

HC

Switchable output Oscillators

Select f_1 or f_2 by Toggling Pin 1

SMD

CMOS

1.8 V

2.5 V

3.3 V

Min.

1 MHz

Max.

200 MHz

Features

- Features a frequency switching function that provides the convenience for a system level evaluation at two different clock rates from the same oscillator
- The frequency selection is achieved by toggling FSEL high (default) or low at pin #1
- Custom frequencies and applications are welcome, please contact Mercury



General specifications of all available packages, at $T_a=+25^\circ\text{C}$, $C_L=15\text{pF}$

Model [Output Logic]	" HC " series (Frequency Selection at pin #1) [CMOS]				
Supply Voltage (V_{DD})	+ 1.8 V \pm 10% [Voltage code "18"]	+ 2.5 V \pm 10% [Voltage code "25"]	+ 3.3 V \pm 10% [Voltage code "3"]		
Available Frequency Range	3.0 ~ 133.0 MHz	3.0 ~ 166.0 MHz	1.0 ~ 200.0 MHz		
Current Consumption	15 mA (max.)	18 mA (max.)	20 mA (max.)		
Frequency Selection (FSEL)	When FSEL=0, Output frequency is Freq.1 (f_1), When FSEL=1, Output frequency is Freq.2 (f_2). Default FSEL pin has an internal pull-up resistor				
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" represents. For example: "C20" ± 20 ppm over -10°C to $+70^\circ\text{C}$; "I30" ± 30 ppm over -40°C to $+85^\circ\text{C}$
	Commercial (-10°C to $+70^\circ\text{C}$)	A	B	C	
	Industrial (-40°C to $+85^\circ\text{C}$)	D	E	F	
Output Logic " High ", " 1 "	90% of V_{DD} (min.)				
Output Logic " Low ", " 0 "	10% of V_{DD} (max.)				
Output Load	15 pF				
Rise Time / Fall Time	5.0 nsec (max.) , 10% \leftrightarrow 90% waveform				
Start-up Time	10 msec (max.)				
Duty Cycle	50% \pm 5%				
Storage Temperature	-55°C to $+150^\circ\text{C}$				
Aging at $T_a=+25^\circ\text{C}$	± 5 ppm max. for first year				

Mercury Model (x =Voltage code)	f_1 (MHz),FSEL=0	f_2 (MHz),FSEL=1	Application
xHC53 - A - 74.250 / 24.576	74.25	24.576	HD video, HDMI LVDS I/F, Digital TV set, video recorders, set-top box, multi media receivers
xHC53 - A - 74.250 / 33.333	74.25	33.333	
xHC53 - A - 74.250 / 148.500	74.25	148.5	
xHC53 - A - 61.440 / 122.880	61.44	122.88	CPRI, base station
xHC53 - A - 12.000 / 24.000	12	24	USB
xHC53 - A - 24.000 / 48.000	24	48	
xHC53 - A - custom f_1 / custom f_2	Custom frequency f_1	Custom frequency f_2	custom

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Part Number Format and Examples

[1]	[2]	-	[3]	-	[4]	/	[5]
Supply Voltage	Holder Type		Frequency Stability		Custom Frequency 1 FSEL = 0 (MHz)		Custom Frequency 2 FSEL = 1 (MHz)

Examples	(1)	18	HC32	-	A	-	1.544	/	2.048
	(2)	25	HC53	-	I30	-	54.054	/	148.500
	(3)	3	HC57	-	D	-	125.000	/	156.250

Ex (1) : 18HC32 - A - 1.544/2.048 [1.8V, HC32 type, ±25ppm from -10°C to 70°C, 1.544 / 2.048 MHz]

Ex (2) : 25HC53 - I30 - 54.054/148.500 [2.5V, HC53 type, ±30ppm from -40°C to 85°C, 54.054 / 148.500 MHz]

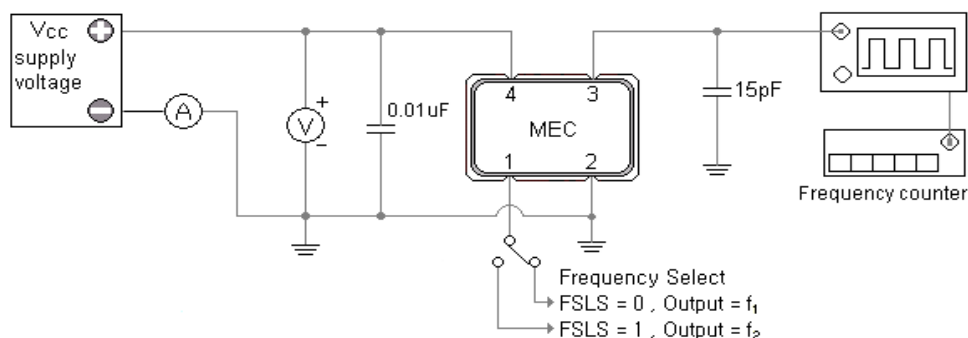
Ex (3) : 3HC57 - D - 125.000/156.250 [3.3V, HC57 type, ±25ppm from -40°C to 85°C, 125.000 / 156.250 MHz]

[1]	Supply voltage, "18" for +1.8V ; "25" for +2.5V ; "3" for +3.3V
[2]	Holder Type
[3]	-10°C ~ 70 °C "A" ± 25ppm ; "B" ± 50ppm ; "C" ± 100ppm ; If non-standard please enter the desired stability after "C", example "C15": represents ±15ppm over -10 to +70°C
	-40°C ~ 85 °C "D" ± 25ppm ; "E" ± 50ppm ; "F" ± 100ppm ; If non-standard please enter the desired stability after "I", example "I30": represents ± 30ppm over -40 to +85°C
[4]	Frequency 1 in MHz
[5]	Frequency 2 in MHz

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

<h4>HC32</h4>	<h4>HC53</h4>
<h4>HC57</h4>	

HC - series Test Circuit

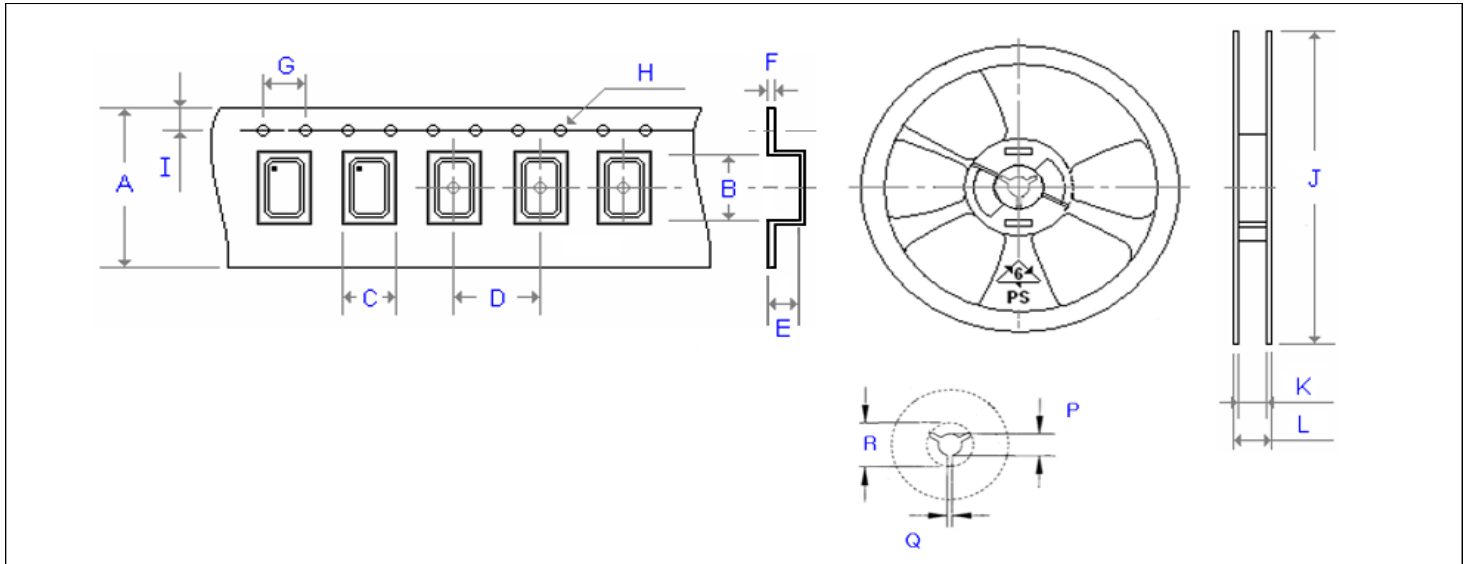


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Emboss Taping and Reel Specifications

[Crystal Oscillator Units]



Carrier Type Dimensions (unit : mm) ±0.3mm

	A	B	C	D	E	F	G	H	I	pcs / reel
H21	8.00	2.30	1.90	4.00	0.90	0.25	4.00	∅ 1.50	1.75	3000
H_22	8.00	2.80	2.25	4.00	1.10	0.30	4.00	∅ 1.50	1.75	3000
H_32	8.00	3.40	2.70	4.00	1.40	0.25	4.00	∅ 1.50	1.75	3000
H_53	12.00	5.30	3.60	8.00	1.40	0.30	4.00	∅ 1.50	1.75	1000
H_57	16.00	7.30	5.30	8.00	1.90	0.32	4.00	∅ 1.50	1.75	1000
SWO	16.00	7.20	5.40	8.00	1.80	0.32	4.00	∅ 1.50	1.75	1000
H_226	8.00	2.80	2.25	4.00	1.10	0.30	4.00	∅ 1.50	1.75	3000
H_326	8.00	3.40	2.70	4.00	1.40	0.25	4.00	∅ 1.50	1.75	3000
H_536	12.00	5.30	3.60	8.00	1.40	0.30	4.00	∅ 1.50	1.75	1000
H_576	16.00	7.30	5.30	8.00	1.90	0.32	4.00	∅ 1.50	1.75	1000
H_JF328	8.00	3.40	2.70	4.00	1.40	0.25	4.00	∅ 1.50	1.75	3000
H_JF538	12.00	5.30	3.60	8.00	1.40	0.30	4.00	∅ 1.50	1.75	1000
H_JF578	16.00	7.30	5.30	8.00	1.90	0.32	4.00	∅ 1.50	1.75	1000
H_43	24.00	11.80	10.00	16.00	5.00	0.30	4.00	∅ 1.50	1.75	500

Reel Dimensions (unit : mm) ±2mm

	J	K	L	P	Q	R	pcs / reel
H21	180.00	9.00	12.000	13.00	2.50	20.20	3000
H_22	180.00	8.40	11.400	13.00	2.50	20.20	3000
H_32	180.00	9.00	12.000	13.00	2.50	20.20	3000
H_53	180.00	13.00	16.000	13.00	2.50	20.20	1000
H_57	180.00	17.20	19.300	13.00	2.50	20.20	1000
SWO	180.00	17.20	19.300	13.00	2.50	20.20	1000
H_226	180.00	8.40	11.400	13.00	2.50	20.20	3000
H_326	180.00	9.00	12.000	13.00	2.50	20.20	3000
H_536	180.00	13.00	16.000	13.00	2.50	20.20	1000
H_576	180.00	17.20	19.300	13.00	2.50	20.20	1000
H_JF328	180.00	8.00	12.000	13.00	2.50	20.20	3000
H_JF538	180.00	13.00	16.000	13.00	2.50	20.20	1000
H_JF578	180.00	17.20	19.300	13.00	2.50	20.20	1000
H_43	330.00	24.50	29.100	13.00	2.50	20.20	500

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