

- HPA series (non-PLL) uses third overtone crystal to achieve ultra low jitter and phase noise
- HPF and HPW use high-Q fundamental crystal and low jitter multiplier circuit.
- HPA and HPF offer <1 ps phase jitter. "HPW" offers moderate jitter and low cost.



General Specifications

Model	" HPF " series		" HPW " series		" HPA " series	
Technology	High Q fundamental crystal + low jitter multiplier circuit		High Q fundamental crystal + multiplier circuit		Third overtone crystal (non-PLL)	
Output Logic	LVPECL					
Available Frequency Range	38.0 MHz ~ 640.0 MHz		750 KHz ~ 800.0 MHz		60.0 MHz ~ 320.0 MHz	
Supply Voltage V _{DD}	+2.5 V _{DD} ± 5%	+3.3 V _{DD} ± 5%	+3.3 V _{DD} ± 5%		+2.5 V _{DD} ± 5%	+3.3 V _{DD} ± 5%
Supply Voltage Code	" 25 "	" 3 "	" 3 "		" 25 "	" 3 "
Output Logic " High " , " 1 "	V _{DD} -1.025 min. Termination: R _L =50 Ω to (V _{DD} -2.0V). See test circuit below.					
Output Logic " Low " , " 0 "	V _{DD} -1.620 max. Termination: R _L =50 Ω to (V _{DD} -2.0V). See test circuit below.					
Integrated Phase Jitter (12 KHz to 20 MHz)	0.4 ps typical; 0.5 ps max. For 156.250 MHz		2.6 ps typical; 4 ps max. For 155.520 MHz		0.25 ps typical; 4 ps max. For 155.520 MHz	
Period Jitter RMS ; Decoupling capacitor between V _{DD} and ground	3 ps typical; 5 ps max. For 156.250 MHz		4.3 ps typical. For 155.520 MHz		3.0 ps typical. For 155.520 MHz	
Period Jitter (peak-to-peak ; Decoupling capacitor between V _{DD} and ground)	20 ps typical; 30 ps max. For 156.250 MHz		27 ps typical. For 155.520 MHz		21 ps typical. For 155.520 MHz	
Phase Noise	Offset	Frequency: 156.250 MHz	Frequency: 155.520 MHz		Frequency: 155.520 MHz	
	10 Hz	-62 dBc / Hz	-65 dBc / Hz		-65 dBc / Hz	
	100 Hz	-92 dBc / Hz	-95 dBc / Hz		-95 dBc / Hz	
	1 KHz	-120 dBc / Hz	-120 dBc / Hz		-120 dBc / Hz	
	10 KHz	-132 dBc / Hz	-125 dBc / Hz		-128 dBc / Hz	
	100 KHz	-128 dBc / Hz	-121 dBc / Hz		-122 dBc / Hz	
	1 MHz	-140 dBc / Hz	-120 dBc / Hz		-120 dBc / Hz	
	10 MHz	-150 dBc / Hz	-140 dBc / Hz		-140 dBc / Hz	
Current Consumption (15 pF load)	38 MHz ~ 100 MHz: 65 mA max 100.01 MHz ~ 320 MHz: 80 mA max. 320.01 MHz ~ 640 MHz: 90 mA max..		< 24 MHz: 25 mA max 24.01 MHz ~ 96 MHz: 65 mA max. 96.01 MHz~700 MHz: 100 mA		75 mA max. for 212.5 MHz	
Rise Time / Fall Time	0.7 ns typical (20%↔80% of the PECL wave form)		1.5 ns typical (20%↔80% of the PECL wave form)		0.25 ns typical (20%↔80% of the PECL wave form)	
Frequency Stability ⁽¹⁾ 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 (e.g. "C20" ±20 ppm over 0°C to +70°C ; " I20 " represents ± 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	
Load	R _L =50 Ω to (V _{DD} -2.0V). See test circuit below.					
Star-up Time	10 m sec. (max.)					
Duty Cycle	50% ± 5% (measured at V _{DD} -1.3V)					
Tri - State Function. (Tri-Sate can be at either pad No. 1 or No.2.)	Tri-State enable high. No connection or 70% of V _{DD} min. is applied to Tri-State pad to enable output. 30% of V _{DD} max. to disable output (high impedance).					
Input Static Discharge Protection	2 KV (min.)					
Storage Temperature	-55°C to + 150°C					
Aging at Ta = +25°C	± 3 ppm max. first year ; ± 2 ppm max. per year thereafter					
Absolute Maximum Rating (permanent damage may be created if operate beyond limits specified.)						
Supply Voltage V _{DD}	+ 4.6 V D.C. (max.)					
Input Voltage Vi	V _{SS} -0.5 (min.) ; V _{DD} + 0.5V (max.)					
Input Voltage Vo	V _{SS} -0.5 (min.) ; V _{DD} + 0.5V (max.)					

⁽¹⁾ Inclusive of 25°C tolerance, operating temperature range, ±10% input voltage variation, load change, aging shock and vibration

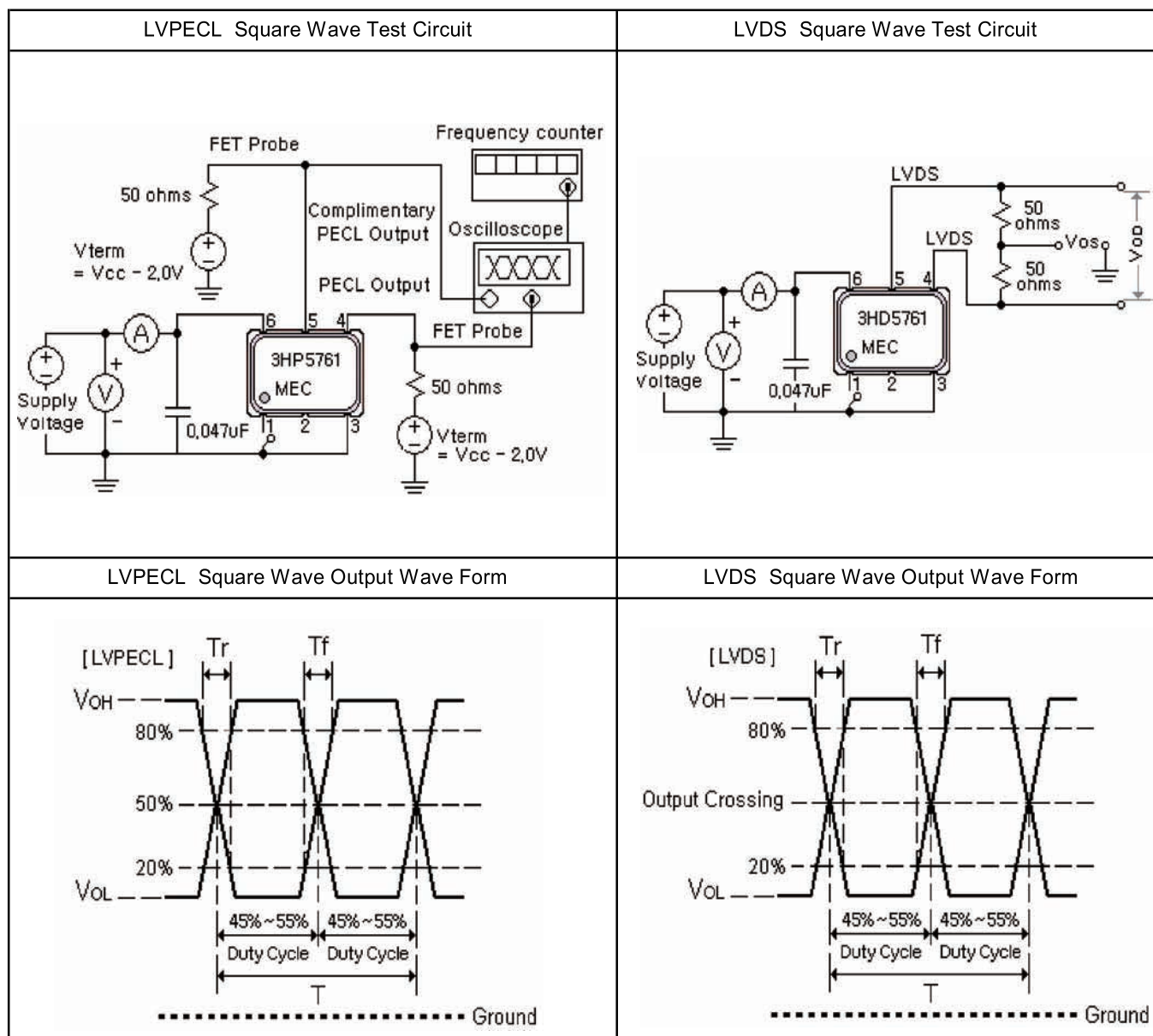
Part Number Format and Examples :

[1] Voltage	[2] Type G ---	[3] Stability ---	[4] Frequency ---	[5] Customer spec.
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[1]	Supply voltage , " 25 " for +2.5V , " 3 " for +3.3V
[2]	Please add " G " after the " type code " for RoHS compliant (H__576_ series are not included)
[3]	Frequency Stability Code: Please see previous page [Frequency Stability ⁽¹⁾]
[4]	Frequency in MHz
[5]	Assigned by Mercury if custom spec

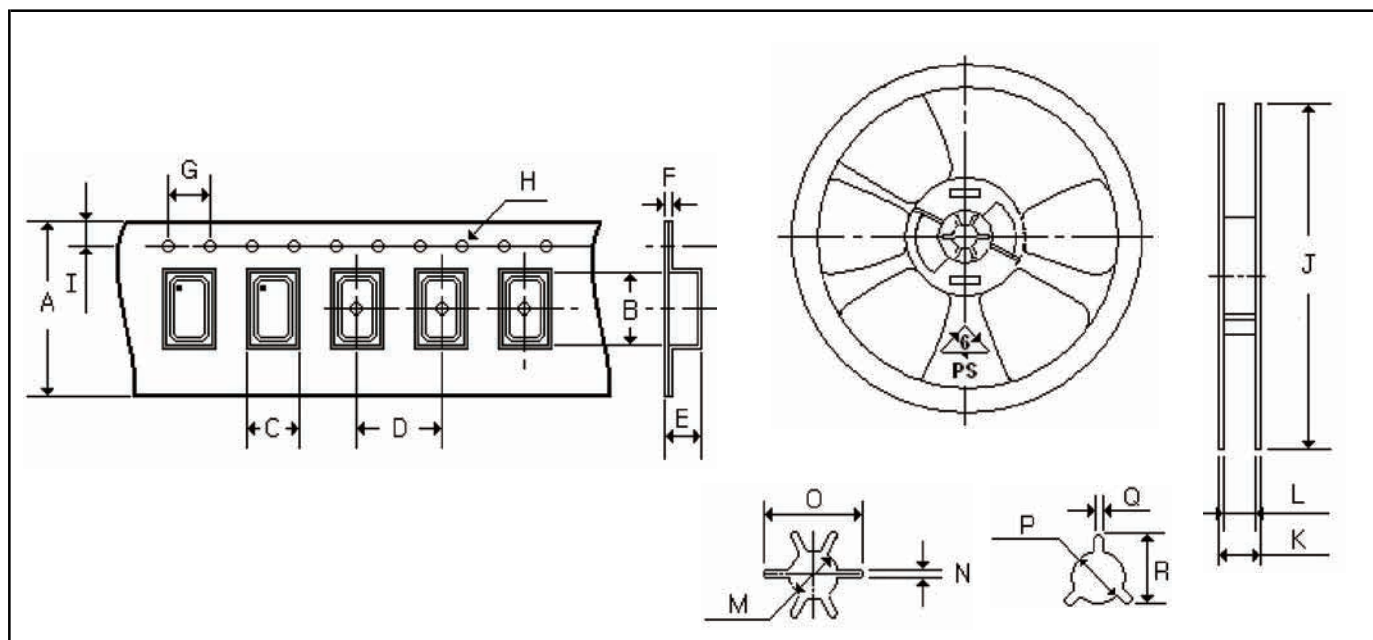
Ex (1) : 3HPA5762 - A - 100.000 represents +3.3V input voltage , LVPECL output wave , Phase Jitter : 0.2 ps (typ.) , 100.000MHz
7.0*5.0*1.8mm package. 6 pads SMD type .Tri-state function on pad # 2 . ± 25 ppm from -10°C to 70°C .

Ex (2) : 3HDW621G - E - 200.000 represents +3.3V input voltage , LVDS output wave , Phase Jitter : 2.35 ps (typ.) , 200.000MHz , RoHS , 11.4*9.6*2.5mm package. 6 pads SMD type .Tri-state function on pad # 1. ± 50 ppm from -40°C to 85°C .



Outline Dimensions (Unit : mm) , Suggested Pad Layout

[HPF5761 , HPW5761 , HPA5761] , [HDF5761 , HDW5761 , HDA5761] Pad Connections : pad 1 : Tri - state (H_ 5761) pad 2 : NC pad 3 : Ground pad 4 : Output pad 5 : Complimentary output pad 6 : Supply Voltage	[HPF5762 , HPW5762 , HPA5762] , [HDF5762 , HDW5762 , HDA5762] Pad Connections : pad 1 : NC pad 2 : Tri - state (H_ 5762) pad 3 : Ground pad 4 : Output pad 5 : Complimentary output pad 6 : Supply Voltage
[HPF621 , HPW621 , HPA621] , [HDF621 , HDW621 , HDA621] Pad Connections : Pad 1 : Tri - state Pad 2 : No Connection Pad 3 : Ground Pad 4 : Output Pad 5 : Complimentary Output Pad 6 : Vcc for PECL / LVDS	[HPF622 , HPW622 , HPA622] , [HDF622 , HDW622 , HDA622] Pad Connections : Pad 1 : No Connection Pad 2 : Tri - state Pad 3 : Ground Pad 4 : Output Pad 5 : Complimentary Output Pad 6 : Vcc for PECL / LVDS
[HPF14 , HPW14 , HPA14] , [HDF14 , HDW14 , HDA14] Pin Connections : Pin 1 : Tri-state or Complimentary output or no connection Pin 7 : Ground Pin 8 : Output Pin 14 : Supply voltage	[HPF8 , HPW8 , HPA8] , [HDF8 , HDW8 , HDA8] Pin Connections : Pin 1 : Tri-state or Complimentary output or no connection Pin 4 : Ground Pin 5 : Output Pin 8 : Supply voltage



● Carrier Type Dimensions (unit : mm)

	A	B	C	D	E	F	G	H	I
H_32	12.0	3.3	2.7	3.7	1.4	0.3	3.9	Ø1.48	1.7
H_53	16.0	5.4	3.6	7.8	1.6	0.3	4.0	Ø1.50	1.8
H_57	16.0	8.0	5.5	8.1	2.0	0.3	4.1	Ø1.41	1.8
SWO	16.0	8.0	5.5	8.1	2.0	0.3	4.1	Ø1.41	1.8
H_576	16.0	8.0	5.5	8.1	2.0	0.3	4.1	Ø1.41	1.8
HP_576	16.0	8.0	5.5	8.1	2.0	0.3	4.1	Ø1.41	1.8
HD_576	16.0	8.0	5.5	8.1	2.0	0.3	4.1	Ø1.41	1.8
H_42	24.1	12.4	10.3	15.6	5.1	0.3	3.9	Ø1.44	1.8
H_44	24.1	12.4	10.3	15.6	5.1	0.3	3.9	Ø1.44	1.8

● Reel Dimensions (unit : mm)

	J	K	L	M	N	O	P	Q	R
H_32	180.0	12.8	17.0	13.2	2.2	22.0	-	-	-
H_53	179.0	16.5	19.6	-	-	-	13.4	2.5	19.5
H_57	179.0	16.5	19.6	-	-	-	13.4	2.5	19.5
SWO	179.0	16.5	19.6	-	-	-	13.4	2.5	19.5
H_576	179.0	16.5	19.6	-	-	-	13.4	2.5	19.5
HP_576	179.0	16.5	19.6	-	-	-	13.4	2.5	19.5
HD_576	179.0	16.5	19.6	-	-	-	13.4	2.5	19.5
H_42	330.0	29.2	25.0	-	-	-	13.4	2.5	19.5
H_44	330.0	29.2	25.0	-	-	-	13.4	2.5	19.5