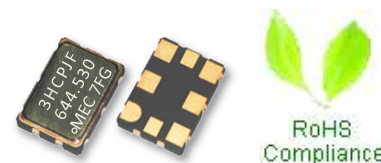


4 Frequencies Switchable Crystal Oscillators [Quick-turn Clock Oscillators , 150 ~ 2100 MHz]

HCTJF CMOS waveform	HC_JF Differential	4 Frequencies Switchable	SMD	1.8 V	2.5 V	3.3 V	Min. 150 MHz	Max. 2100 MHz
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Features	QuikXO™ Switchable output Oscillators	150 fs Phase Jitter (typical)
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Mercury's QuikXO Quick-Turn crystal oscillators that can be delivered in days
 An integrated phase jitter performance of 150 fs RMS.
 Supports all popular formats: CMOS, LVPECL, LVDS, HCSL and CML
 Gaining its precision frequency control market position
 by providing engineers with next-day samples for prototypes and low cost, fast delivery for volume



General specifications , at Ta = + 25°C

Model	HCTJF	HCPJF	HCDJF	HCCJF	HCQJF
Output Logic	LVCMOS	LVPECL	LVDS	HCSL	CML
Supply Voltage V _{DD} (code)	+ 1.8 V _{DD} ± 5%	--	--	+ 1.8 V _{DD} ± 5%	+ 1.8 V _{DD} ± 5%
	+ 2.5 V _{DD} ± 10%	+ 2.5 V _{DD} ± 10%	+ 2.5 V _{DD} ± 10%	+ 2.5 V _{DD} ± 10%	+ 2.5 V _{DD} ± 10%
	+ 3.3 V _{DD} ± 10%	+ 3.3 V _{DD} ± 10%	+ 3.3 V _{DD} ± 10%	+ 3.3 V _{DD} ± 10%	+ 3.3 V _{DD} ± 10%
Available Frequency Range	150 ~ 250 MHz	150 ~ 2100 MHz	150 ~ 2100 MHz	150 ~ 700 MHz	150 ~ 2100 MHz
Load	15pF	50 Ω into V _{DD} - 2V or Thevenin equivalent	100 Ω between output and complimentary output	50 Ω to GND	50 Ω to V _{DD}
Output Logic " High " , " 1 "	90% V _{DD} Min.	V _{DD} - 1.03 V min. V _{DD} - 0.6 V max.	1.4 V Typical 1.6 V max.	V _{DD} : 0.66V min. V _{DD} : 1.15V max.	V _{DD} - 0.085V min. V _{DD} = max.
Output Logic " Low " , " 0 "	10% V _{DD} Max.	V _{DD} - 1.85 V min. V _{DD} - 1.6 V max.	1.1 V Typical 0.9 V min.	V _{DD} : 0.0V min. V _{DD} : 0.15V max.	V _{DD} - 0.6V min. V _{DD} - 0.32V max.
Current Consumption (V _{DD} = + 3.3 V)	75 mA typ. 90 mA max.	100 mA typ. 120 mA max.	75 mA typ. 90 mA max.	94 mA typ. 115 mA max.	70 mA typ. 85 mA max.
Current with Output Disable	62 mA typical	99 mA typical	74 mA typical	93 mA typical	69 mA typical
Rise Time / Fall Time	5.0 nS max.	0.35 nS max.	0.35 nS max.	0.4 nS max.	0.35 nS max.
	(10% to 90% Waveform)	(20% to 80% Waveform)	(20% to 80% Waveform)	(20% to 80% Waveform)	(20% to 80% Waveform)
Phase Jitter , rms (typical) (12 KHz to 20 MHz)	156.250 MHz : 148 fs ; 312.500 MHz : 147 fs ; 644.530 MHz : 141 fs ; 1500 MHz : 147 fs ; 2000 MHz : 155 fs				
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°C ; " I20 " ± 20 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	
Duty Cycle	50 % ± 5%				
Start-up Time	5 m sec (typ.) ; 10 m sec. (max.)				
Aging at Ta = +25°C	± 5 ppm max. for first year at 25°C				
Storage Temperature	-55°C to + 150°C				
Output Enable Function					
OE Control on Pin 1	80% of V _{DD} (min.) to Enable Output.				
	20% of V _{DD} (max.) to Disable Output				
Ouput Enable Time	2.5 m sec max.				
Output Disable Time	10 u sec max.				
Frequency Selection Function					
FS0 Control on Pad 8	70% V _{DD} min. to logic Level " 1 "				
	30% V _{DD} max. to logic Level " 0 "				
FS1 Control on Pad 7	70% V _{DD} min. to logic Level " 1 "				
	30% V _{DD} max. to logic Level " 0 "				
Frequency Select Timing ; t _{FS}	2.5 m sec (max.)				
Frequency Configurations	The Frequency output 1 ~ 4 setting is done based on the logic levels in the Table 1.				

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

HCTJF578 ; HC_JF578																				
		Pad Connection : Pad 1 : OE Control Pad 2 : NC Pad 3 : Ground Pad 4 : CMOS : Output Differential : Output Pad 5 : CMOS : No used for CMOS Differential : Complementary Output Pad 6 : Supply Voltage Pad 7 : FS1 Control Pad 8 : FS0 Control <table> <tr> <th colspan="3">Frequency Configurations</th></tr> <tr> <th>FS1</th><th>FS0</th><th>Freq. output</th></tr> <tr> <td>0</td><td>0</td><td>Freq. (1)</td></tr> <tr> <td>0</td><td>1</td><td>Freq. (2)</td></tr> <tr> <td>1</td><td>0</td><td>Freq. (3)</td></tr> <tr> <td>1</td><td>1</td><td>Freq. (4)</td></tr> </table> Table 1	Frequency Configurations			FS1	FS0	Freq. output	0	0	Freq. (1)	0	1	Freq. (2)	1	0	Freq. (3)	1	1	Freq. (4)
Frequency Configurations																				
FS1	FS0	Freq. output																		
0	0	Freq. (1)																		
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4 Frequencies Switchable Crystal Oscillators [Quick-turn Clock Oscillators , 150 ~ 2100 MHz]

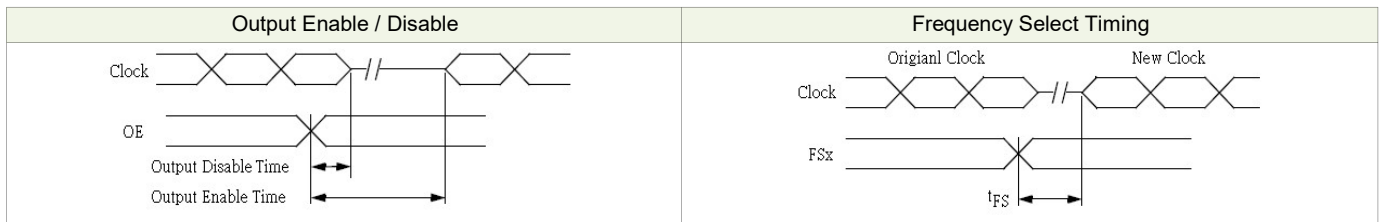
HCTJF CMOS waveform	HC_JF Differential	4 Frequencies Switchable	SMD	1.8 V	2.5 V	3.3 V	Min. 150 MHz	Max. 2100 MHz
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Part Number Format and Example

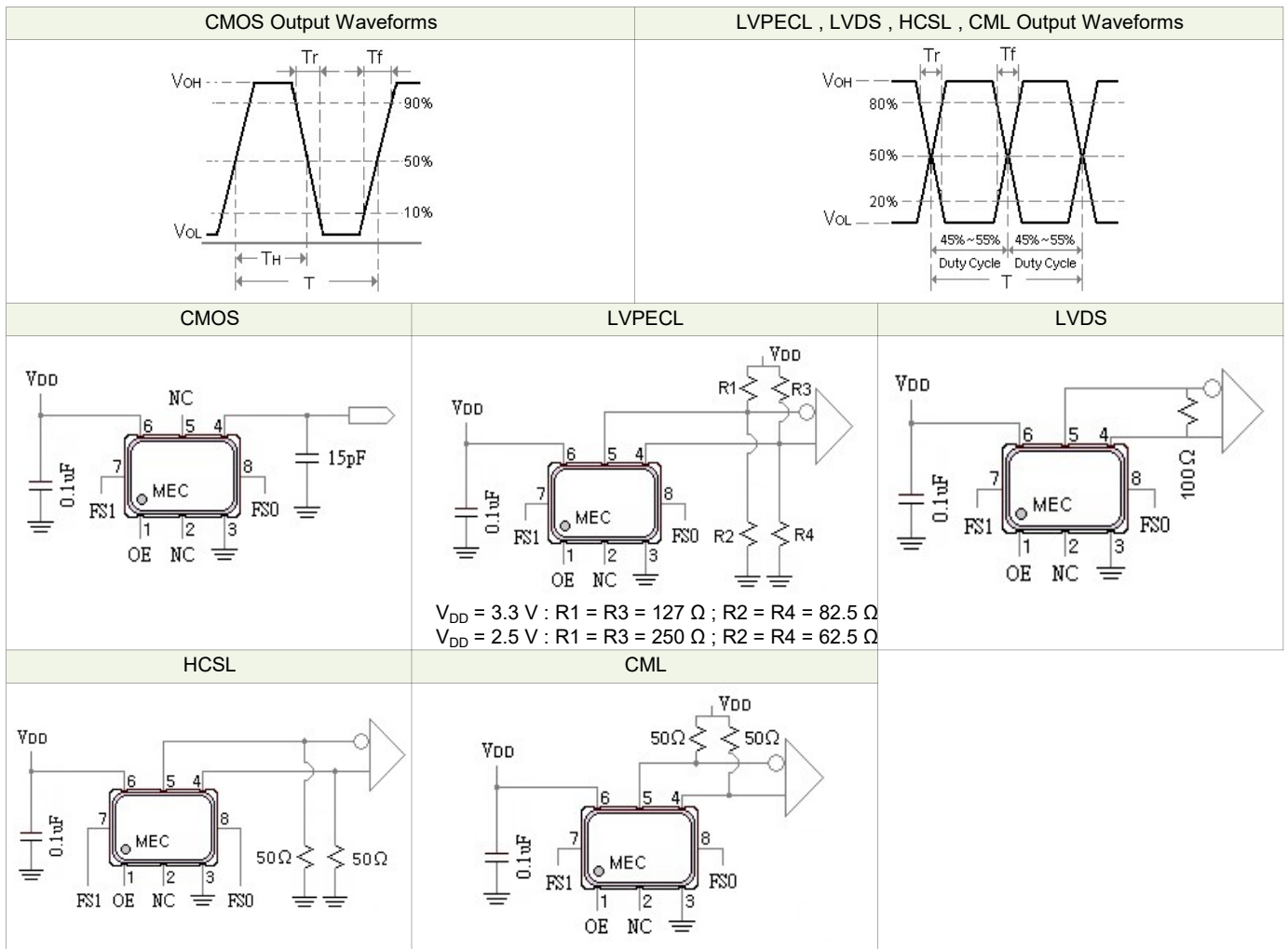
Example : 3HCTJF5781 - E - 156 / 250 / 622 / 1024

3	HCTJF	5781	-	E	-	156	-	250	-	622	-	1024
Supply Voltage "3" for 3.3V "25" for 2.5V "18" for 1.8V	HCTJF : CMOS HCPJF : HCDJF : LVDS HCCJF : HCSL HCQJF : CML	Package Size "5781": 7 x 5 mm		Freq. Stability Code E : ± 50 ppm over -40 to +85°C Other frequency stabilities are available.		156.250 Freq. 1 (MHz)		250.000 Freq. 2 (MHz)		622.080 Freq. 3 (MHz)		1024.000 Freq. 4 (MHz)

Voltage and Timing Definitions



Test Circuits and Output Waveforms



V1

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4 Frequencies Switchable Crystal Oscillators [Quick-turn Clock Oscillators , 150 ~ 2100 MHz]

HCTJF CMOS waveform	HC_JF Differential	4 Frequencies Switchable	SMD	1.8 V	2.5 V	3.3 V	Min. 150 MHz	Max. 2100 MHz
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Features	QuikXO™ Switchable output Oscillators	150 fs Phase Jitter (typical)
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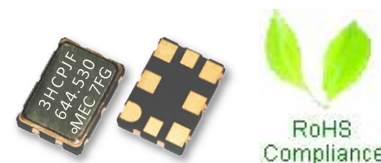
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Supports all popular formats: CMOS, LVPECL, LVDS, HCSL and CML

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General specifications , at Ta = + 25°C
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Model	HCTJF	HCPJF	HCDJF	HCCJF	HCQJF	
Output Logic	LVCMOS	LVPECL	LVDS	HCSL	CML	
Supply Voltage V _{DD} (code)	+ 1.8 V _{DD} ± 5%	--	--	+ 1.8 V _{DD} ± 5%	+ 1.8 V _{DD} ± 5%	
	+ 2.5 V _{DD} ± 10%	+ 2.5 V _{DD} ± 10%	+ 2.5 V _{DD} ± 10%	+ 2.5 V _{DD} ± 10%	+ 2.5 V _{DD} ± 10%	
	+ 3.3 V _{DD} ± 10%	+ 3.3 V _{DD} ± 10%	+ 3.3 V _{DD} ± 10%	+ 3.3 V _{DD} ± 10%	+ 3.3 V _{DD} ± 10%	
Available Frequency Range	150 ~ 250 MHz	150 ~ 2100 MHz	150 ~ 2100 MHz	150 ~ 700 MHz	150 ~ 2100 MHz	
Load	15pF	50 Ω into V _{DD} - 2V or Thevenin equivalent	100 Ω between output and complimentary output	50 Ω to GND	50 Ω to V _{DD}	
Output Logic " High " , " 1 "	90% V _{DD} Min.	V _{DD} - 1.03 V min. V _{DD} - 0.6 V max.	1.4 V Typical 1.6 V max.	V _{DD} : 0.66V min. V _{DD} : 1.15V max.	V _{DD} - 0.085V min. V _{DD} = max.	
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	(10% to 90% Waveform)	(20% to 80% Waveform)	(20% to 80% Waveform)	(20% to 80% Waveform)	(20% to 80% Waveform)	
Phase Jitter , rms (typical) (12 KHz to 20 MHz)	156.250 MHz : 148 fs ; 312.500 MHz : 147 fs ; 644.530 MHz : 141 fs ; 1500 MHz : 147 fs ; 2000 MHz : 155 fs					
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	Commercial (-10°C to +70°C)		A	B	C	
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Duty Cycle	50 % ± 5%					
Start-up Time	5 m sec (typ.) ; 10 m sec. (max.)					
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4 Frequencies Switchable Crystal Oscillators [Quick-turn Clock Oscillators , 150 ~ 2100 MHz]

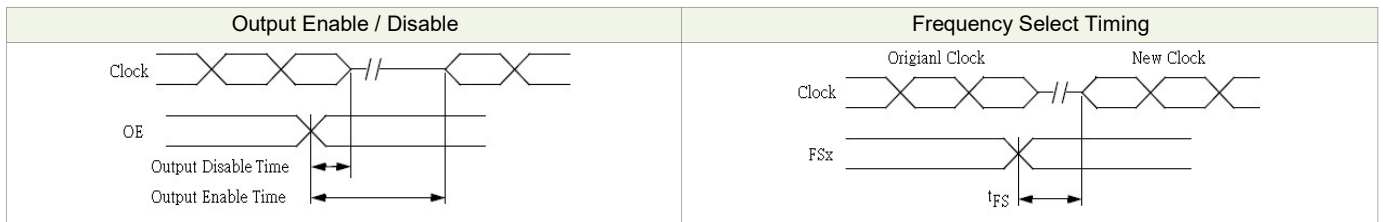
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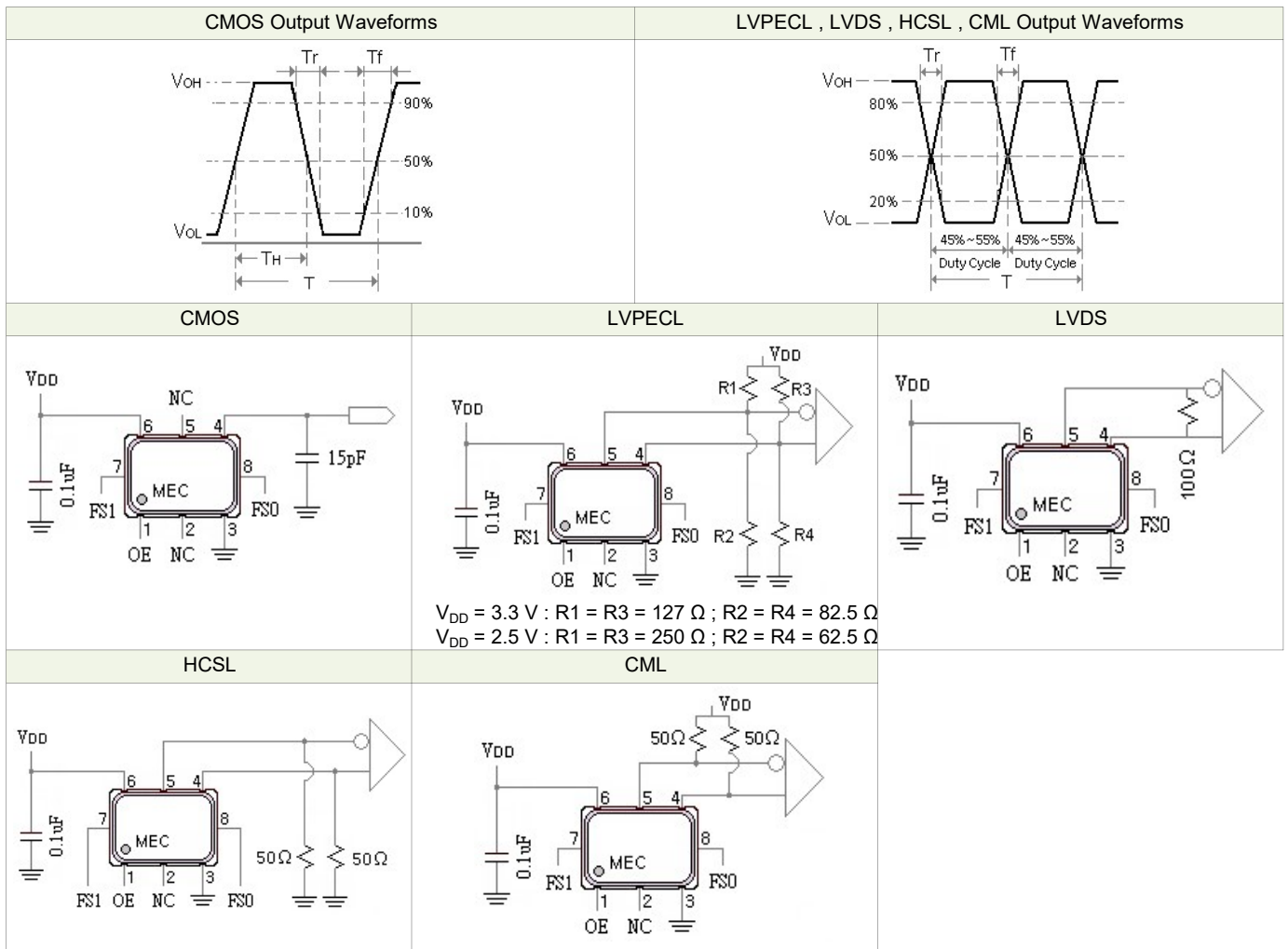
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