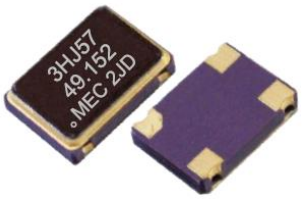
Crystal Oscillators [20.0 ~ 50.0 MHz] — CMOS output

HJ _ _	Ultra low phase noise RMS Phase Jitter 48 fsec	SMD	CMOS	1.8 V / 2.5 V / 3.3 V	Min. 20 MHz	Max. 50 MHz

Features

- The HJ series is ultra low phase noise crystal oscillators.
- Compared with standard oscillator, Mercury's HJ series has much better phase noise and jitter. HJ series with output frequency 49.152MHz has phase jitter 48 fsec (RMS, 12 KHz to 20 MHz) when V_{DD} at 3.3V.



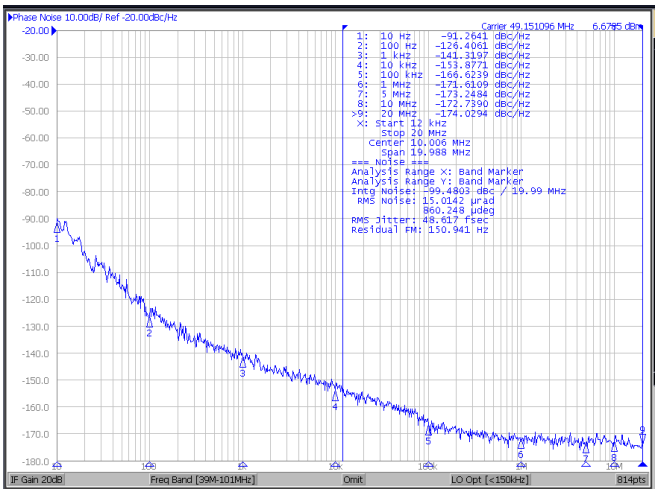
General specifications of all available packages , at Ta=+25°C , CL=15pF

Model [Output Logic]	" HJ " series [CMOS]			
Type	**HJ22**	**HJ32**	**HJ53**	**HJ57**
Dimemsions	2.5 * 2.0 * 0.9 mm	3.2 * 2.5 * 1.0 mm	5.0 * 3.2 * 1.2 mm	7.0 * 5.0 * 1.4 mm
Frequency Range	20.0 ~ 50.0 MHz	20.0 ~ 50.0 MHz	20.0 ~ 50.0 MHz	20.0 ~ 50.0 MHz

Supply Voltage	1.8 V_{DD} ± 5%	+2.5 V_{DD} ± 10%	+3.3 V_{DD} ± 10%
	Voltage code is " 18 "	Voltage code is " 25 "	Voltage code is " 3 "
Current Consumption	3 mA typ. ; 5 mA max.	5 mA typ. ; 7 mA max.	7 mA typ. ; 10 mA max.
Current With Output Disable	3 uA typ. ; 25 uA max.	5 uA typ. ; 30 uA max.	9 uA typ. ; 35 uA max.
Output Logic " High " , " 1 "	1.62 V min.	2.25 V min.	2.97 V min.
Output Logic " Low " , " 0 "	0.18 V max.	0.25 V max.	0.33 V max.
Rise Time (Tr) / Fall Time (Tf)	5.0 ns typ. ; 10.0 ns max.	2.0 ns typ. ; 5.0 ns max.	1.5 ns typ. ; 5.0 ns max.
	Measured between 10 % ⟷ 90 % of V_{DD}		

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 "
	Commercial (*-10°C to +70°C*)	*A*	*B*	*C*	For example :
	Industrial (*-40°C to +85°C*)	*D*	*E*	*F*	" C20 " ± 20 ppm over -10°C to +70°C ; " I30 " ± 30 ppm over -40°C to +85°C

Supply Voltage vs Freq. Sensitivity	± 1.0 ppm max.
Load	15 pF
Start-up Time	0.8 m sec typical ; 5.0 m sec max.
Duty Cycle	50% ± 5%
Output Enable / Disable Function on pin1	70% of V_{DD} min. to enable output.
	30% of V_{DD} max. to disable output.
Enable / Disable Time	Enable : 1.0 m sec max.
	Disable : 200 n sec max.
Storage Temperature	-55°C to + 150°C
Aging at Ta=+25ºC	± 3 ppm max. first year
RMS Jitter [12 kHz ~ 20 MHz]	48 fsec typ. ; 300 fsec max.



SSB Phase Noise	Offset	10 Hz	100 Hz	1 KHz	10 KHz	100 KHz	1 MHz	5 MHz	20 MHz
[25.000MHz , 3.3V]	dBc/Hz (typ.)	-68	-102	-139	-157	-170	-166	-168	---
[49.152MHz , 3.3V]	dBc/Hz (typ.)	-91	-126	-141	-153	-166	-171	-172	-174

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Part Number Format and Examples

[1]	[2]		[3]	[4]		[5]
Supply Voltage	Holder Type	-	Frequency Stability	T	-	Center Frequency

Examples							
	(1)	18	HJ22	-	A		-	25.000
	(2)	3	HJ57	-	E	T	-	49.152

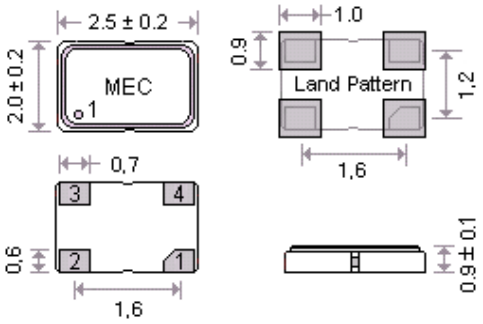
Ex (1) : 18HJ22 - A - 25.000 [1.8V , HJ22 type , ±25ppm from -10°C to 70°C , 25.000 MHz]

Ex (2) : 3HJ57 - ET - 49.152 [3.3V , HJ57 type , ±50ppm from -40°C to 85°C , OE Function , 49.152 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]	" T " for OE Function , Leave this space blank if no connection on pad 1.	
[5]	Frequency in MHz	

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

[HJ22]

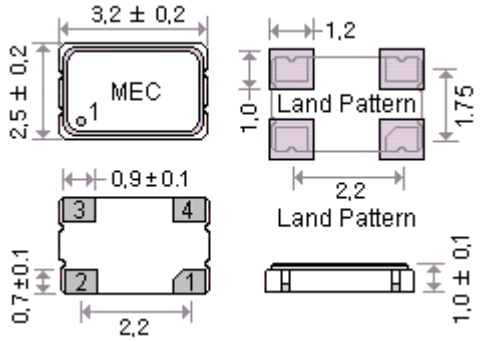


Pin connections :

pin 1 : OE — pin 2 : Ground

pin 3 : Output — pin 4 : Supply Voltage

[HJ32]

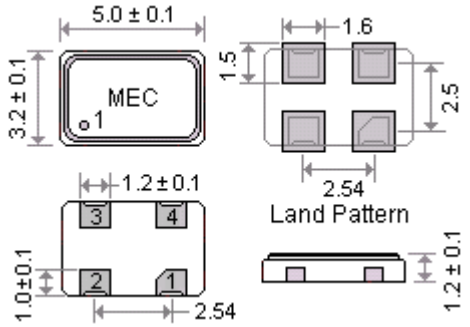


Pin connections :

pin 1 : OE — pin 2 : Ground

pin 3 : Output — pin 4 : Supply Voltage

[HJ53]

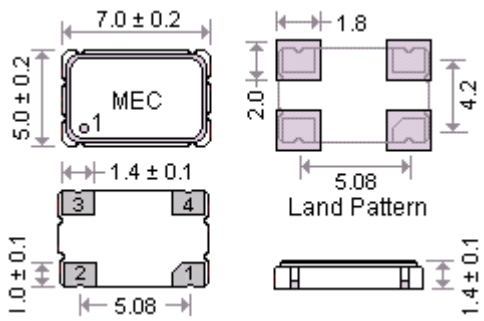


Pin connections :

pin 1 : OE — pin 2 : Ground

pin 3 : Output — pin 4 : Supply Voltage

[HJ57]



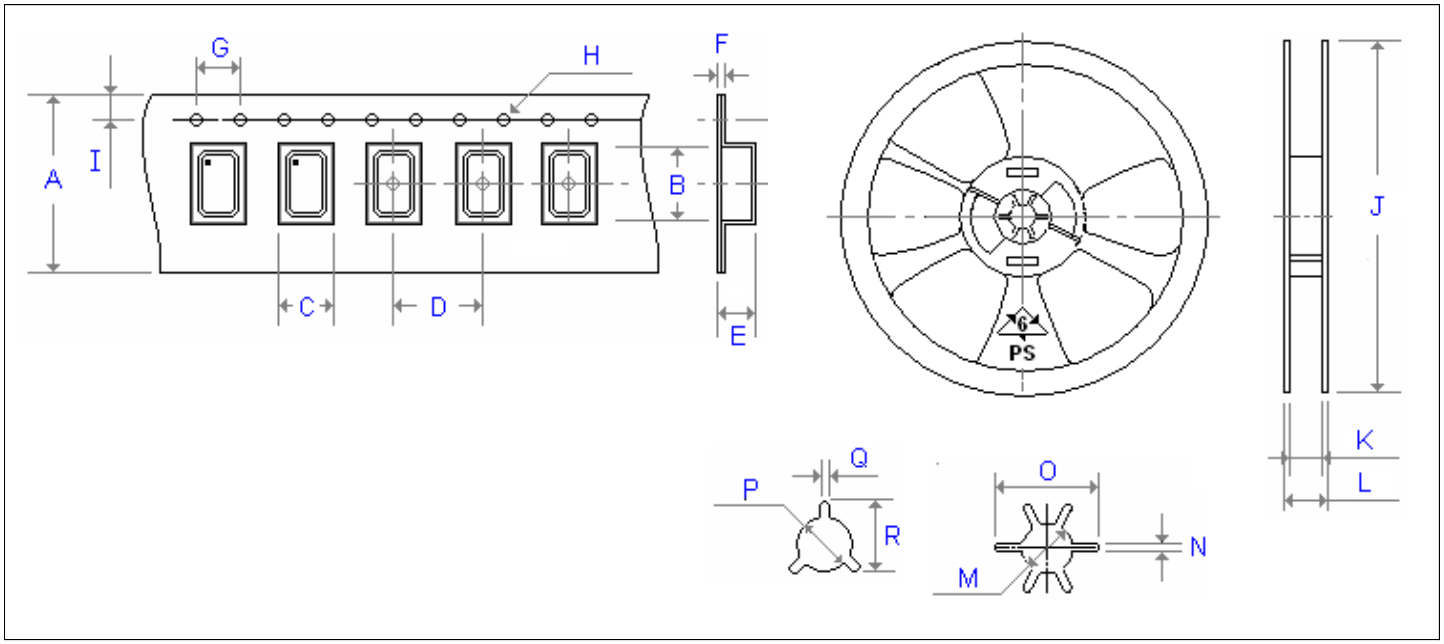
Pin connections :

pin 1 : OE — pin 2 : Ground

pin 3 : Output — pin 4 : Supply Voltage

Emboss Taping and Reel Specifications

[Crystal Oscillator Units]



Carrier Type Dimensions (unit : mm)

	A	B	C	D	E	F	G	H	I	pcs / reel
H_22	8.0	2.8	2.3	4.0	1.1	0.3	4.0	Ø 1.50	1.75	3000
H_32	8.0	3.4	2.7	4.0	1.4	0.3	4.0	Ø 1.50	1.75	3000
H_53	12.0	5.3	3.6	8.0	1.4	0.3	4.0	Ø 1.55	1.75	1000
H_57	16.0	7.3	5.3	8.0	1.9	0.3	4.0	Ø 1.55	1.75	1000
SWO	16.0	7.2	5.4	8.0	1.8	0.3	4.0	Ø 1.55	1.75	1000
H_576	16.0	7.2	5.4	8.0	1.8	0.3	4.0	Ø 1.55	1.75	1000
HP_576	16.0	7.2	5.4	8.0	1.8	0.3	4.0	Ø 1.55	1.75	1000
HD_576	16.0	7.2	5.4	8.0	1.8	0.3	4.0	Ø 1.55	1.75	1000
H_42	24.0	12.4	10.3	16.0	5.1	0.3	4.0	Ø 1.55	1.75	500
H_43	24.0	12.4	10.3	16.0	5.1	0.3	4.0	Ø 1.55	1.75	500

Reel Dimensions (unit : mm)

	J	K	L	M	N	O	P	Q	R	pcs / reel
H_22	180.0	9.0	12.0	-	-	-	13.2	2.1	-	3000
H_32	180.0	9.0	12.0	-	-	-	13.2	2.1	-	3000
H_53	180.0	13.0	16.0	-	-	-	13.2	2.5	-	1000
H_57	180.0	17.2	19.3	-	-	-	13.3	2.2	22.0	1000
SWO	180.0	17.2	19.3	-	-	-	13.3	2.2	22.0	1000
H_576	180.0	17.2	19.3	-	-	-	13.3	2.2	22.0	1000
HP_576	180.0	17.2	19.3	-	-	-	13.3	2.2	22.0	1000
HD_576	180.0	17.2	19.3	-	-	-	13.3	2.2	22.0	1000
H_42	330.0	30.0	25.0	-	-	-	13.4	2.5	19.5	500
H_43	330.0	30.0	25.0	-	-	-	13.4	2.5	19.5	500