

Pin Description

Pin #	Symbol	Type	Qty	Description
1	CLK_IN	Input	1	5V Tolerant clock input
2	OE	Input	1	Active High Output Enable. Y[0-3] outputs will be 3-stated when OE is low
3,5,7,8	Y[0-3]	Output	4	LVC MOS level outputs
4	GND	Ground	1	Ground
6	V _{DD}	Power	1	3.3V power

Absolute Maximum Ratings (Above which the useful life may be impaired. For user guidelines, not tested)

Supply Voltage (V _{DD})	−0.0V to +5.0V
Input Voltage	−0.5V to V _{DD} +0.5V
Industrial Operating Temperature	−40°C to +85°C
Storage Temperature	−65°C to +150°C
Junction Temperature	150°C
Input ESD MIL-883, method 3015, human body model	2KV

Operating Conditions

Symbol	Description	Min	Max	Unit
V _{DD}	I/O Supply, Analog Core Supply	3.0	3.6	V
T _A	Industrial Ambient Temperature	−40	+85	°C

PI6CV304 DC Characteristics Over Operating Conditions

Symbol	Parameter	Conditions	Min	Typ.	Max	Units
V_{IL}	Low Input Voltage				0.8	V
V_{IH}	High Input Voltage		2.0			
I_{IL}	Low Input Current	$V_{IN} = 0V$			-5	μA
I_{IH}	High Input Current	$V_{IN} = V_{DD}$			5	
V_{OL}	Low Output Voltage	$V_{DD} = 3.0V, I_{OL} = 12mA$			0.4	V
V_{OH}	High Output Voltage	$V_{DD} = 3.0V, I_{OH} = -12mA$	2.4			
C_O	Output Capacitance				7	pF
C_I	Input Capacitance				5	
I_{DD}	Supply Current	$C_L = 33pF/33MHz$		20		mA
		$C_L = 33pF/66MHz$		40		
		$C_L = 22pF/80MHz$		35		
		$C_L = 15pF/100MHz$		32		
		$C_L = 10pF/125MHz$		28		
		$C_L = 10pF/155MHz$		41		
Z_O	Output Impedance			20		Ω
L	Pin Inductance				7	nH

PI6CV304 AC Characteristics ($T_A = -40 \sim 85^\circ C$, $V_{DD} = 3.3V \pm 0.3V$, 33pF/66MHz and 10pF/160MHz)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
f_{IN}	Input frequency		0		160	MHz
t_{PLH}	Low-to-high propagation delay	CLK_IN to Y[0-3] rising edges @ 1.5V	1.0		3.0	ns
t_{PHL}	High-to-low propagation delay	CLK_IN to Y[0-3] falling edges @ 1.5V	1.0		3.0	
$t_{SK(O)}$	Output skew ⁽²⁾	@ 1.5V			100	ps
$t_{SK(P)}$	Pulse skew	@ 1.5V			300	
$t_{SK(T)}$	Package skew ⁽¹⁾	@ 1.5V			500	
t_{R,t_F}	Rise, Fall time	0.8V~2.0V			1.2	ns
$t_{PZL,t_{PZH}}$	Output enable time				5	
$t_{PLZ,t_{PHZ}}$	Output disable time				10	
t_{DC}	Output Duty Cycle	$t_{DC} = t_H/t_{CY}$, t_H = High Pulse Width, t_{CY} = Output Cycle Time, @ 1.5V	45		55	%

Note:

- Identical traces, loads, power supply.
- Maximum Output Skew is 100ps when frequency is below 125MHz with 10pF loading.

PI6CV2304 DC Characteristics Over Operating Conditions

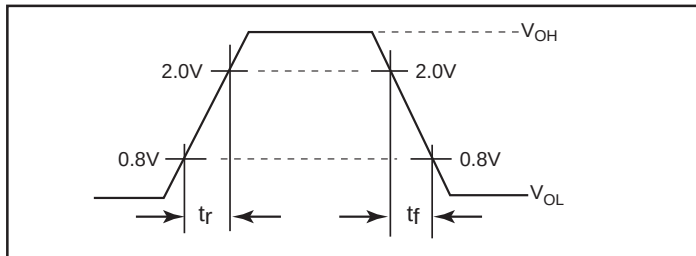
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V_{IL}	Low Input Voltage				0.8	V
V_{IH}	High Input Voltage		2.0			
I_{IL}	Low Input Current	$V_{IN} = 0V$			-50	μA
I_{IH}	High Input Current	$V_{IN} = V_{DD}$			200	
V_{OL}	Low Output Voltage	$V_{DD} = 3.0V, I_{OL} = 8\text{ mA}$			0.4	V
V_{OH}	High Output Voltage	$V_{DD} = 3.0V, I_{OH} = -8\text{mA}$	2.4			
I_{DD}	Supply Current	$C_L = 33\text{pF}/33\text{MHz}$		20		mA
		$C_L = 33\text{pF}/66\text{MHz}$		41		
		$C_L = 22\text{pF}/80\text{MHz}$		35		
		$C_L = 15\text{pF}/100\text{MHz}$		34		
		$C_L = 10\text{pF}/125\text{MHz}$		31		
C_O	Output Capacitance				7	pF
C_I	Input Capacitance				5	
Z_O	Output Impedance			30		Ω
L	Pin Inductance				7	nH

PI6CV2304 AC Characteristics ($T_A = -40 \sim 85^\circ\text{C}$, $V_{DD} = 3.3V \pm 0.3V$, 33pF/66MHz and 10pF/133MHz)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
f_{IN}	Input frequency		0		140	MHz
t_{PLH}	Low-to-high propagation delay	CLK_IN to Y[0-3] rising edges @ 1.5V	1.0		3.0	ns
t_{PHL}	High-to-low propagation delay	CLK_IN to Y[0-3] falling edges @ 1.5V	1.0		3.0	
$t_{SK(O)}$	Output skew	@ 1.5V			150	ps
$t_{SK(P)}$	Pulse skew	@ 1.5V			300	
$t_{SK(T)}$	Package skew ⁽¹⁾	@ 1.5V			500	
t_R, t_F	Rise, Fall time	0.8V~2.0V			1.35	ns
t_{PZL}, t_{PZH}	Output enable time				5	
t_{PLZ}, t_{PHZ}	Output disable time				10	
t_{DC}	Output duty cycle	$t_{DC} = t_H/t_{CY}$, t_H = High Pulse Width, t_{CY} = Output Cycle Time, @ 1.5V	45		55	%

Note: 1. Identical traces, loads, power supply.

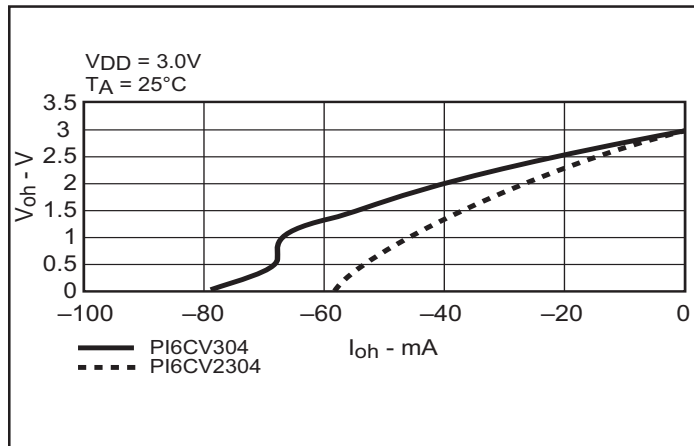
Rise/Fall Time



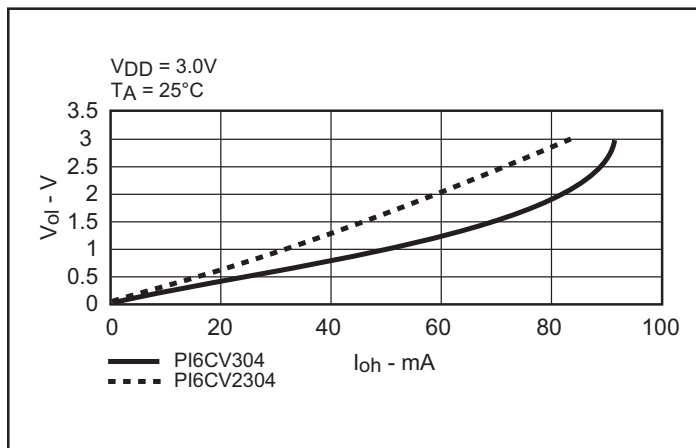
Note:

For test circuit: $R_S = 0$ for PI6CV2304, $R_S = 15$ ohms for PI6CV304
 $C_L = 10, 15, 22$, or 33 pF, depending on frequency.

High-Level Output Voltage vs. High-Level Output Current

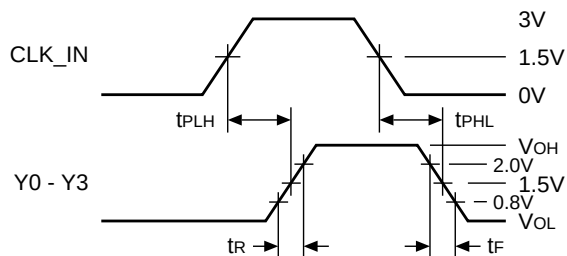


Low-Level Output Voltage vs. Low-Level Output Current

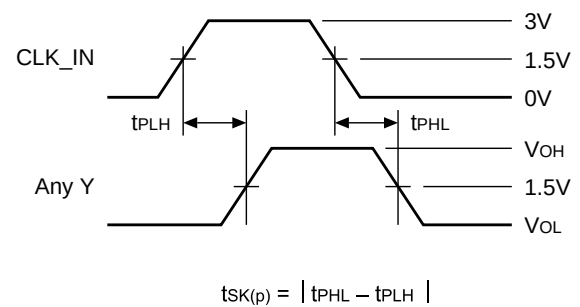


Switching Waveforms

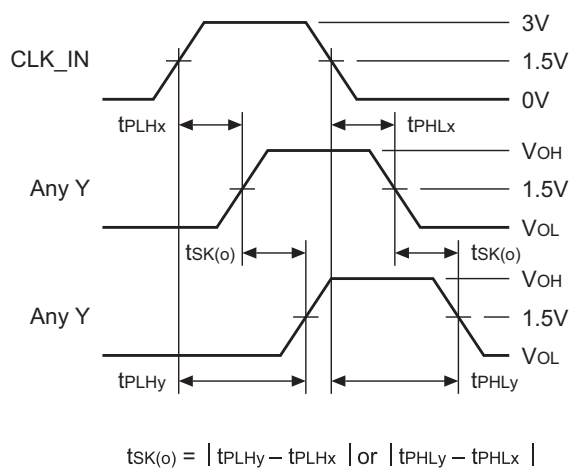
Propagation Delay



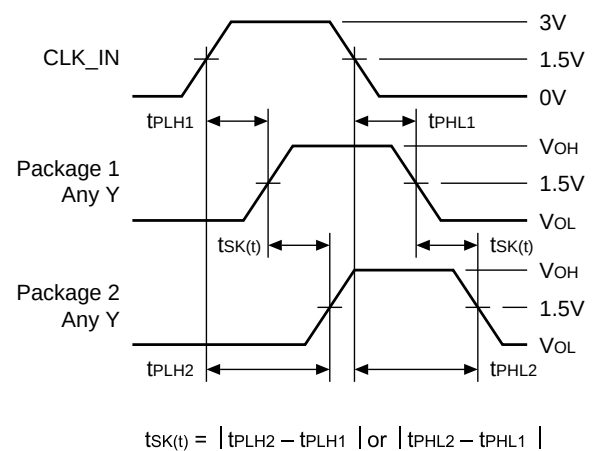
Pulse Skew – $t_{sk(p)}$



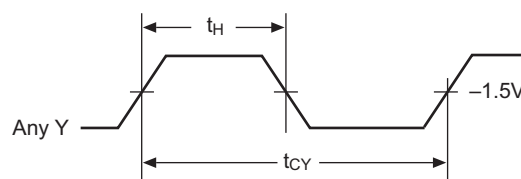
Output Skew – $t_{sk(o)}$

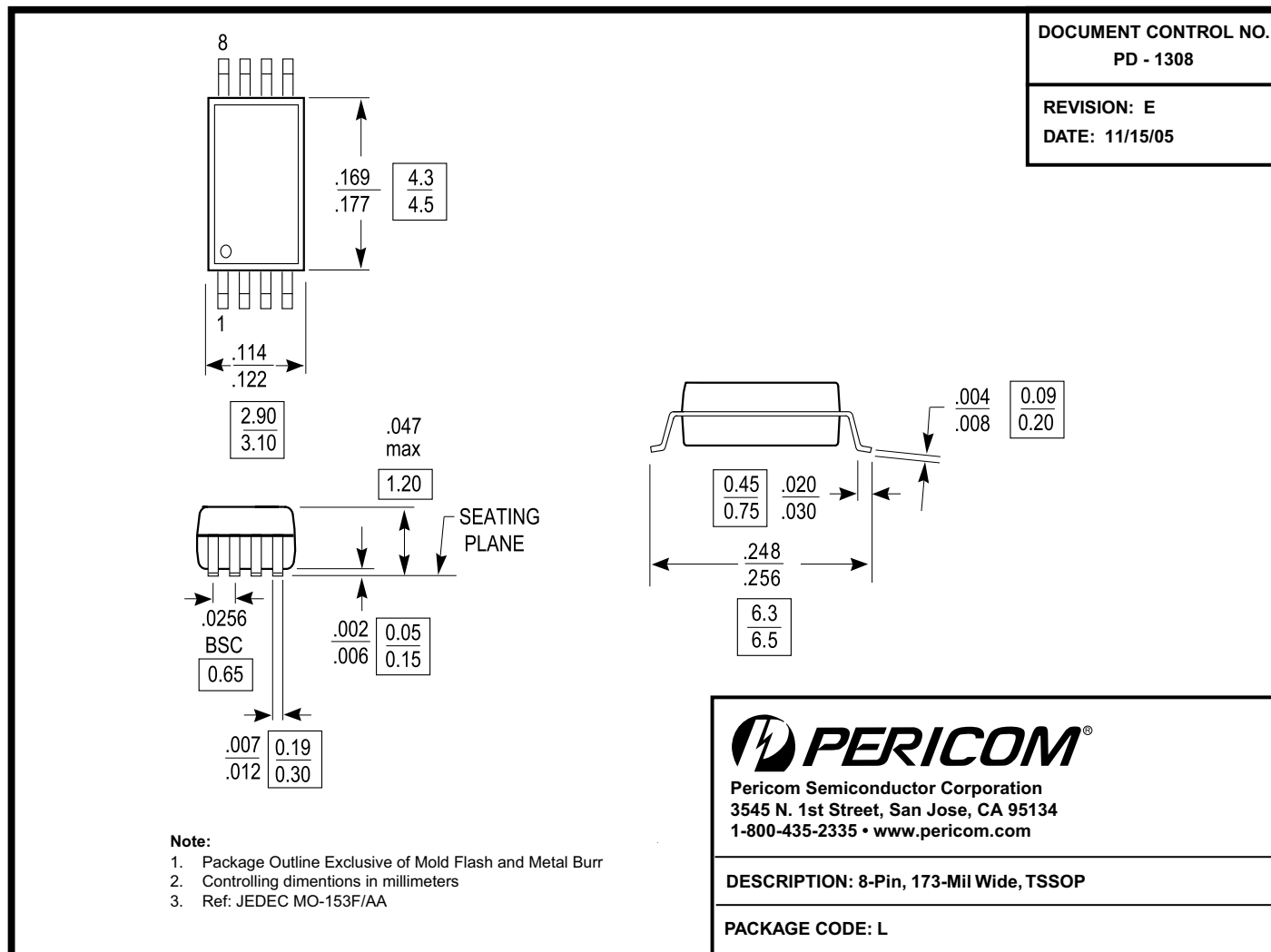


Package Skew – $t_{sk(t)}$

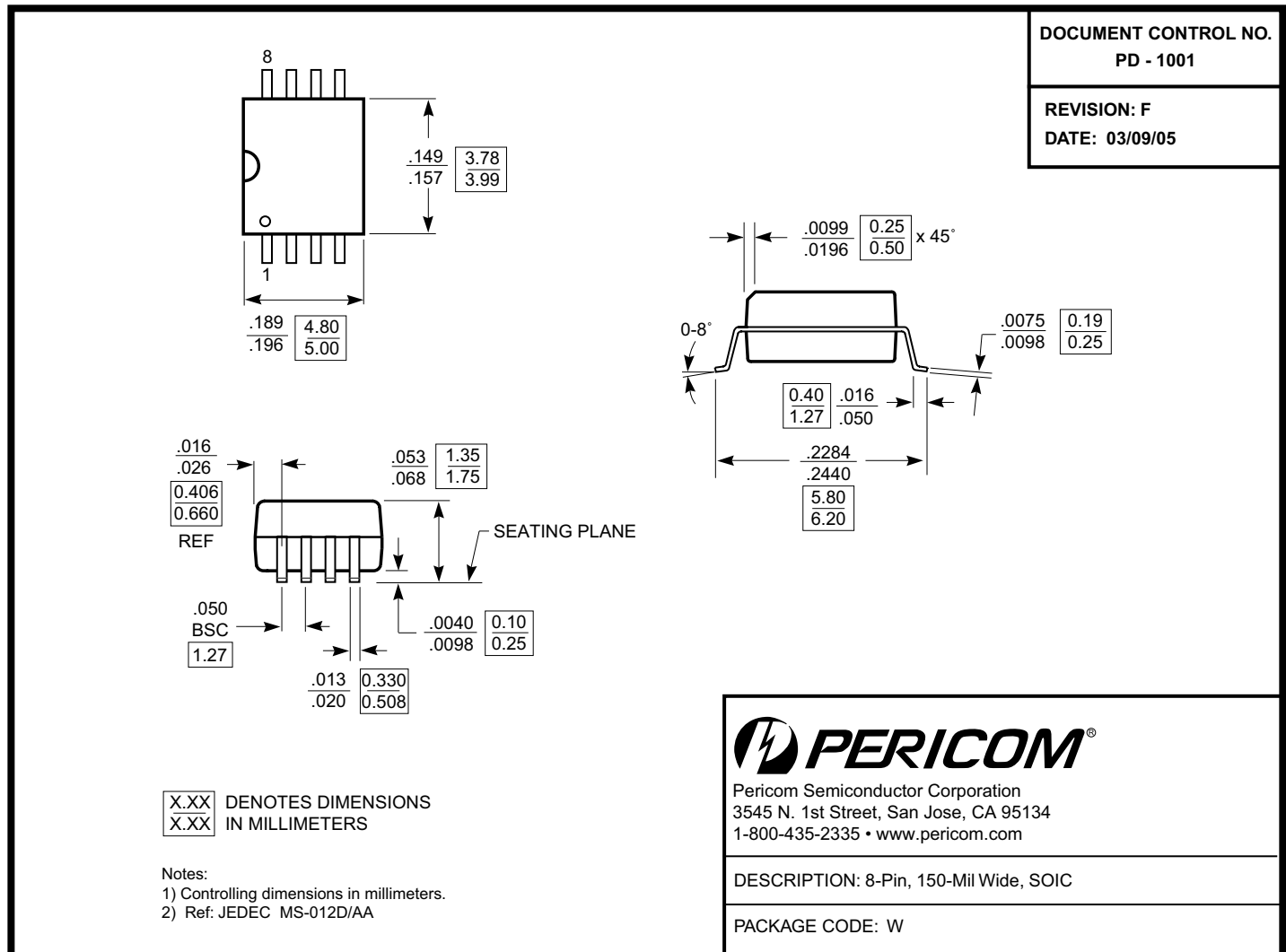


Output Duty Cycle – t_{DC}



Packaging Mechanical: 8-Pin TSSOP (L)

Note:

 For latest package info, please check: <http://www.pericom.com/products/packaging/mechanicals.php>

Packaging Mechanical: 8-Pin SOIC (W)

Note:

 For latest package info, please check: <http://www.pericom.com/products/packaging/mechanicals.php>
Ordering Information

Ordering Code	Package Code	Package Type
PI6CV304L	L	8-pin 173-mil wide TSSOP
PI6CV304LE	L	Pb-free & Green, 8-pin 173-mil wide TSSOP
PI6CV304W	W	8-pin 150-mil wide SOIC
PI6CV304WE	W	Pb-free & Green, 8-pin 150-mil wide SOIC
PI6CV2304L	L	8-pin 173-mil wide TSSOP
PI6CV2304LE	L	Pb-free & Green, 8-pin 173-mil wide TSSOP
PI6CV2304WE	W	Pb-free & Green, 8-pin 150-mil wide SOIC

Notes:

1. Thermal characteristics can be found on the company web site at www.pericom.com/packaging/