

CLOCK OSCILLATORS

Logic: Differential PECL

3HPL5762 Series

Wave Form: Square wave



MERCURY
Since 1973

3HPL5762, features less than 3 ps RMS phase jitter from PLL based circuitry. Its low phase noise and jitter makes 3HPL5762 ideal for SONET and other communication protocols. RoHS compliant and Pb free packaging. Pad 2 is used to Tri-state PECL and complimentary PECL outputs.



General Specifications

Product Series	3HPL5762					
Frequency Range	750 KHz ~ 800 MHz. PLL based.					
Output Logic	Differential PECL 100 K square wave					
Frequency Stability Commercial temp. range (code "C") Industrial temp. range (code "I")	"A" : ±25 ppm over 0°C to +70°C "B" : ±50 ppm over 0°C to +70°C "C" : ±100 ppm over 0°C to +70°C For non-standard please specify desired frequency stability after the "C". For example "C20" is ±20 ppm over 0 to +70°C					
	"D" : ±25 ppm over -40°C to +85° (not available on all packages) "E" : ±50 ppm over -40°C to +85°C "F" : ±100 ppm over -40°C to +85°C For non-standard please give desired frequency stability after the "I". For example "I20" is ±20 ppm over -40 to +85°C					
	vs ±10% supply voltage change: ±3 ppm max. vs ±10% Load change: ±2 ppm max.					
Supply Voltage V_{DD}	+3.3 V ± 10 %					
Output Voltage HIGH "1", V_{OH}	V _{DD} -1.025 V min.; V _{DD} -0.880 V max. Condition: R _L =50Ω to V _{DD} -2V					
Output Voltage LOW "0", V_{OL}	V _{DD} -1.810 V min.; V _{DD} -1.620 V max. Condition: R _L =50Ω to V _{DD} -2V					
Current Consumption	f _{out} < 24 MHz: 25 mA max. 24 MHz < f _{out} < 96 MHz: 65 mA max. f _{out} > 96 MHz: 100 mA max.					
Load	50 ohms into V _{DD} -2V or Thevenin equivalent. (terminating resistors required on all outputs)					
Rise Time (Tr)	0.6 nano sec. typical; 1.5 nano sec. max (20% → 80%)					
Fall Time (Tf)	0.5 nano sec. typical; 1.5 nano sec. max (80% → 20%)					
Duty Cycle	50% ± 5% max. measured at V _{DD} -1.3V					
Phase Jitter (RMS) (12 KHz to 20 MHz)	2.6 ps typical; 4 ps max. for 155.520 MHz 2.5 ps typical; 4 ps max. for 622.080 MHz					
Period Jitter (RMS) typical	19.440 MHz	77.760 MHz	106.250 MHz	155.520 MHz	622.080 MHz	
	2.1 ps	3.5 ps	4.1 ps	4.3 ps	6.0 ps	
Period Jitter (Peak-to-Peak)	17 ps	30 ps	28 ps	27 ps	40 ps	
Phase Noise (dBc/Hz) (offset from carrier)	10 Hz Offset	-80	-75	-70	-60	-50
	100 Hz Offset	-108	-100	-98	-90	-77
	1 KHz Offset	-132	-125	-122	-115	-102
	10 KHz Offset	-142	-132	-123	-125	-115
	100 KHz Offset	-142	-130	-117	-119	-108
Start-up Time	10 m sec. max.					
Aging	±2 ppm / year max.					
Tri-state option on	No Connection	PECL and complimentary PECL outputs.				

MERCURY www.mercury-crystal.com

Taiwan: TEL (886)-2-2406-2779, FAX (886)-2-2496-0769, e-mail: sales-tw@mercury-crystal.com

U.S.A.: TEL (1)-909-466-0427, FAX (1)-909-466-0762, e-mail: sales-us@mercury-crystal.com



pad No. 2	Disable	Both outputs are disabled (high impedance) when pad No. 2 is taken below 0.3 Vcc referenced to ground. Oscillator is always ON. Special request: Oscillator is off when disabled. Contact Mercury.
	Enable	At disabled mode, both outputs are enabled when pad No. 2 is taken above 0.7 Vcc referenced to ground.
Input Static Discharge Protection		2 KV max.
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		Vss-0.5V min.; V _{DD} +0.5V max.
Input Voltage Vo		Vss-0.5V min.; V _{DD} +0.5V max.
Storage Temperature Ts		-55°C min.; +150°C max.

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

Environmental Performance Specifications

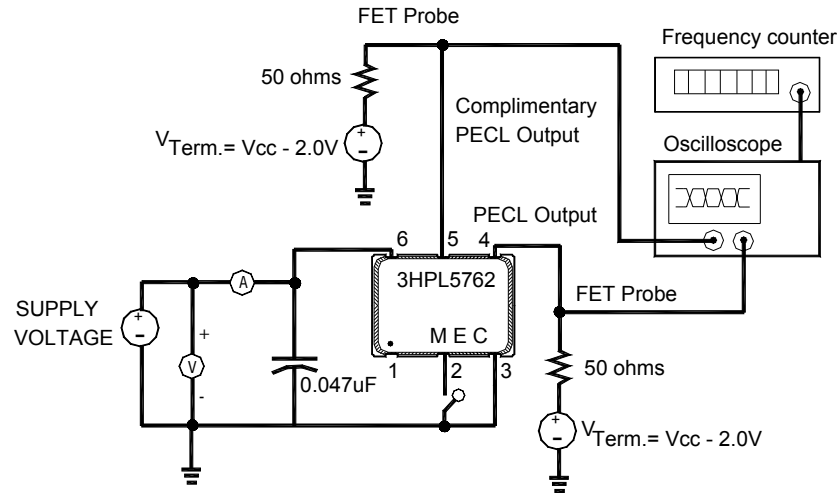
Green Requirement	RoHS Compliant and Pb (lead) free
Storage temp. range	-55 to +125°C
Humidity	85% RH, 85°C, 48 hours
Hermetic seal	Leak rate 2x10 ⁻⁸ ATM-cm ³ /sec max.
Solderability	MIL-STD-202F method 208E
Reflow	260°C for 10 sec.
Vibration	MIL-STD-202F method 204, 35G, 50 to 2000 Hz
Shock	MIL-STD-202F method 213B, test condi. E, 1000GG ½ sine wave

Part Number Format and Example:

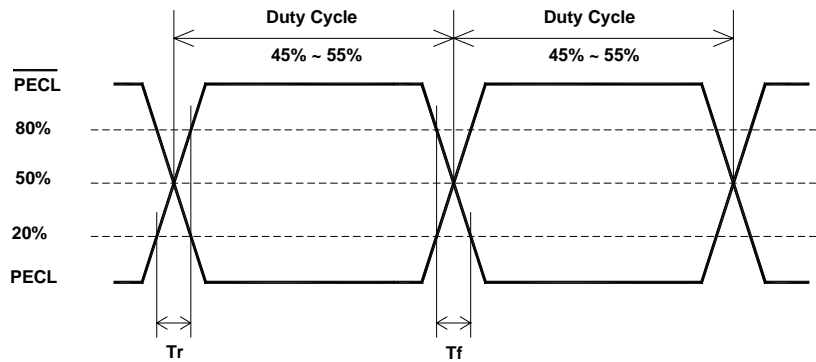
Example: 3HPL5762-A-155.520						
Explanation: HPL5762 PECL clock oscillator, 5x7 mm SMD package with pad 2 as Tri-state, +3.3 V supply voltage, ±25 ppm frequency stability over 0 to +70°C, 155.520 MHz, PLL based						
			⌀		⌀	⌀: customer to specify
3	HPL5762	—	A	—	155.520	
①	②		③		④	
①: Voltage codes: “3” for +3.3 V ②: HPL5762 product series ③: Frequency stability code: “A” ~ “F” or custom. See table above. ④: Frequency in MHz						



HPL5762 Test Circuit:

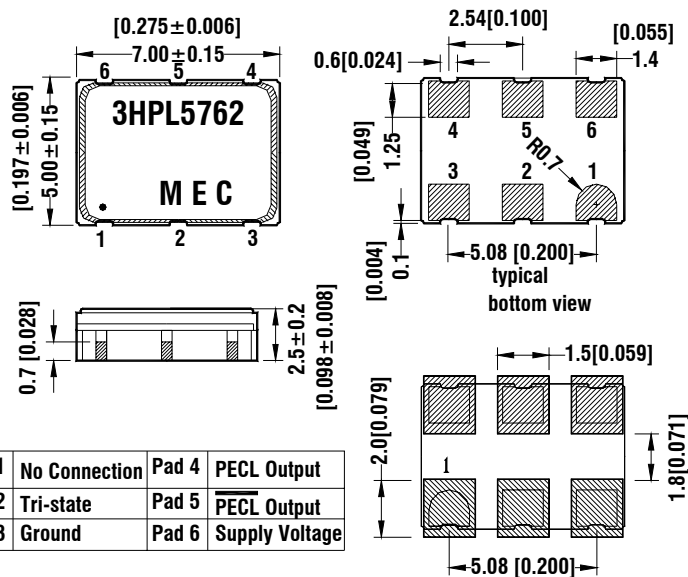


HPL5762 OUTPUT WAVEFORM:



HPL5762 Package Dimensions and Recommended Pad Layout:

unit mm[inches]



Chamfered pad is pad No. 1. Count counter-clockwise when looking at top view.
 Count clockwise when looking at bottom view.