

## Surface Mount type

H22	H32	H53	SWO
2.5 * 2.0 * 0.9	3.2 * 2.5 * 1.0	5.0 * 3.2 * 1.2	7.0 * 5.0 * 1.4

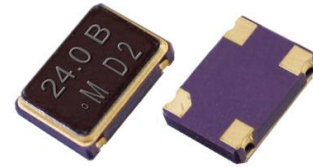
CMOS

1.0 V	1.8 V	3.3 V
1.2 V	2.5 V	5.0 V

Min.	Max.
25 KHz	160 MHz

### Applications

- CPU , Graphics , Multimedia A / V clocks
- MPEG / DVD / HDTV clocks
- Laser engine pixel / set - top clocks
- SONET / SDH / ATM clocks
- Fast Ethernet and Gigabit Ethernet clocks
- NTSC / PAL encoder / decoder clocks
- PLL / synthesizer clocks
- Fibre channel and ADSL clocks



General Specifications [ TA = +25°C , V<sub>DD</sub> = at specified voltage , Load : 15 pF ]

Model	" H22 " ; " H32 " ; " H53 " and " SWO " series [ Output Logic : CMOS ]							
	" H22 " series		" H32 " series		" H53 " series		" SWO " series	
Dimensions	2.5 x 2.0 x 0.9 mm		3.2 x 2.5 x 1.0 mm		5.0 x 3.2 x 1.2 mm		7.0 x 5.0 x 1.4 mm	
Available Frequency Range by Voltage	1.0 V	0.75 MHz ~ 50 MHz	1.0 V	0.25 MHz ~ 50 MHz	1.0 V	0.25 MHz ~ 50 MHz	1.0 V	0.25 MHz ~ 50 MHz
	1.2 V		1.2 V		1.2 V		1.2 V	
	1.8 V	0.156 MHz ~ 80 MHz	1.8 V	32.768 KHz 0.312 MHz ~ 160 MHz	1.8 V	32.768 KHz 0.312 MHz ~ 160 MHz	1.8 V	32.768 KHz 0.312 MHz ~ 160 MHz
	2.5 V		2.5 V		2.5 V		2.5 V	
	3.3 V		3.3 V		3.3 V		3.3 V	
	-----	-----	5.0 V	1.75 MHz ~ 50 MHz	5.0 V	0.375 MHz ~ 100 MHz	5.0 V	0.375 MHz ~ 100 MHz

Supply Voltage ( V <sub>DD</sub> )	+1.0 V D.C. ±5%	+1.2 V D.C. ±5%	+1.8 V D.C. ±5%	+2.5 V D.C. ±5%	+3.3 V D.C. ±5%	+5.0 V D.C. ±10%
		code is " 10 "	code is " 12 "	code is " 18 "	code is " 25 "	code is " 3 "
High "1" ( 90% of V <sub>DD</sub> min. )	0.9 V min.	1.08 V min.	1.62 V min.	2.25 V min.	2.97 V min.	4.5 V min.
Logic Low "0" ( 10% of V <sub>DD</sub> max. )	0.1 V max.	0.12 V max.	0.18 V max.	0.25 V max.	0.33 V max.	0.5 V max.
Current Consumption	1.0 ~ 1.5 MHz 4 mA max.	1.0 ~ 1.5 MHz 4 mA max.	1.0 ~ 1.5 MHz 5 mA max.	0.3 ~ 1.5 MHz 5 mA max.	0.3 ~ 1.5 MHz 5 mA max.	0.3 ~ 1.5 MHz 5 mA max.
	1.5 ~ 20 MHz 4 mA max.	1.5 ~ 20 MHz 4 mA max.	1.5 ~ 20 MHz 8 mA max.	1.5 ~ 20 MHz 8 mA max.	1.5 ~ 20 MHz 8 mA max.	1.5 ~ 20 MHz 10 mA max.
	20.0 ~ 60 MHz 4 mA max.	20.0 ~ 60 MHz 4 mA max.	20.0 ~ 50 MHz 15 mA max.	20 ~ 50 MHz 15 mA max.	20.0 ~ 50 MHz 15 mA max.	20.0 ~ 50 MHz 20 mA max.
	-----	-----	50.1 ~ 160 MHz 22 mA max.	50.1 ~ 160 MHz 25 mA max.	50.1 ~ 160 MHz 35 mA max.	50.1 ~ 125 MHz 40 mA max.
Rise Time ( Tr ) / Fall Time ( Tf )	6 n sec. ( max. )	6 n sec. ( max. )	7 n sec. ( max. )	7 n sec. ( max. )	10 n sec. ( max. )	10 n sec. ( max. )
Measured between 10% ↔ 90% of wave form ( CL = 15pF )						

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	

Load	15 pF ; ( 30 pF and 50 pF load are also available for +3.3V and +5.0V V <sub>DD</sub> )
Duty Cycle	Standard: 50% ± 10%; Option: 50% ± 5%. Please add "-S" at the end of the part number for ± 5% .
Start -up Time ( Ts )	1.0 ~ 32.0 MHz : 5 m sec. ( max. ) ; 32.0 ~ 160.0 MHz : 10 m sec. ( max. )
Storage Temperature	- 50°C to 100°C
Aging	± 3 ppm per year ( max. )
Output Enable / Disable Function	70% of V <sub>DD</sub> ( min. ) to enable output.
	30% of V <sub>DD</sub> ( max. ) to disable output.
	Add " T " in part number for OE option

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

<p>[ H22 ]</p> <p>MEC</p> <p>Pad Connections :          Pad 1 : OE          Pad 2 : Ground          Pad 3 : Output          Pad 4 : Supply Voltage</p>	<p>[ H32 ]</p> <p>MEC</p> <p>Pad Connections :          Pad 1 : OE          Pad 2 : Ground          Pad 3 : Output          Pad 4 : Supply Voltage</p>
<p>[ H_53 ]</p> <p>MEC</p> <p>Pad Connections :          Pad 1 : OE          Pad 2 : Ground          Pad 3 : Output          Pad 4 : Supply Voltage</p>	<p>[ SWO ]</p> <p>MEC</p> <p>Pad Connections :          Pad 1 : OE          Pad 2 : Ground          Pad 3 : Output          Pad 4 : Supply Voltage</p>
<p>[ HTQN5361 ]</p> <p>MEC</p> <p>Pad Connections :          pad 1 : OE          pad 2 : No Connection          pad 3 : Ground          pad 4 : Output          pad 5 : No Connection          pad 6 : Supply Voltage</p>	<p>[ HTQN5761 ]</p> <p>MEC</p> <p>Pad Connections :          pad 1 : OE          pad 2 : No Connection          pad 3 : Ground          pad 4 : Output          pad 5 : No Connection          pad 6 : Supply Voltage</p>
<p>[ H43 ]</p> <p>MEC</p> <p>Pad Connections :          Pad 1 : OE          Pad 2 : Ground          Pad 3 : Output          Pad 4 : Supply voltage</p>	<p>[ H8 ]</p> <p>MEC</p> <p>3-Ø1.6 glass stand-off</p> <p>Pin Connections :          Pin 1 : (1) No connection          (2) Output disabled when low          Pin 4 : Ground          Pin 5 : Output          Pin 8 : Supply voltage</p>
<p>[ H14 ]</p> <p>MEC</p> <p>4-Ø1.8 glass stand-off</p> <p>Pin Connections :          Pin 1 : (1) No connection          (2) Output disabled when low          Pin 7 : Ground          Pin 8 : Output          Pin 14 : Supply voltage</p>	