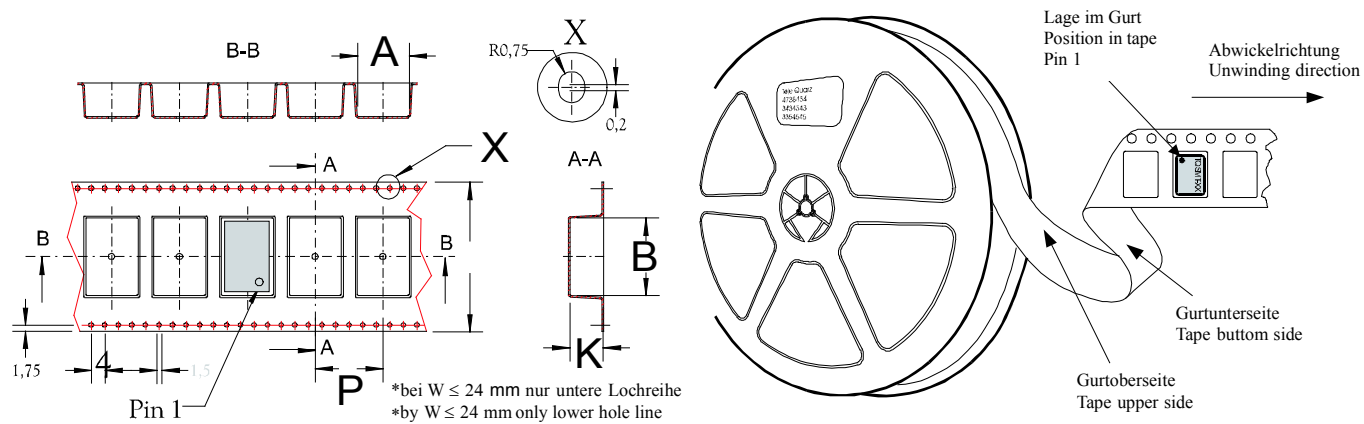
Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
Frequency Stabilities ¹					
vs. operating temperature range (referenced to +25°C)	-2.5		+2.5	ppm	-40... +85°C
	-2		+2.0	ppm	-40... +85°C
	-1.5		+1.5	ppm	-40... +85°C
	-1.0		+1.0	ppm	-40... +85°C
	-2.0		+2.0	ppm	-20... +70°C
	-1.5		+1.5	ppm	-20... +70°C
	-1.0		+1.0	ppm	-20... +70°C
	-1.5		+1.5	ppm	0... +70°C
	-1.0		+1.0	ppm	0... +70°C
	-1.5		+1.5	ppm	0... +50°C
	-1.0		+1.0	ppm	0... +50°C
	-0.5		+0.5	ppm	0... +50°C
Initial Tolerance	-2.5		+2.5	ppm	at time of shipment, nominal EFC Vs ± 5% Load ± 10%
vs. supply voltage change	-0.2		+0.2	ppm	
vs. load change	-0.2		+0.2	ppm	
vs. aging		1.0		ppm/yr	
Supply Voltage (Vs)					
Supply voltage	3.135	3.3	3.465	VDC	
Supply voltage	4.75	5.0	5.25	VDC	
Current consumption			15	mA	@ +25°C & 3.3VDC & clipped sinewave
			50	mA	@ +25°C & 3.3VDC & CMOS
			18	mA	@ +25°C & 5.0VDC & clipped sinewave
			50	mA	@ +25°C & 5.0VDC & CMOS

Performance Specifications

Parameter	Min	Typ	Max	Units	Condition
RF Output					
Signal	HCMOS				
Load	13.5	15	16.5	pF	
Signal Level (Vol)			+0.5 +0.3	V	with Vs=5.0V and 15pF load with Vs=3.3V and 15pF load
Signal Level (Voh)	4.5 3.0			V	with Vs=5.0V and 15pF load with Vs=3.3V and 15pF load
Duty cycle	40	50	60	%	@ (Voh-Vol)/2
Signal	Clipped Sinewave				
Load R	9	10	11	kohm	
C	9	10	11	pF	
Output Power	0.7			Vpp	@ 10Kohm 10pF
Signal	PECL				
Load		50		ohm	
Signal Level (Vol)			-1.6	V	
Signal Level (Voh)	-1.04			V	
Duty cycle	40		60	%	
Rise/Fall Time			3	ns	
Signal	Sinewave				
Load			50	ohm	
Output Power	0		6	dBm	
Harmonics			-20	dBc	
Spurious			-60	dBc	
Frequency Tuning (EFC)					
Tuning Range	Fixed Frequency				Initial Accuracy ± 2.5 ppm @ +25°C
Tuning Range	± 8.0	± 12.0	± 20.0	ppm	
Linearity			10	%	
Tuning Slope	Positive				
Control Voltage Range	0.3 0.5	1.65 2.5	3.0 4.5	VDC VDC	with Vs=3.3VDC with Vs=5.0VDC
Freq. control input impedance	10			kohm	
Additional Parameters ¹					
Phase Noise ³ (@ 40 MHz)			-90 -120 -140 -150	dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1 kHz 10 kHz
Weight			6.0	g	
Processing & Packing					Handling & processing note
Absolute Maximum Ratings					
Supply voltage (Vs)			6.0	V	
Control Voltage	0		Vs	V	
Maximum output load @ CMOS			50	pF	
Operable temperature range	-40		+85	°C	
Storage temperature range	-55		+125	°C	

Standard Shipping Method

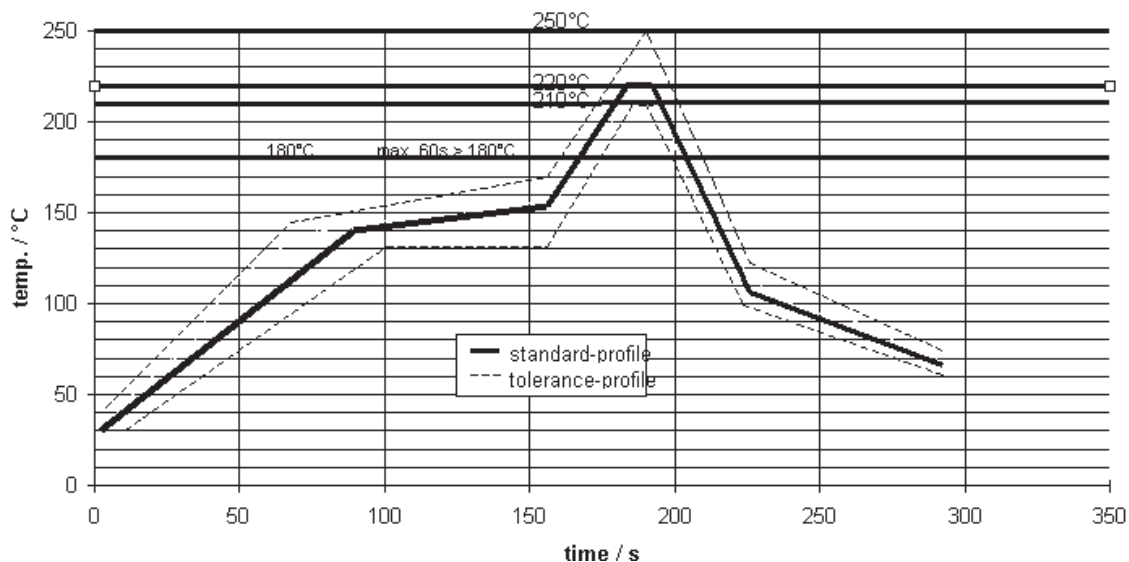


Production tolerance complying DIN IEC 286-3

Enclosure Type	Tape width W [mm]	Quantity per meter	Quantity per reel	Dimension P
Type B	44	50	300	20
Type C	44	50	300	20

Recommended Reflow Profile

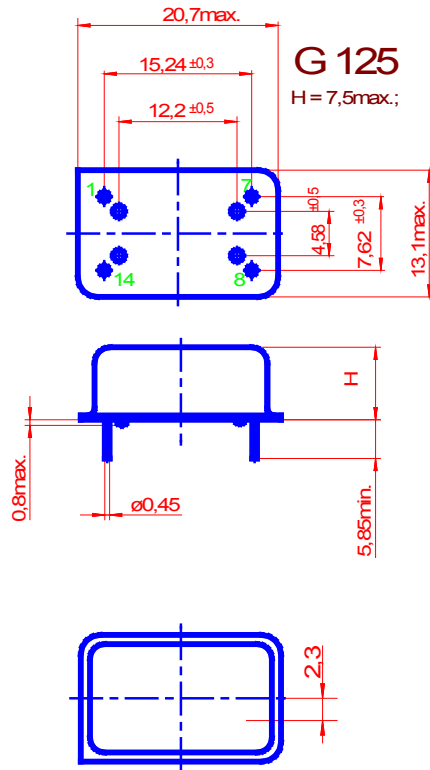
standard-reflow-profile for SMD-oscillators



Outline Drawing / Enclosure

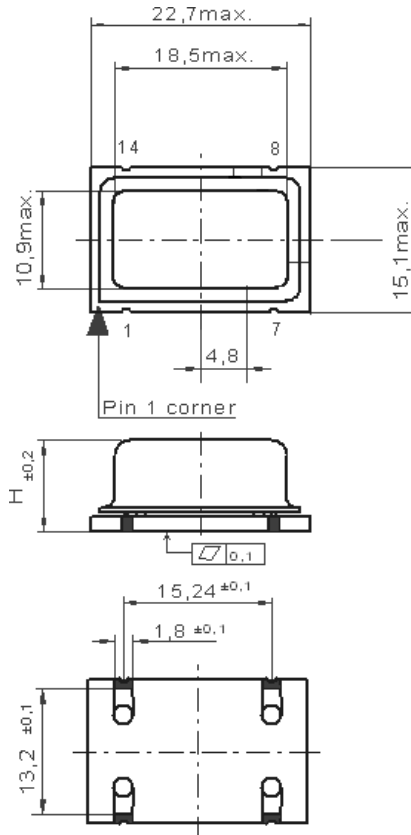
Dimensions in mm

Type A		
Code	Height "H"	Pin Length "L"
0	7.5	5.85
1	8.0	5.85
2	10.1	5.85



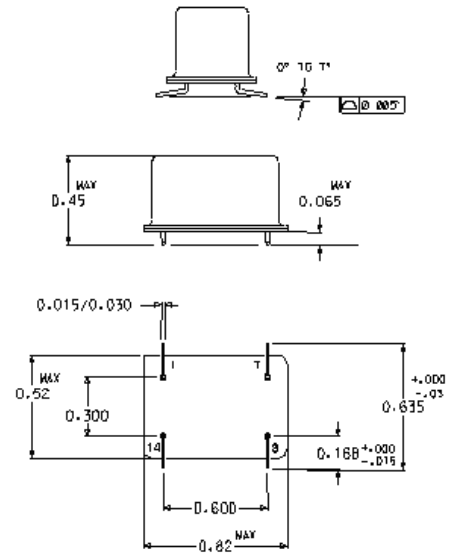
Dimensions in mm

Type B		
Code	Height "H"	Pin Length "L"
3	9.4	NA
5	11.81	NA



Dimensions in inches

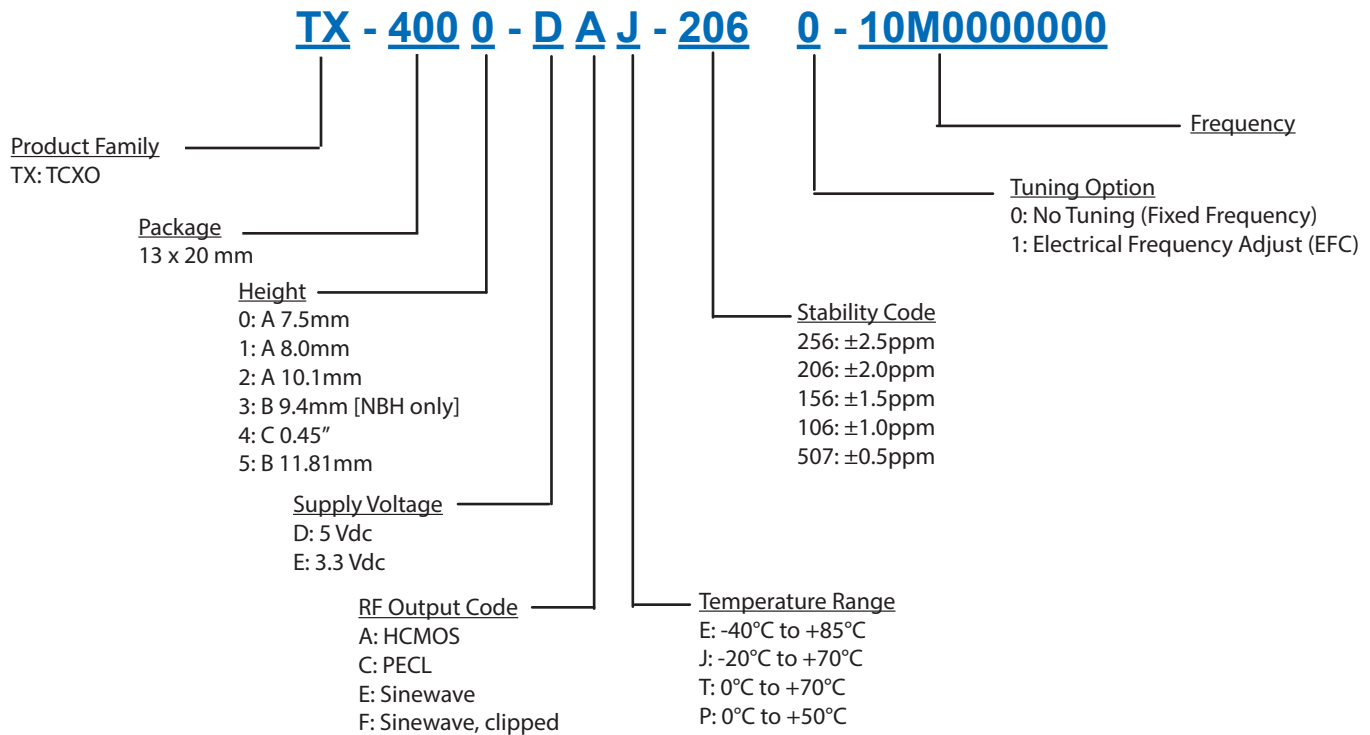
Type C		
Code	Height "H"	Pin Length "L"
4	0.45	NA



Pin Connections

Pin	Connection
1	Electronic Frequency Control (EFC)
7	Ground (Case)
8	RF Output
14	Supply

Ordering Information



Notes:

1. Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2. Unless other stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C).
3. Phase noise degrades with increasing output frequency.
4. Subject to technical modification.
5. Contact factory for availability.

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