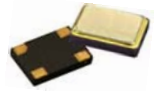


90H57 Series

Clock oscillator (kHz range), 7.0 x 5.0mm, HCMOS



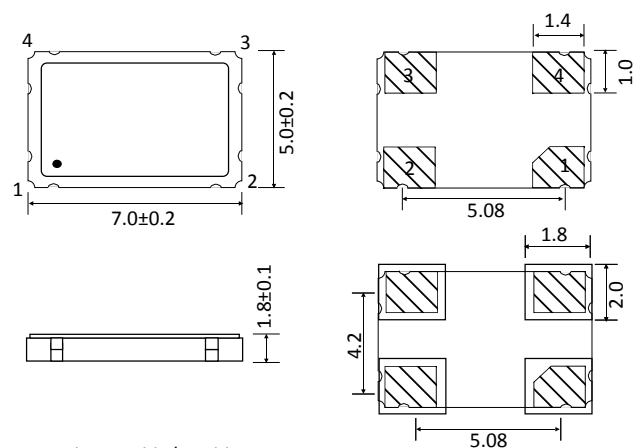
REACH and RoHS compliant
 AT-cut crystal provides high frequency stability
 µA low current consumption



Parameters		Specification	Remarks
Frequency range	F_nom	32.768kHz, 10.0kHz ~ 100.0kHz	
Supply voltage	Vcc	1.8V, 2.5V, 3.3V	±10% tolerance
Supply voltage vs Frequency sensitivity		±1.0ppm max	
Frequency stability	F_stb	±25.0ppm, ±50.0ppm, ±100.0ppm	
Aging	F_age	±3.0ppm max for 1 st year	Thereafter ±2.0ppm max/per year
Operating temperature range (°C)	Topr	-10°C ~ +70°C, -40°C ~ +85°C	
Storage temperature (°C)	Tstg	-55°C ~ +150°C	
Output waveform		HCMOS	
Output load		15pF typical	
Output voltage high	Voh	90% Vcc min	
Output voltage low	Vol	10% Vcc max	
Rise time	Tr	Table 1	Measured between 10% to 90% of Vcc
Fall time	Tf	Table 1	
Duty cycle		50% ± 5%,	
Current consumption	Icc	Table 1	
Start-up time	T_str	5.0msec max, 0.8msec typical	
Tristate		Pad 1 enable high	
Enable/disable time		Enable : 1msec max ; Disable : 0.1µsec max	
Moisture sensitive level	MSL	1	
ESD sensitive device		Yes	

Supply voltage		1.8V	2.5V	3.3V
Current consumption	Typical	65.0µA	70.0µA	75.0µA
	Max	80.0µA	90.0µA	100.0µA
Rise time/Fall time	Typical	5.0ns	4.0ns	3.0ns
	Max	10.0ns	10.0ns	12.0ns

Dimensions(Unit:mm)



- Pad 1 : Enable/Disable
- Pad 2 : Ground
- Pad 3 : Output
- Pad 4 : Supply voltage

90H57 Series

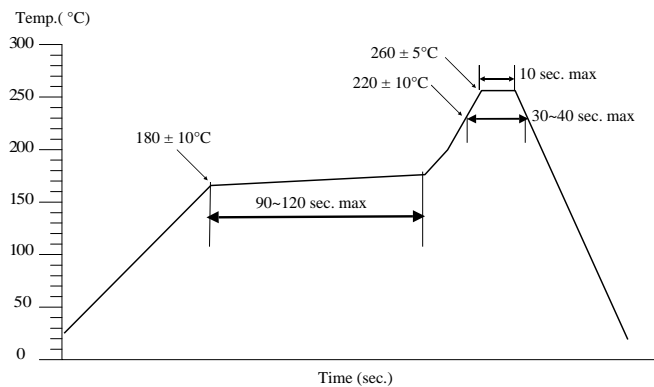
Clock oscillator (kHz range), 7.0 x 5.0mm, HCMOS



Part number generation									
HA	3	B	B	I	H	E	P	L	-PF
ACT series Code	Frequency (MHz)	Frequency stability (\pm ppm)	Supply voltage (V)	Operating temp. range ($^{\circ}$ C)	Duty Cycle (%/%)	Output wave	Tristate	Tape & Reel	RoHS Code
HA	5 digit require to specify kHz frequency. $\leq 99.99\text{kHz}$ 10=00001 32.768=00003 $\geq 100\text{kHz}$ 100=00010 250=00025	25 = C 50 = B 100 = A	1.8 = D 2.5 = C 3.3 = B	-10 ~ +70 = C -20 ~ +70 = B -40 ~ +85 = I	45/55 = H	HCMOS 15pF = E	Tristate = P	Loose = L 1000 = C	-PF

Note: It is important to suffix the above part number with full frequency required to give a completed part number as illustrated below.
 Full Example part number : **HA00003BBIHEPL-PF [32.768Khz]**

Solder reflow profile



Drawing control: (Internal use only)
 Commodity code: 854370 90 9 for <1.8MHz
 Issue number : N1
 Date : 01/02/2017
 Internal reference : M6