



PI7AT04

SOTINY™ Low Voltage, Zero-Delay, Active Transmission Line Clamp

Features

- 5V and 3.3V Line Clamping
- Near Zero Quiescent Supply Current: 10 μ A Maximum
 - Active circuit clamping
- Low Capacitance: 5pF (typ.)
- High 4kV ESD Protection
- Packaging (Pb-free & Green Available):
 - 6-pin SC70 (C)

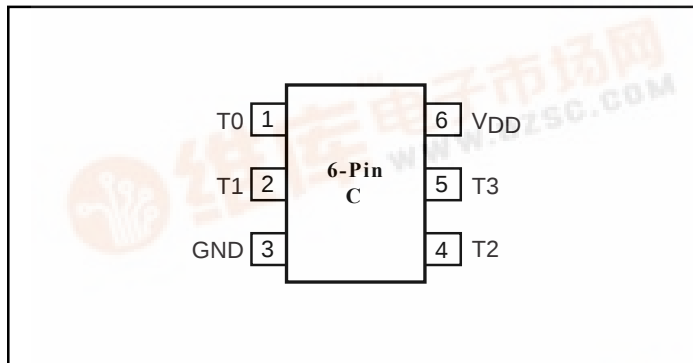
Benefits

- Reduced EMI
 - Limits high-frequency ring voltage
- Minimum Power Consumption
- Higher Noise Margin
- Minimal Line Loading

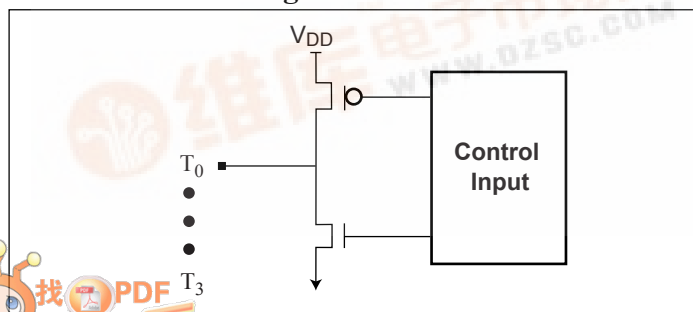
Applications

- CPU Termination
- Backplane Termination
- Termination

Product Pin Configuration



Functional Block Diagram



Description

The PI7AT04 actively clamps overshoot and undershoot voltages on transmission lines and backplanes. Improperly terminated data lines have reflections that can result in lost data or unreliable system behavior.

The PI7AT04 clamps undershoot and overshoot voltages for up to four lines. For other options and packages contact Pericom Marketing.

Compared to Schottky diodes, the PI7AT04 uses less power and requires no additional drive power. By avoiding a passive termination/clamp technology, PI7AT04 power consumption is very low at 5V.

The PI7AT04 is ideal in applications where characteristic impedance varies with system configuration. Changing characteristic impedance is common when memory or function cards are added or removed on a bus.

The PI7AT04 does not replace parallel terminator resistors.

Product Pin Description

Pin Number	Name	Description
6-pin, SC70		
1	T0	Line Termination
2	T1	Line Termination
4	T2	Line Termination
5	T3	Line Termination
3	GND	Ground
6	V _{DD}	Positive Supply Voltage





Absolute Maximum Ratings

DC Voltage on Any Pin	6.5V
Storage Temperature	−65°C to 150°C
Lead Temperature (Soldering, 10 seconds)	300°C
Thermal Information	
MSOP Continuous Power Dissipation: derate 8.7mW/°C above 70°C)	650mW
SC70/SOT23 Continuous Power Dissipation: derate 7.0mW/°C above 70°C)	550mW

Electrical Characteristics

V_{DD} = 5V Over Operating Temperature Range, unless otherwise noted.

Parameter	Symbol	Conditions	Temp	Min.	Typ	Max.	Units
Line Signal Voltage Above V _{DD}		Note 2			0.6		V
Line Signal Voltage Below GND		Note 2			−0.6		
Input Line Capacitance	C _I	Line Voltage = V _{DD}	25		5		pF
Input High Current	I _{IH}	V _{LINE} = V _{DD} , V _{DD} = 5.5V				5	μA
Input Low Current	I _{IL}	V _{LINE} = 0V, V _{DD} = 5.5V				5	
Supply Voltage Range	V _{DD}			4.5		5.5	V
Quiescent Supply Current	I _{DD}	All lines floating				20	μA
ESD Protection		MIL-STD-883, Method 3015			4		kV

V_{DD} = 3.3V Over Operating Temperature Range, unless otherwise noted.

Parameter	Symbol	Conditions	Temp	Min.	Typ.	Max.	Units
Line Signal Voltage Above V _{DD}		Note 2			0.6		V
Line Signal Voltage Below GND		Note 2			−0.6		
Input Line Capacitance	C _I	Line Voltage = V _{DD}	25		5		pF
Input High Current	I _{IH}	V _{LINE} = V _{DD} , V _{DD} = 3.6V				3	μA
Input Low Current	I _{IL}	V _{LINE} = 0V, V _{DD} = 3.6V				3	
Supply Voltage Range	V _{DD}			3.0		3.6	V
Quiescent Supply Current	I _{DD}	All lines floating				20	μA
ESD Protection		MIL-STD-883, Method 3015			4		kV

Notes:

1. Capacitance and ESD parameters are guaranteed by design.
2. Maximum line voltage clamped during a transient.

Application Information

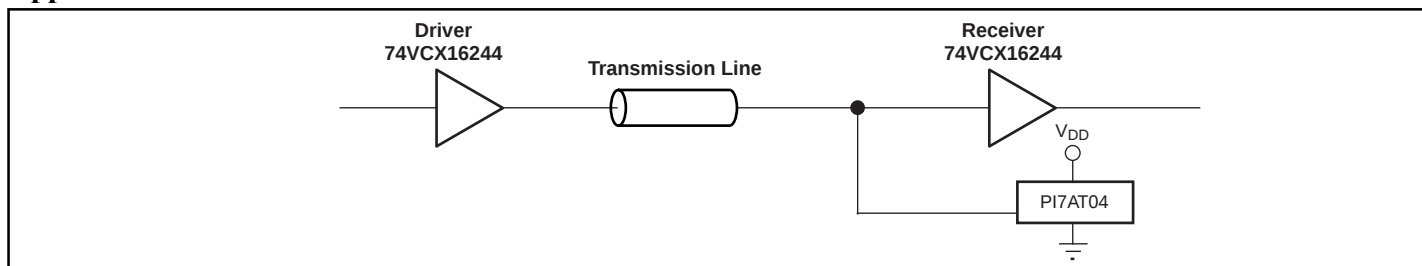


Figure 1. Test Diagram



Figure 2. VCX16244 ($V_{CC} = 3.6V$) output after driving 3-inch transmission line. Signal capture at end of line

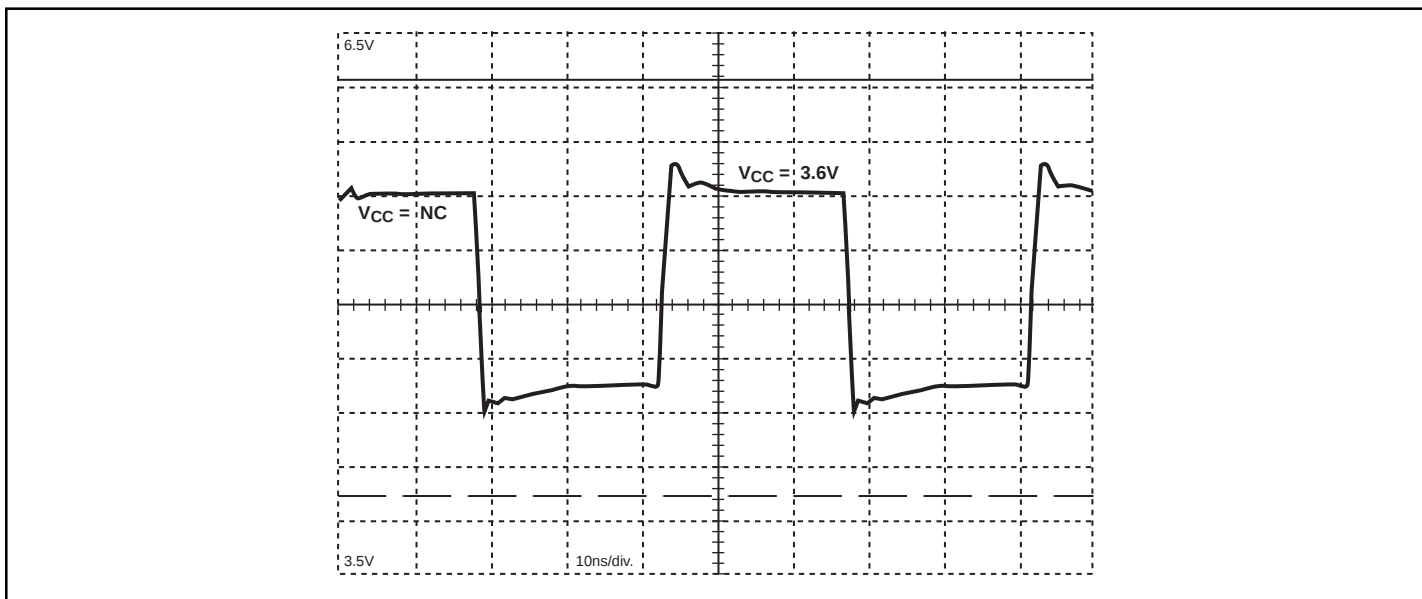
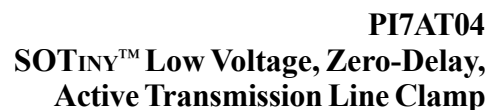


Figure 3. VCX16244 ($V_{CC} = 3.6V$) output after driving 3-inch transmission line and driving PI7AT04 input. Signal as seen at the input pin. Signal capture when V_{CC} in NC, $V_{CC} = 3.6V$.



Technical drawing of a 6-pin D-sub connector showing top and side views with dimensions in millimeters.

Top View Dimensions:

- Overall Width: $.079 \pm .002$ BSC
- Pin 6 Width: $.049 \pm .001$ BSC
- Pin 5 Width: $.026 \pm .001$ BSC
- Pin 4 Width: $.026 \pm .001$ BSC
- Pin 3 Width: $.026 \pm .001$ BSC
- Pin 2 Width: $.026 \pm .001$ BSC
- Pin 1 Width: $.026 \pm .001$ BSC
- Pin 6 to Pin 5 Spacing: $.006 \pm .001$
- Pin 5 to Pin 4 Spacing: $.011 \pm .001$
- Pin 4 to Pin 3 Spacing: $.015 \pm .001$
- Pin 3 to Pin 2 Spacing: $.015 \pm .001$
- Pin 2 to Pin 1 Spacing: $.015 \pm .001$
- Overall Height: $.083 \pm .002$ BSC

Side View Dimensions:

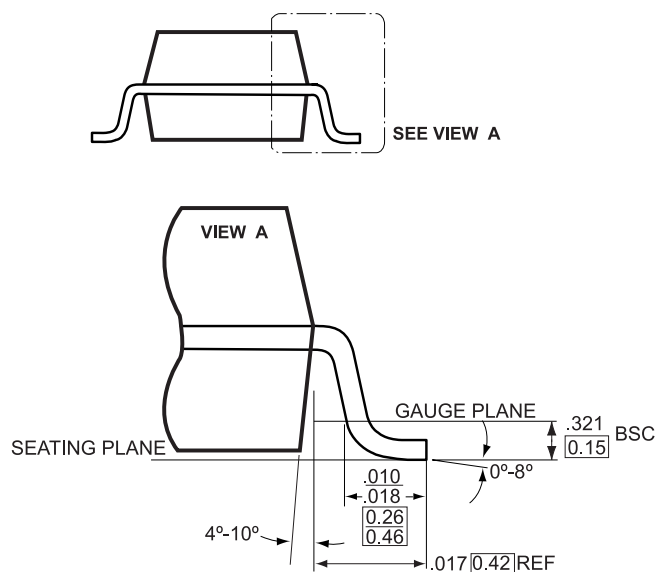
- Overall Height: $.043 \pm .001$ MAX
- Seating Plane: Indicated by a horizontal line at the bottom of the connector body.

Legend:

XXX
XXX DENOTES DIMENSIONS
IN MILLIMETERS

Notes:

- 1) C
- 2) A



Ordering Code	Line Terminations	Package Code	Package Description	Top Marking
PI7AT04CX	4	C	6-pin SC70	Z9
PI7AT04CEX	4	C	6-pin SC70	$\overline{Z}9$

1. Thermal Characteristics can be found on the world wide web at www.pericom.com/packaging/
2. X = Tape and reel