

Crystal Oscillators [Programmable Quick Turn]



HB _ _

SMD

LVC MOS

1.8 V

2.5 V

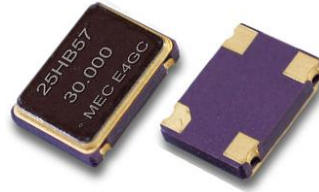
3.3 V

Min.
1.0 MHz

Max.
200 MHz

Features

- Short lead time. From 1 day to 1 week
- Low jitter. Peak-to-peak period jitter is 70 ps typical
- Low phase noise: -114 dBc/Hz at 1 KHz offset (133 MHz)
- Custom frequencies can easily be configured
- 1.8V, 2.5V or 3.3V supply voltages.



General specifications of all available packages , at Ta=+25°C , CL=15pF

Model [Output Logic]	" HB " series [LVC MOS]				
Type	HB32	HB53	HB57		
Dimensions	3.2 * 2.5 * 1.0 mm	5.0 * 3.2 * 1.2 mm	7.0 * 5.0 * 1.8 mm		
Supply Voltage V _{DD}	1.8 V _{DD} ± 10%	+2.5 V _{DD} ± 10%	+3.3 V _{DD} ± 10%		
Available Frequency Range	1.0 ~ 110.0 MHz	1.0 ~ 166.0 MHz	1.0 ~ 200.0 MHz		
Supply Current [25 MHz]	2.5 mA max. [15pF]	3.0 mA max. [15pF]	4.0 mA max. [15pF]		
PLL Off : Supply Current [25 MHz]	2.0 mA max. [15pF]	2.5 mA max. [15pF]	4.0 mA max. [15pF]		
Supply Current [200 MHz]	8.0 mA max. [15pF]	13.0 mA max. [15pF]	20.0 mA max. [15pF]		
PLL On : Supply Current [200 MHz]	8.5 mA max. [15pF]	12.5 mA max. [15pF]	20.0 mA max. [15pF]		
Rise Time / Fall Time	4.0 ns typ. [25.0 MHz , PLL off] 1.5 ns typ. [200.0 MHz , PLL off]	3.0 ns typ. [25.0 MHz , PLL off] 1.5 ns typ. [200.0 MHz , PLL off]	3.0 ns typ. [25.0 MHz , PLL off] 1.5 ns typ. [200.0 MHz , PLL off]		
Frequency Stability Codes	Frequency Stability over Operating Temperature Range	± 25 ppm	± 50 ppm	± 100 ppm	If non-standard , please enter the desired stability after the " C " or " I " For example : " C20 " ± 20 ppm over -10°C to +70°C ; " I30 " ± 30 ppm over -40°C to +85°C
	Commercial (-10°C to +70°C)	A	B	C	
	Industrial (-40°C to +85°C)	D	E	F	
Output Logic " High " , " 1 "	90% of V _{DD} min.				
Output Logic " Low " , " 0 "	10% of V _{DD} max.				
Load	15 pF				
Start-up Time	5 m sec. (max.)				
Duty Cycle	50% ± 5% (measured at 50% V _{DD})				
Input Static Discharge Protection	2 KV (min.)				
Tri-state Function on pad No. 1	Output (pad 3) is normal if pad 1 is no connection or connected to logic HIGH Output (pad 3) is high impedance if pad 1 is connected to logic LOW. Disable time is 150 n sec. max. Enable time is 150 n sec max.				
Storage Temperature	-55°C to + 150°C				
Aging at Ta=+25°C	± 3 ppm max. first year ; ± 2 ppm max. per year thereafter				

Outline Dimensions (Unit : mm) , Suggested pad Layout for SMDs

[HB32]	[HB53]	[HB57]
<p>Dimensions: 3.2 ± 0.2, 2.5 ± 0.2, 1.0, 1.2, 1.75, 0.9 ± 0.1, 2.2, 0.7 ± 0.1, 2.2, 1.0 ± 0.1</p> <p>Pin connections : pin 1 : Enable / Disable pin 2 : Ground pin 3 : Output pin 4 : Supply Voltage</p>	<p>Dimensions: 5.0 ± 0.1, 3.2 ± 0.1, 1.5, 1.6, 2.5, 1.2 ± 0.1, 2.54, 1.0 ± 0.1, 2.54, 1.2 ± 0.1</p> <p>Pin connections : pin 1 : Enable / Disable pin 2 : Ground pin 3 : Output pin 4 : Supply Voltage</p>	<p>Dimensions: 7.0 ± 0.2, 5.0 ± 0.2, 2.0, 1.8, 4.2, 1.4 ± 0.1, 5.08, 1.0 ± 0.1, 5.08, 1.8 ± 0.1</p> <p>Pin connections : pin 1 : Enable / Disable pin 2 : Ground pin 3 : Output pin 4 : Supply Voltage</p>