## Maximum Ratings

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

| | |
|---|---|
| Storage Temperature | –65°C to +150°C |
| Supply Voltage to Ground Potential | –0.5V to +2.5V |
| DC Input Voltage | –0.5V to +$V_{DD}$ |
| DC Output Current | 120mA |
| Power Dissipation | 0.5W |

**Note:** Stresses greater than those listed under MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

## Power Supply Characteristics

| Parameters | Description | Test Conditions[1] | Min. | Typ.[2] | Max. | Units |
|---|---|---|---|---|---|---|
| $I_{DD}$ | Quiescent Power Supply Current | $V_{DD}$ = Max., $V_{IN}$ = GND or $V_{DD}$ | | | 400 | µA |

**Notes:**
1. For Max. or Min. conditions, use appropriate value specified under Electrical Characteristics for the applicable device type.
2. Typical values are at $V_{DD}$ = 1.8V, $T_A$ = 25°C ambient and maximum loading.

## DC Electrical Characteristics for Switching over Operating Range

($T_A$ = –40°C to +85°C, $V_{DD}$ = 1.5V to 1.8V ±10%)

| Parameter | Description | Test Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| $V_{IH}$ | Input HIGH Voltage, SEL input | Guaranteed HIGH level | 0.65 x $V_{DD}$ | - | - | V |
| $V_{IL}$ | Input LOW Voltage, SEL input | Guaranteed LOW level | -0.5 | - | 0.35 x $V_{DD}$ | |
| $V_{IK}$ | Clamp Diode Voltage, SEL input | $V_{DD}$ = Max., $I_{IN}$ = –18mA | - | -0.7 | -1.2 | |
| $I_{IH}$ | Input HIGH Current for SEL | $V_{DD}$ = Max., $V_{IN}$ = $V_{DD}$ | -10 | - | +10 | µA |
| $I_{OZ}$ | Channel Leakage Current | $V_{DD}$ = Max., $V_{IN}$ = 1.8V | -10 | - | +10 | |
| $I_{IL}$ | Input LOW Current | $V_{DD}$ = Max., $V_{IN}$ = GND | -20 | - | +10 | |
| $V_{IDC}$ | DC Signal Voltage Range | $V_O/V_I$ > 95%, $R_L$ = 10K | -0.5 | | 2.5 | V |
| | | $V_O/V_I$ > 80%, $R_L$ = 50-Ohms | -0.4 | | 1.2 | |

## Switching Characteristics

($T_A$= -40º to +85ºC, $V_{DD}$ = 1.5V to 1.8V ±10%)

| Parameter | Description | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| $t_{PZH}$, $t_{PZL}$ | Line Enable Time - SEL to $A_N$, $B_N$, $C_N$ | 0.5 | - | 9.0 | ns |
| $t_{PHZ}$, $t_{PLZ}$ | Line Disable Time - SEL to $A_N$, $B_N$, $C_N$ | 0.5 | - | 9.0 | |
| $t_{b-b}$ | Bit-to-bit skew within the same differential pair | | | 10 | ps |
| $t_{ch-ch}$ | Channel-to-channel skew | | | 15 | |
| $t_{diff}$ | Differential delay - $A_N$ to $B_N$ or $C_N$ | | | 20 | |

**Notes:**
1. For max. or min. conditions, use appropriate value specified under Electrical Characteristics for the applicable device type.

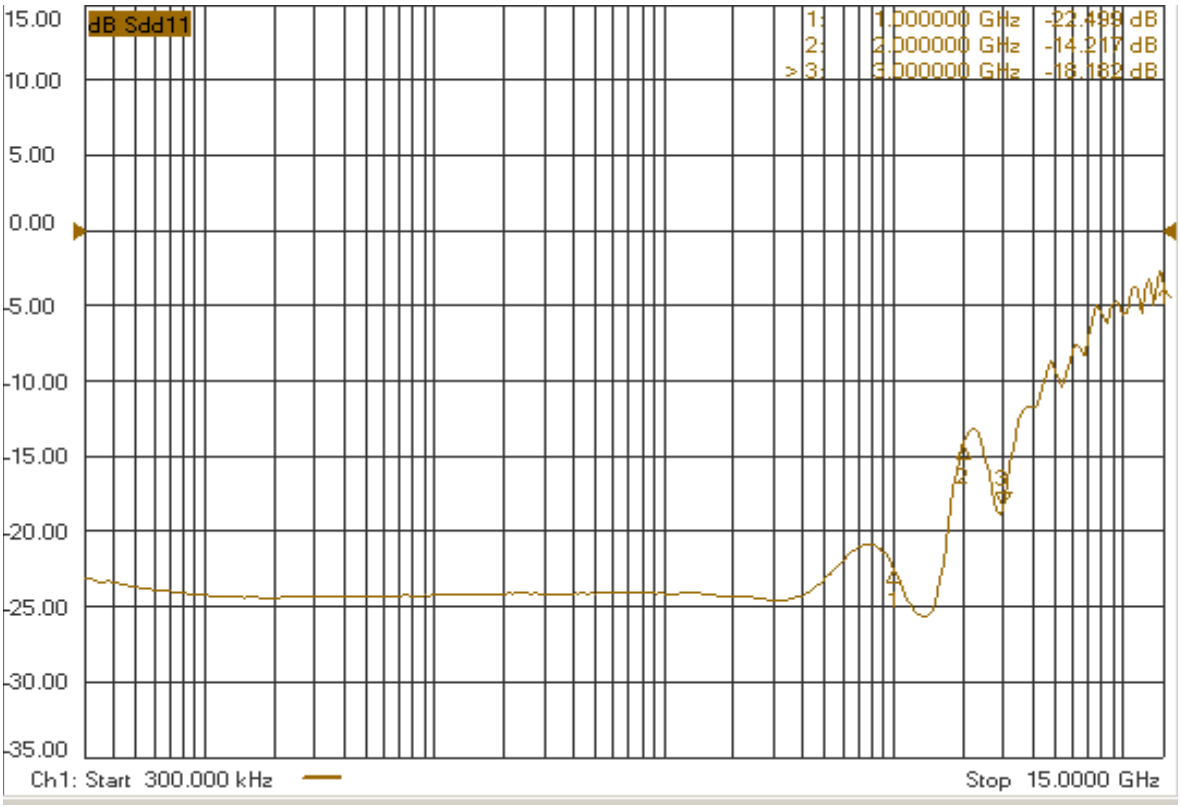
## Dynamic Electrical Characteristics Over the Operating Range

($T_A$= -40º to +85ºC, $V_{DD}$ = 1.5V to 1.8V ±10%)

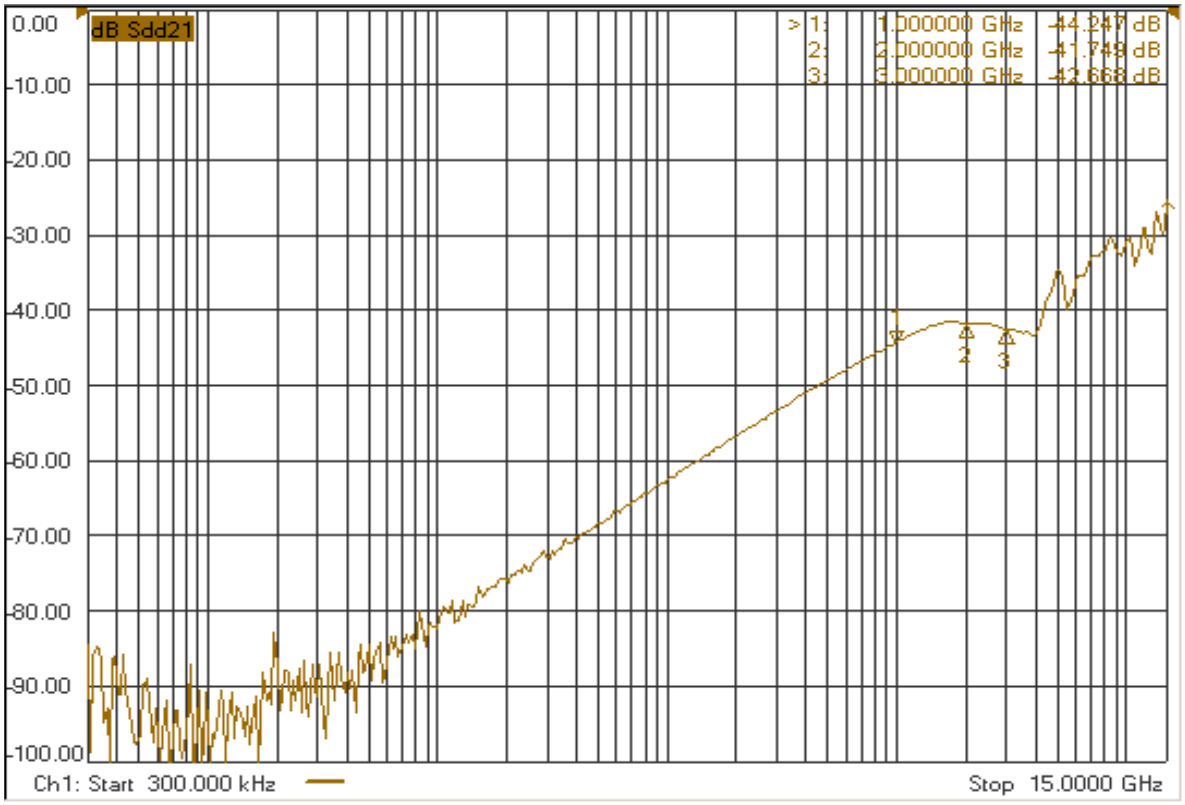
| Parameter | Description | Test Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| BW | Bandwidth -3dB | | | 4.1 | | GHz |
| $V_{I F}$ | Max Signal Frequency Range | Insertion loss 1.5dB, $V_{IN}$=0.8Vpp, DC=0V | 2.5 | | | |
| | | Insertion loss 1.5dB, $V_{IN}$=0.6Vpp, DC=0.9V | 2.5 | | | |
| | | Insertion loss 3dB, $V_{IN}$=0.8Vpp, DC=0V | 4.0 | | | |
| | | Insertion loss 3dB, $V_{IN}$=0.6Vpp, DC=0.9V | 4.0 | | | |
| P-1dB | 1 dB Compression Input Signal | $R_L$ = 50, f=375MHz, sin wave, DC=0V | 1.2 | | | Vpp |
| | | $R_L$ = 50, f=375MHz, sin wave, DC=0.45V | 2.0 | | | |
| | | $R_L$ = 50, f=375MHz, sin wave, DC=0.9V | 2.4 | | | |
| $R_{LOSS}$ | Return Loss | f = 3 GHz | | -18 | | dB |
| $X_{TALK}$ | Crosstalk | f = 3.0 GHz | | -43 | | |
| $O_{IRR}$ | OFF Isolation | f = 3.0 GHz | | -21 | | |
| $I_{LOSS}$ | Differential Insertion Loss | f= 3 GHz | | -2.3 | | |

**Notes:**

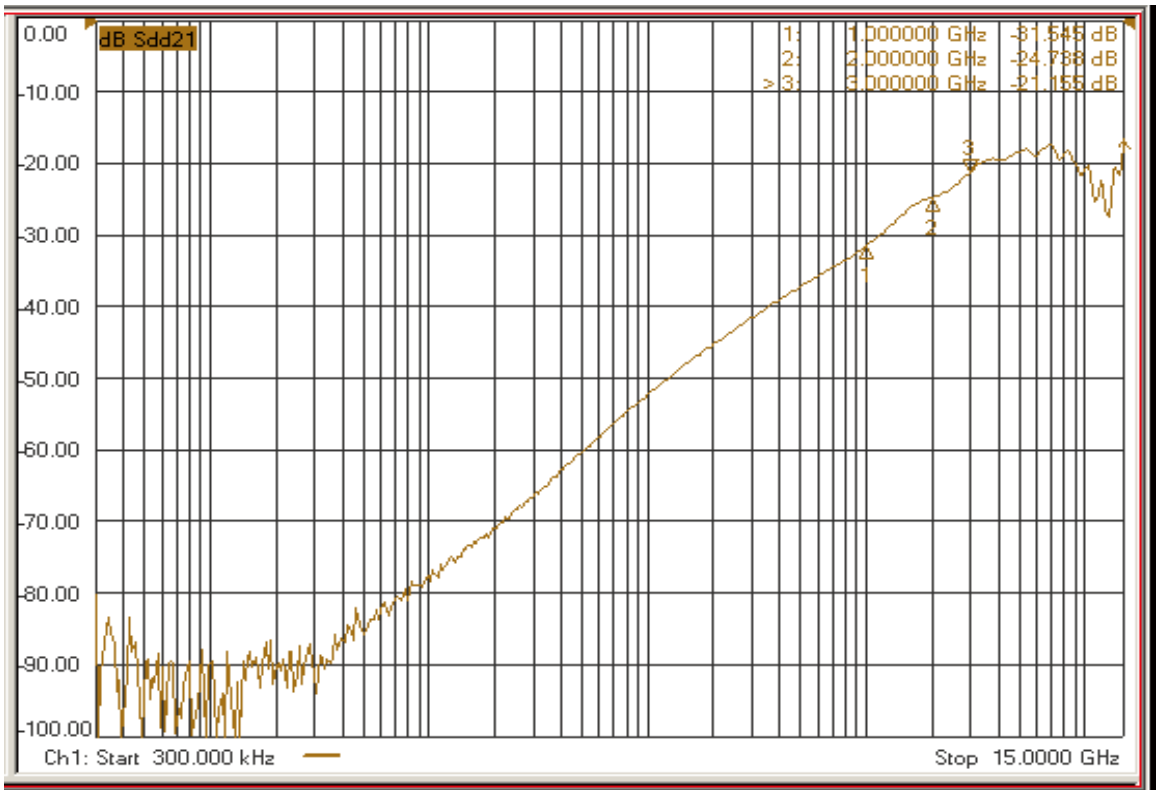
1. Guaranteed by design.



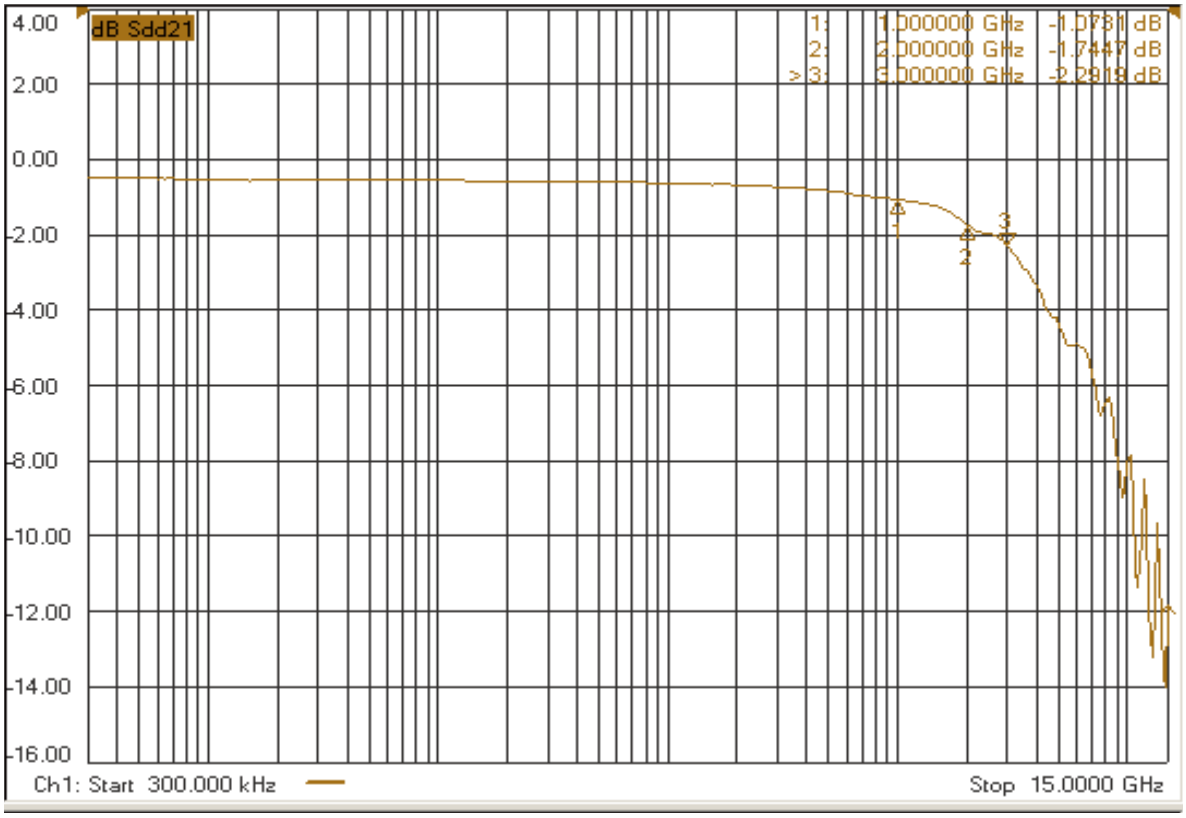

**Return Loss**



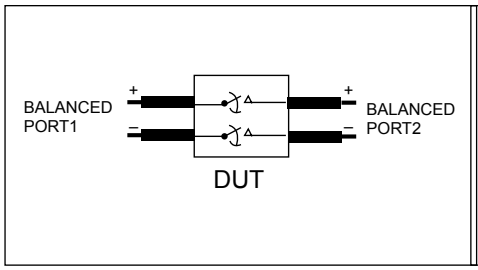

**Crosstalk**



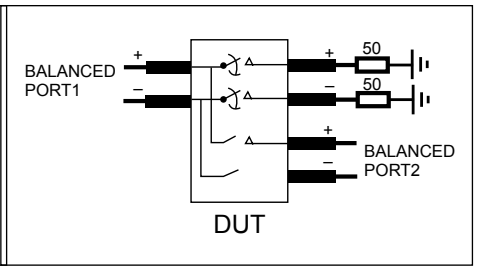

**Off Isolation**



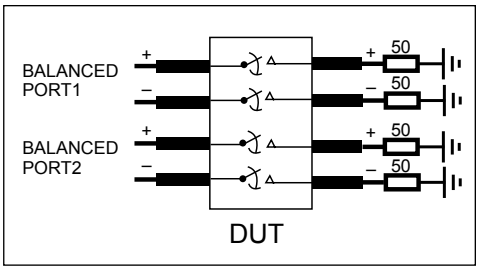

**Insertion Loss**




**Diff. Insertion Loss and Return Test Circuit**

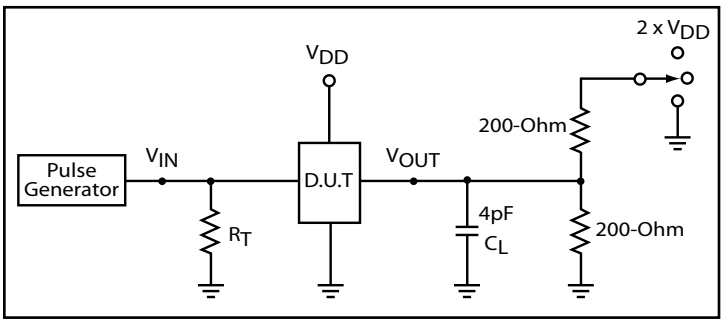



**Diff. Off Isolation Test Circuit**




**Diff. Near End Xtalk Test Circuit**

## Test Circuit for Electrical Characteristics(1-5)



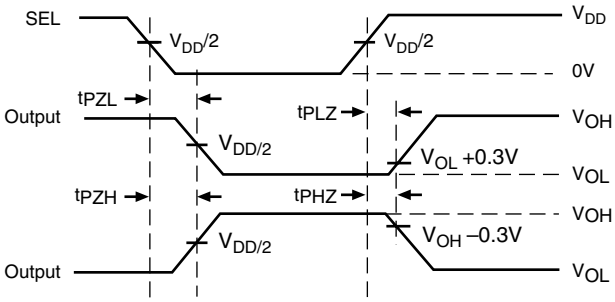

## Switch Positions

| Test | Switch |
|---|---|
| $t_{PLZ}$, $t_{PZL}$ | 2 x $V_{DD}$ |
| $t_{PHZ}$, $t_{PZH}$ | GND |
| Prop Delay | Open |

**Notes:**

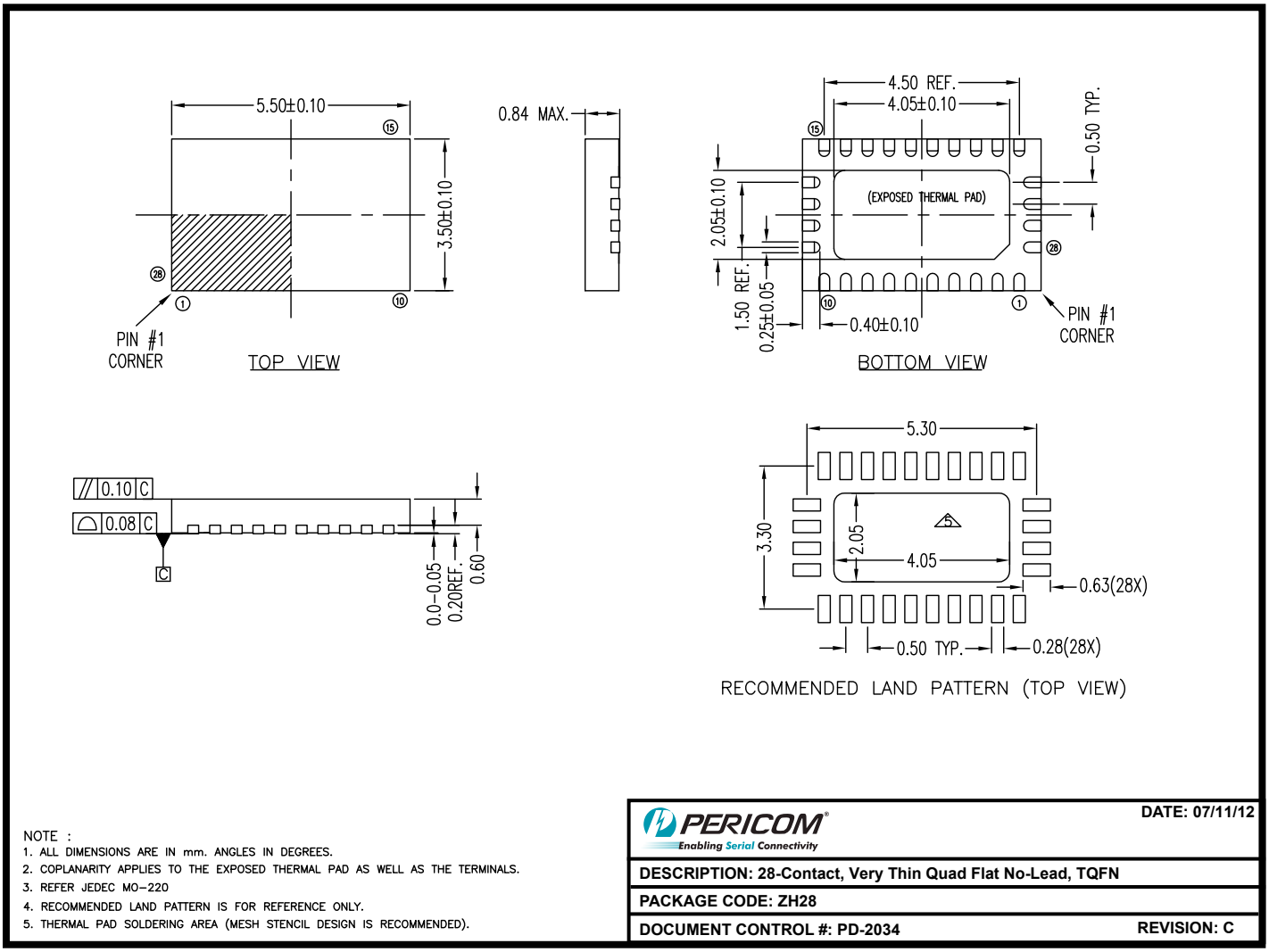
1. $C_L$ = Load capacitance: includes jig and probe capacitance.
2. $R_T$ = Termination resistance: should be equal to $Z_{OUT}$ of the Pulse Generator
3. Output 1 is for an output with internal conditions such that the output is low except when disabled by the output control. output 2 is for an output with internal conditions such that the output is high except when disabled by the output control.
4. All input impulses are supplied by generators having the following characteristics: PRR ≤ MHz, $Z_O$ = 50Ω, $t_R$ ≤ 2.5ns, $t_F$ ≤ 2.5ns.
5. The outputs are measured one at a time with one transition per measurement.

## Switching Waveforms




**Voltage Waveforms Enable and Disable Times**

## Packaging Mechanical: 28-Pin TQFN (ZH)




NOTE :
1. ALL DIMENSIONS ARE IN mm. ANGLES IN DEGREES.
2. COPLANARITY APPLIES TO THE EXPOSED THERMAL PAD AS WELL AS THE TERMINALS.
3. REFER JEDEC MO-220
4. RECOMMENDED LAND PATTERN IS FOR REFERENCE ONLY.
5. THERMAL PAD SOLDERING AREA (MESH STENCIL DESIGN IS RECOMMENDED).

PERICOM Enabling Serial Connectivity

DATE: 07/11/12

DESCRIPTION: 28-Contact, Very Thin Quad Flat No-Lead, TQFN

PACKAGE CODE: ZH28

DOCUMENT CONTROL #: PD-2034 REVISION: C

12-0419

**Note:**
- For latest package info, please check: http://www.pericom.com/products/packaging/mechanicals.php

## Ordering Information

| Ordering Code | Package Code | Package Type |
|---|---|---|
| PI2DBS6212ZHEX | ZH | 28-contact, Very Thin Quad Flat No-Lead (TQFN) |

**Notes:**
- Thermal characteristics can be found on the company web site at www.pericom.com/packaging/
- E = Pb-free and Green
- Adding an X suffix = Tape/Reel