

High Frequency Ultra-low Jitter Crystal Oscillators [Quick - turn Oscillators , 150 ~ 2,100 MHz]

H_JF328

Differential

150 fsec typical Phase Jitter

SMD

1.8 V

2.5 V

3.3 V

Min.

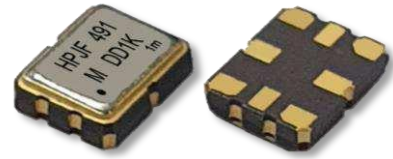
150 MHz

Max.

2,100 MHz

Features

- High Frequency Range : 150 ~ 2,100 MHz
- Ultra-low RMS Jitter : 158 fsec (typ.) @ 3.3V , 491.520 MHz
- Package Size : 3.2 x 2.5 x 1.0 mm
- Next-Day sample for Prototypes



General specifications , at Ta = +25°C

Model	HPJF	HDJF	HCJF	HQJF	
Output Logic	PECL	LVDS	HCSL	CML	
Supply Voltage (V _{DD})	---	+ 1.8 V ± 5% (*)	+ 1.8 V ± 5%	+ 1.8 V ± 5%	
	+ 2.5 V ± 10%	+ 2.5 V ± 10%	+ 2.5 V ± 10%	+ 2.5 V ± 10%	
	+ 3.3 V ± 10%	+ 3.3 V ± 10%	+ 3.3 V ± 10%	+ 3.3 V ± 10%	
Available Frequency Range	150 ~ 2,100 MHz	150 ~ 2,100 MHz	150 ~ 700 MHz	150 ~ 2,100 MHz	
Output Load	50 Ω into V _{DD} - 2V or Thevenin equivalent	100 Ω	50 Ω to GND	50 Ω to V _{DD}	
Output Logic " High " , " 1 "	V _{DD} - 1.165 V (min.) V _{DD} - 0.8 V (max.)	V _{DD} : 1.4V (typ.) V _{DD} : 1.6 V (max.)	V _{DD} : 0.66V (min.) V _{DD} : 1.15 V (max.)	V _{DD} - 0.085V (min.) V _{DD} = max.	
Output Logic " Low " , " 0 "	V _{DD} - 2.0 V (min.) V _{DD} - 1.55 V (max.)	V _{DD} : 1.1 V (typ.) V _{DD} : 0.9 V (min.)	V _{DD} : 0.0V (min.) V _{DD} : 0.15V (max.)	V _{DD} - 0.6V (min.) V _{DD} - 0.32V (max.)	
Output Voltage Swing	595 mV (min.) 930 mV (max.)	250 mV (min.) 450 mV (max.)	620 mV (min.) 780 mV (max.)	200 mV (min.) 600 mV (typ.)	
Current Consumption (V _{DD} = + 3.3 V)	100 mA (typ.) 120 mA (max.)	75 mA (typ.) 90 mA (max.)	94 mA (typ.) 115 mA (max.)	70 mA (typ.) 85 mA (max.)	
Disable Current	99 mA (typ.)	74 mA (typ.)	93 mA (typ.)	69 mA (typ.)	
Rise Time / Fall Time (20% to 80% Waveform)	0.4 nsec (max.)	0.4 nsec (max.)	0.4 nsec (max.)	0.4 nsec (max.)	
Frequency Stability Codes	Frequency Stability Over Operating Temperature Range		± 25 ppm	± 50 ppm	± 100 ppm
	Commercial (-10°C to +70°C)		A	B	C
	Industrial (-40°C to +85°C)		D	E	F
Duty Cycle	50 % ± 5%				
Start-up Time	5 msec (typ.) ; 10 msec (max.)				
RMS Jitter (typ.) (12 KHz to 20 MHz)	156.250 MHz : 177 fsec ; 491.520 MHz : 158 fsec ; 644.530 MHz : 175 fsec				
Storage Temperature	-55°C to + 150°C				
Aging at Ta = +25°C	+ 3 ppm (max.) for first year ; ± 2 ppm (max.) per year thereafter				
Enable / Disable Function on Pad1	80% of V _{DD} (min.) to enable output.				
	20% of V _{DD} (max.) to disable output.				
Enable / Disable Time	2.5 msec. (max.) / 10 usec. (max.)				

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Min.

150 MHz

Max.

2,100 MHz

Part Number Format and Example

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Supply Voltage	OSC Type	Output Waveform	Series	Package Size	OE Function	Frequency Stability	Center Frequency
3	H	D	JF	328	1	E	212.500

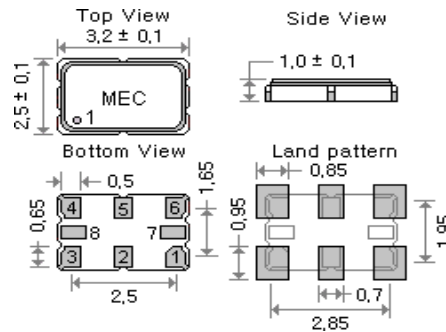
Example

EX : 3HDJF3281 - E - 212.500 [+3.3V , HDJF type , LVDS output , 3.2x2.5mm 8pad , OE on pad1 , ±25ppm from -40 to +85°C , 212.500 MHz]

[1]	Supply voltage , " 18 " for +1.8V ; " 25 " for +2.5V ; " 3 " for +3.3V
[2]	OSC Type , " H " : XO
[3]	Output Waveform , " P " : PECL ; " D " : LVDS ; " C " : HCSSL ; " Q " : CML
[4]	JF Series
[5]	Package Size , " 328 " : 3.2 x 2.5 mm 8pad
[6]	" 1 " : OE function on pad # 1
[7]	-10°C ~ 70 °C " A " ± 25ppm ; " B " ± 50ppm ; " C " ± 100ppm -40°C ~ 85 °C " D " ± 25ppm ; " E " ± 50ppm ; " F " ± 100ppm
[8]	Frequency in MHz

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

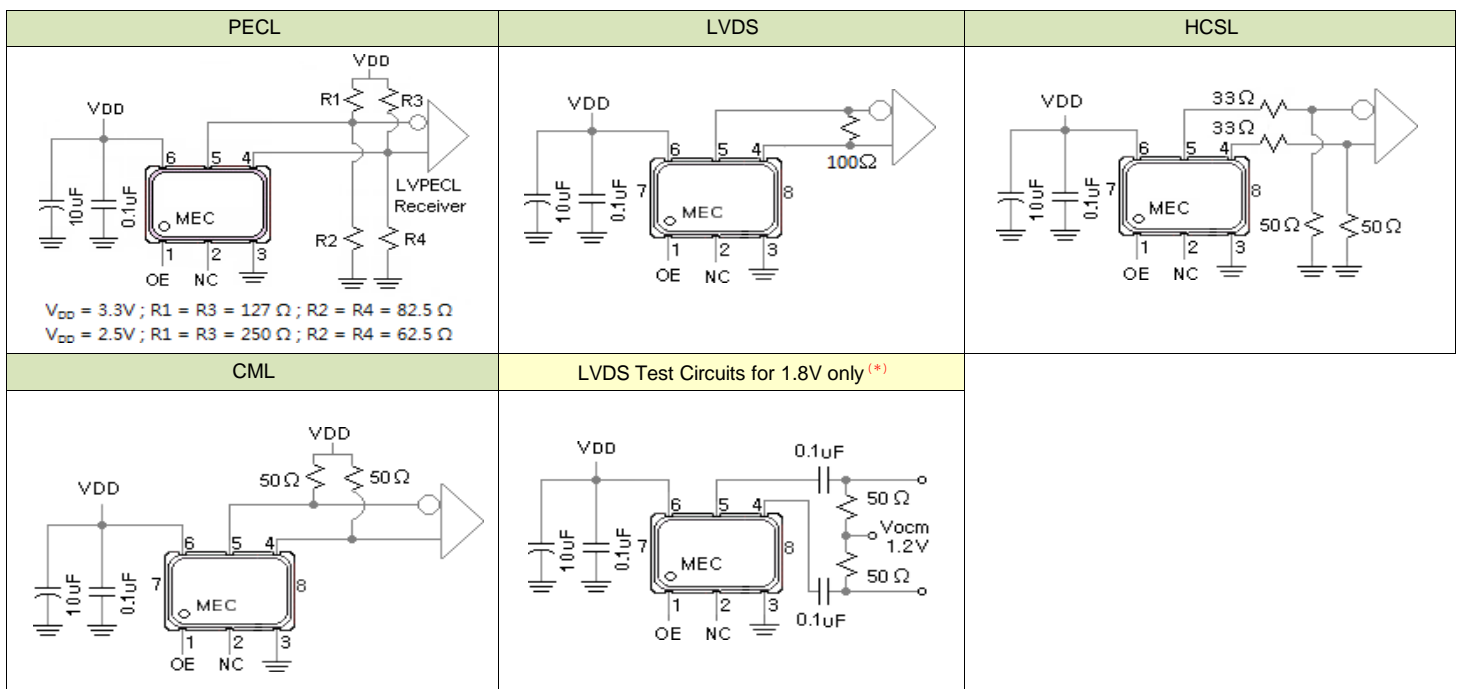
H_JF328



Pad Connections :

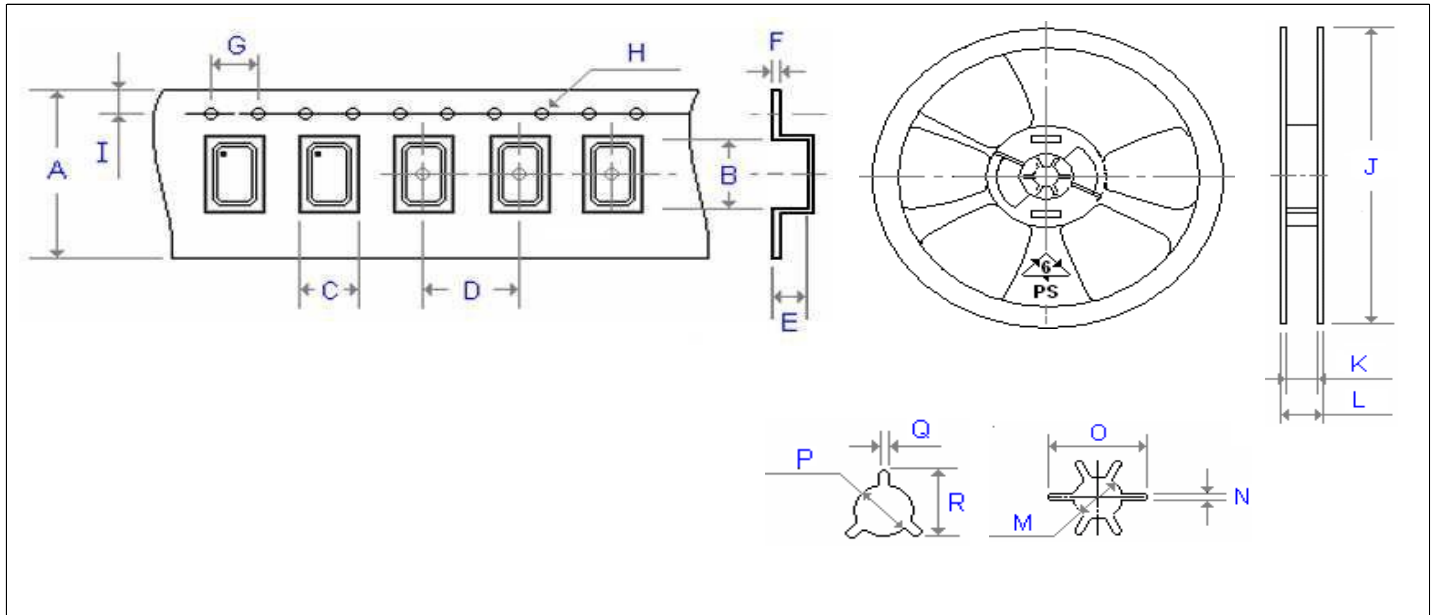
- Pad 1 : Output Enable
- Pad 2 : No Connection
- Pad 3 : Ground
- Pad 4 : Output
- Pad 5 : Complementary Output
- Pad 6 : Supply Voltage
- Pad 7 , Pad 8 : Do Not Connect

Test Circuits



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
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	∅ 1.55	1.75	1000
H_57	16.00	7.30	5.30	8.00	1.90	0.32	4.00	∅ 1.55	1.75	1000
SWO	16.00	7.20	5.40	8.00	1.80	0.32	4.00	∅ 1.55	1.75	1000
H_576	16.00	7.30	5.30	8.00	1.90	0.32	4.00	∅ 1.55	1.75	1000
HP_576	16.00	7.30	5.30	8.00	1.90	0.32	4.00	∅ 1.55	1.75	1000
HD_576	16.00	7.30	5.30	8.00	1.90	0.32	4.00	∅ 1.55	1.75	1000
H_42	24.00	11.80	10.00	16.00	5.00	0.30	4.00	∅ 1.50	1.75	500
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	M	N	O	P	Q	R	pcs / reel
H_22	178.00	8.40	11.400	-	-	-	13.00	2.50	20.50	3000
H_32	180.00	9.00	12.000	-	-	-	13.20	2.10	-	3000
H_53	180.00	13.00	16.000	-	-	-	13.20	2.50	-	1000
H_57	180.00	17.20	19.300	-	-	-	13.30	2.20	22.00	1000
SWO	180.00	17.20	19.300	-	-	-	13.30	2.20	22.00	1000
H_576	180.00	17.20	19.300	-	-	-	13.30	2.20	22.00	1000
HP_576	180.00	17.20	19.300	-	-	-	13.30	2.20	22.00	1000
HD_576	180.00	17.20	19.300	-	-	-	13.30	2.20	22.00	1000
H_42	330.00	24.50	29.100	-	-	-	13.00	2.20	17.30	500
H_43	330.00	24.50	29.100	-	-	-	13.00	2.20	17.30	500