HCO53 Series

5.0 x 3.2mm, high temperature Clock oscillator unit

Wide operating temperature up to 210°C
High shock and vibration resistant
Low aging, very fast start up
RoHS and REACH compliant

Applications
Down hole drilling, Avionics, Geothermal equipment, Airborne equipments

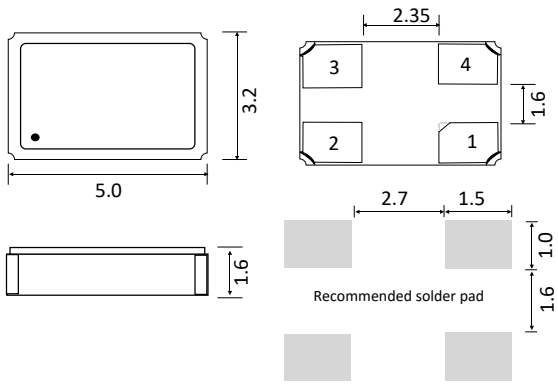
Parameters		Specification	Remarks
Frequency range	F_nom	10.0kHz ~ 100.0MHz	Table 1
Supply voltage	Vcc	2.5V, 3.3V, 5.0V	±5% , 47nF capacitor must be connected between GND and Vcc operable over 2.3 to 5.5V
Frequency stability over temperature range	F_stb	≤ ±100.0ppm over -55°C ~ +125°C	Includes adjustment at +25°C, long term aging 1000h at Tmax ordered over supply voltage ±5% and over load min to max
		≤ ±150.0ppm over -55°C ~ +150°C	
		≤ ±300.0ppm over -55°C ~ +175°C	
		≤ ±400.0ppm over -55°C ~ +210°C	
Input current	Icc	Table 2	without load
Output type		HCMOS	
Duty cycle	Sym	40/ 60 %	
Rise & Fall time	Tr, Tf	≤ 150.0 n sec	For 32.768kHz, load 15pF, 20% to 80%
		≤7.0 n sec	For ≤ 20MHz, load 15pF, 20% to 80%
		≤3.0 n sec	For ≥ 20MHz, load 15pF, 10% to 90%
Level "0" & "1"		<0.4> Vcc - 0.5V	
Start-up time		< 5 msec	
Load min / max		3.0pF / 47.0pF	
Storage temperature range		-65°C ~ +125°C	
Vibration resistance survival		10 to 2,000Hz / 80g	
Shock resistance survival		10,000g /0.3ms/ ½ sine	
Tristate (Pad 1)		Pad 1 open → Enable oscillator output	-No power to E/D pad before Vcc is setting on -E/D option not available for f < 500kHz -E/D option on request only
		Pad 1 High → Enable oscillator output	
		Pad 1 low → Disable oscillator output	

Table 1. Standard frequencies(Mhz)			
3.6864MHz	4MHz	8MHz	10MHz
12MHz	12.8MHz	14.7456MHz	16MHz
20MHz	24MHz	40MHz	48MHz
Please enquire for other frequencies			

Table 2. Input current (Without load)				
Frequency	**32kHz**	**< 10MHz**	**< 20MHz**	**>20MHz**
Vcc = 2.5V	< 300µA	< 2mA	< 3mA	< 15mA
Vcc = 3.3V	< 1mA	< 4mA	< 5mA	< 20mA
Vcc = 5.0V	< 2mA	< 6mA	< 7mA	< 30mA

Termination and Processing	
Reflow soldering	260°C / 10s max
Lids	Ceramic (Kovar for part with operating temp. -55°C ~ +210°C)
Termination	Au plated (standard), For tinned Ag/Cu/Sn please enquire

Dimensions (mm)



Pad 1	Tristate
Pad 2	GND
Pad 3	Output
Pad 4	Supply voltage Vcc

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Specification requirement							
ACT series	Frequency (MHz/kHz)	Frequency Stability over operating temperature (±ppm/°C)	Supply voltage (V)	Tristate	Termination	Packaging	RoHS Code
HCO53	Example 32.768kHz 8.0MHz 14.7456MHz 40.0MHz	±100ppm over -55 ~ +125 °C ±150ppm over -55 ~ +150 °C ±300ppm over -55 ~ +175 °C ±400ppm over -55 ~ +210 °C	2.5 V 3.3V 5.0V	Tristate YES/NO	Au plated (standard) Tinned (Ag/Cu/Sn)	Loose : 128pcs/tray Tape : min 250pcs available in 12mm tape	-PF
HCO53/8MHz/±100ppm over-55 ~ +125 °C/ 3.3V/Tristate/ Au plated/Loose **A unique part number will be generated for each specification request. Example: HCO53-2000M-Cxxxx-PF**							

Additional information

Drawing control: (Internal use only)
Commodity code: 854160 00 00
Issue number: N1
Date: 1/08/2019
Internal reference: M1

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