Features

- Ultra Stable
- Low Phase Noise
- Freq. Range 50~156.25MHz
- High Precision
- DIP 20x20mm

Applications

- Satellite navigation
- wireless communication system
- High definition television system
- Low phase noise signal source
- Low jitter radio frequency communication circuit

BT2020H Vibration Insensitive Specifications

Parameter		Value			Unit	Conditions	
		Min.	Typ.	Max.			
Supply Voltage		–	3.3	–	V	Vcc±5%	
		–	5	–	V		
Supply Current		–	–	45	mA		
Frequency Range		50~ 156.25			MHz		
Nominal Frequency		50,100,120,122.88			MHz		
Initial Frequency Tolerance		–	±0.50	±1.00	ppm	At shipment, nominal EFC, +25	
Freq.Stability Vs.Temp.		±0.28	–	±1.00	ppm	-20 ~+70	
		±0.28	–	±1.00	ppm	-40 ~+70	
		±0.28	–	±1.00	ppm	-40 ~+85	
		±0.50	–	±2.00	ppm	-50 ~+85	
Sine Wave	Output	5	8	–	dBm		
	Harmonic Suppression	–	-40	-30	dBc		
	Spur Suppression	–	-80	-70	dBc		
	Load	–	50	–	Ω		
HCMOS	Voh	2.4	–	–	V	HCMOS Output, Load=15pf	
	Vol	–	–	0.4	V	HCMOS Output, Load=15pf	
	Duty Cycle	45	–	55	%	$(V_{OH} - V_{OL})/2$	
	Rise/Fall Edge	–	–	6	ns	HCMOS Output, Load=15pf	
	Load	–	–	15	pf		
RMS Jitter(E5052B)		–	–	1000	fs	12KHz~20MHz	
Supply Sensitive		–	–	±0.2	ppm	Vcc±5%	
Load Sensitive		–	–	±0.2		Load±5%	
Aging/First Year		–	–	±1.0		Standard	
SSB Phase Noise @100MHz		–	–	–	dBc/Hz	Offset 10Hz	Static phase noise at +25°C
		–	–	–		Offset 100Hz	
		–	-146	-140		Offset 1kHz	
		–	-157	-155		Offset 10kHz	
		–	-160	-158		Offset 100kHz	
SSB Phase Noise @100MHz		–	–	–	dBc/Hz	Offset 10Hz	X-axis dynamic phase noise at +25°C
		–	–	–		Offset 100Hz	
		–	-129	-120		Offset 1kHz	
		–	-158	-145		Offset 10kHz	
		–	-161	-155		Offset 100kHz	
SSB Phase Noise @100MHz		–	–	–	dBc/Hz	Offset 10Hz	Y-axis dynamic phase noise at +25°C
		–	–	–		Offset 100Hz	
		–	-125	-120		Offset 1kHz	
		–	-157	-145		Offset 10kHz	
		–	-160	-155		Offset 100kHz	
SSB Phase Noise @100MHz		–	–	–	dBc/Hz	Offset 10Hz	Z-axis dynamic phase noise at +25°C
		–	–	–		Offset 100Hz	
		–	-132	-120		Offset 1kHz	
		–	-157	-145		Offset 10kHz	
		–	-160	-155		Offset 100kHz	
Control Voltage Range		1.5 ± 1.0			V		
Frequency Tunning Range		±5	±7	–	ppm		
Tunning Slope		Positive					
Non-Lineraity		–	–	10	%		

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Static Phase Noise @1kHz

Frequency Range	<-130dBc	<-135dBc	<-140dBc	<-145dBc
50～100MHz	○	○	○	○
102.4～122.88MHz	○	○	○	X
125～156.25MHz	○	○	X	X

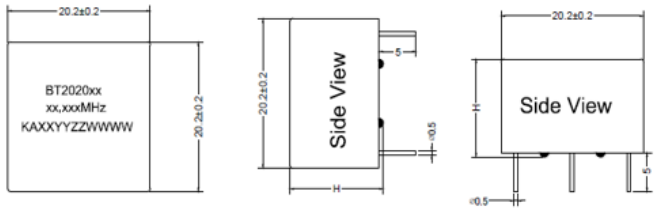
○= Availavle
X= Not Available

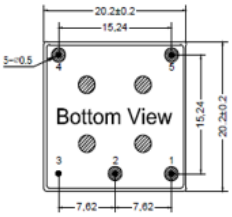
Environmental Conditions

Operating Temp. Range	-50 ~ +85
Storage Temp.Range	-55 ~ +125

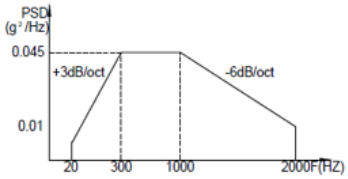
Note: The minimum to maximum value indicates the range of indicators

Outline Dimension & Pin Connections





PIN1	Vcon/NC
PIN2	Vref/NC
PIN3	GND
PIN4	Output
PIN5	Vdd
H	≤12mm



Note:
Leave Pin 1 unconnected if Vcon is not used.
Leave Pin 2 unconnected if Vref is not used.

Maximun Ratings

Parameter	Symbol	Rating
Supply Voltage	Vdd	3.3V/5V
Control Voltage	Vcon	0V/3V
ESD, HBM/CDM/MM		4KV/ 2KV/ 200V

Reliability

Parameter	Condition
Temperature Stress Test	IEC60068, GJB360B
Mechanical Stress Test	IEC60068, GJB360B
EMC Test (ESD)	IEC61000, JESD22
Solderability	EIA/JESD22-B102-C
RoHS	RoHS Directive 2011/65/EU Annex II Recasting 2002/95/EC

Ordering Guide

BT 2020 X X X X XXX X X XX.XX Z

- Product: TCXO
- Outline: 20mm x 20mm
- Frequency Range: L: < 50MHz; H:≥ 50MHz
- Output: H: CMOS; S: Sine Wave
- Supply Voltage: 3: 3.3 Vdc; 5: 5.0 Vdc
- Temp. Range: C: -20℃ ~ +70℃; I: -40℃ ~ +85℃; M: -50℃ ~ +85℃; F: [illegible]
- Temp. Stability: 206: ±2ppm; 106: ±1ppm; 507: ±0.5ppm
- Phase Noise: A: -120dBc/Hz@1kHz; B: -125dBc/Hz@1kHz; C: -130dBc/Hz@1kHz; D: -135dBc/Hz@1kHz; E: -140dBc/Hz@1kHz; G: -145dBc/Hz@1kHz
- Tuning Range: N: No Tuning; A: Typ. ±5ppm
- Frequency: xx MHz
- Z: Vibration Insensitive

Example: BT2020HS3I507GA100Z

F: Customized	287: ±0.28ppm