



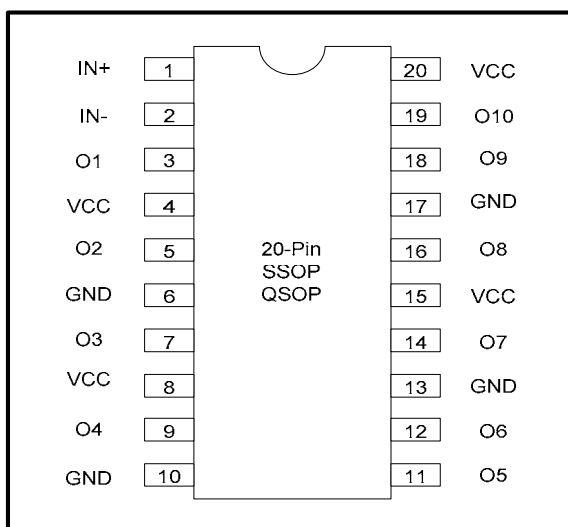
PO49HSTL32807G

3.3V 1:10 Differential to TTL Translator Driver

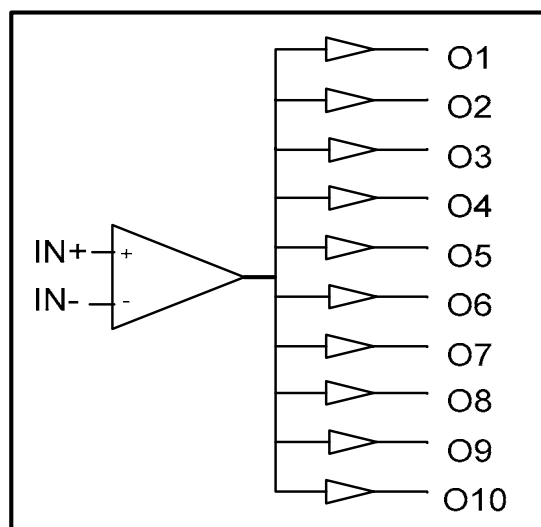
400MHz Noise Cancellation TTL/CMOS Potato Chip

FEATURES:	DESCRIPTION:
- Operating frequency up to 400MHz with 2pf load - Operating frequency up to 300MHz with 5pf load - Operating frequency up to 250MHz with 15pf load - Operating frequency up to 100MHz with 50pf load - Very low output pin to pin skew < 350ps - Very low pulse skew < 200ps - VCC = 1.65V to 3.6V - Propagation delay < 3ns max with 15pf load - Low input capacitance: 3pf typical 1:10 fanout - Available in 20pin 150mil wide QSOP package - Available in 20pin 300mil wide SOIC package	Potato Semiconductor's PO49HSTL32807G is designed for world top performance using submicron CMOS technology to achieve 400MHz TTL output frequency with less than 200ps output pulse skew. PO49HSTL32807G is a 1.65v to 3.6V 1 high speed comparator inputs to 10 TTL output buffered driver to achieve higher than 400MHz output frequency with integrated series damping resistors on all outputs to match 50 ohm transmission line impedance. Typical applications are HSTL, PECL, LVDS to TTL translator, crystal or ring oscillator, clock and signal distribution.

Pin Configuration



Logic Block Diagram



Pin Description

Pin Name	Description
IN+, IN-	Inputs
O1 to O10	Outputs

**400MHz Noise Cancellation TTL/CMOS Potato Chip****Maximum Ratings**

Description	Max	Unit
Storage Temperature	-65 to 150	°C
Operation Temperature	-40 to 85	°C
Operation Voltage	-0.5 to +4.6	V
Input Voltage	-0.5 to V _{cc} +0.5	V
Output Voltage	-0.5 to V _{cc} +0.5	V

Note:

stresses greater than 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 specification is not implied.

DC Electrical Characteristics

Symbol	Description	Test Conditions	Min	Typ	Max	Unit
V_{OH}	Output High voltage	V _{cc} =3V V _{in} =V _{IH} or V _{IL} , I _{OH} = -8mA	2.4	3	-	V
V_{OL}	Output Low voltage	V _{cc} =3V V _{in} =V _{IH} or V _{IL} , I _{OH} =12mA	-	0.3	0.5	V
V_{IH}	Input High voltage	Guaranteed Logic HIGH Level (Input Pin)	2	-	V_{cc}	V
V_{IL}	Input Low voltage	Guaranteed Logic LOW Level (Input Pin)	-0.5	-	0.8	V
I_{IH}	Input High current	V _{cc} = 3.6V and V _{in} = 3.6V	-	-	1	uA
I_{IL}	Input Low current	V _{cc} = 3.6V and V _{in} = 0V	-	-	-1	uA
V_{IK}	Clamp diode voltage	V _{cc} = Min. And I _{IN} = -18mA	-	-0.7	-1.2	V
R_s	Series Resistor			22		Ω

Notes:

1. For conditions shown as Max. or Min., use appropriate value specified under Electrical Characteristics for the applicable device type.
2. Typical values are at V_{cc} = 3.3V, 25 °C ambient.
3. This parameter is guaranteed but not tested.
4. Not more than one output should be shorted at one time. Duration of the test should not exceed one second.
5. V_{OH} = V_{cc} – 0.6V at rated current

**400MHz Noise Cancellation TTL/CMOS Potato Chip****Power Supply Characteristics**

Symbol	Description	Test Conditions (1)	Min	Typ	Max	Unit
IccQ	Quiescent Power Supply Current	Vcc=Max, Vin=Vcc or GND	-	0.1	30	uA

Notes:

1. For conditions shown as Max. or Min., use appropriate value specified under Electrical Characteristics for the applicable device type.
2. Typical values are at Vcc = 3.3V, 25°C ambient.
3. This parameter is guaranteed but not tested.
4. Not more than one output should be shorted at one time. Duration of the test should not exceed one second.

Capacitance

Parameters (1)	Description	Test Conditions	Typ	Max	Unit
Cin	Input Capacitance	Vin = 0V	3	4	pF
Cout	Output Capacitance	Vout = 0V	-	6	pF

Notes:

- 1 This parameter is determined by device characterization but not production tested.

Switching Characteristics

Symbol	Description	Test Conditions (1)	Max	Unit
tPLH	Propagation Delay A to Bn	CL = 15pF	3.0	ns
tPHL	Propagation Delay A to Bn	CL = 15pF	3.0	ns
tr/tf	Rise/Fall Time	0.8V – 2.0V	1	ns
tsk(p)	Pulse Skew (Same Package)	CL = 15pF, V+ = 125MHz, V- = 1.5v	0.2	ns
tsk(o)	Output Pin to Pin Skew (Same Package)	CL = 15pF, V+ = 125MHz, V- = 1.5v	0.35	ns
tsk(pp)	Output Skew (Different Package)	CL = 15pF, V+ = 125MHz, V- = 1.5v	0.4	ns
fmax	Input Frequency	CL = 50pF	100	MHz
fmax	Input Frequency	CL = 15pF	250	MHz
fmax	Input Frequency	CL = 5pF	300	MHz
fmax	Input Frequency	CL = 2pF	400	MHz

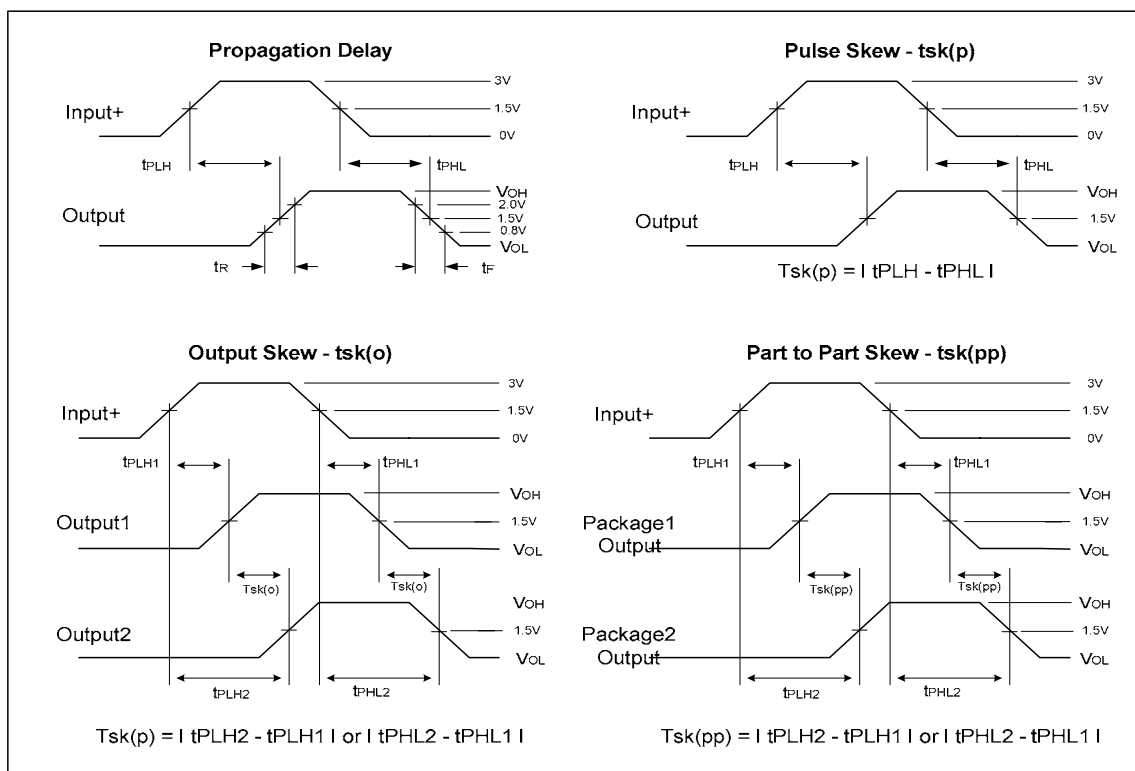
Notes:

1. See test circuits and waveforms.
2. tPLH, tPHL, tsk(p), and tsk(o) are production tested. All other parameters guaranteed but not production tested.
3. Airflow of 1m/s is recommended for frequencies above 133MHz

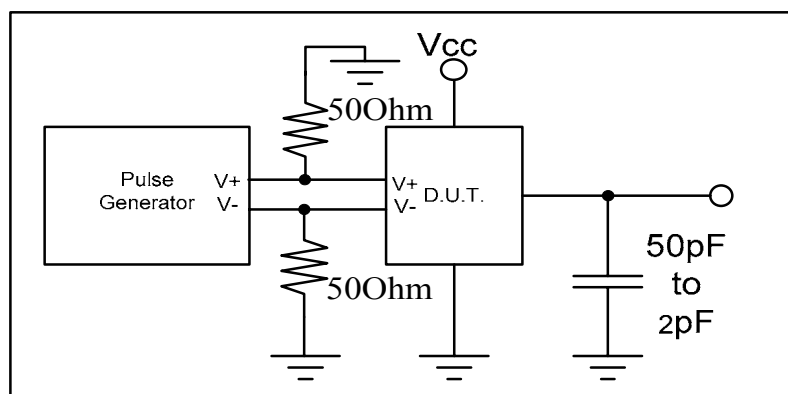


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Test Waveforms



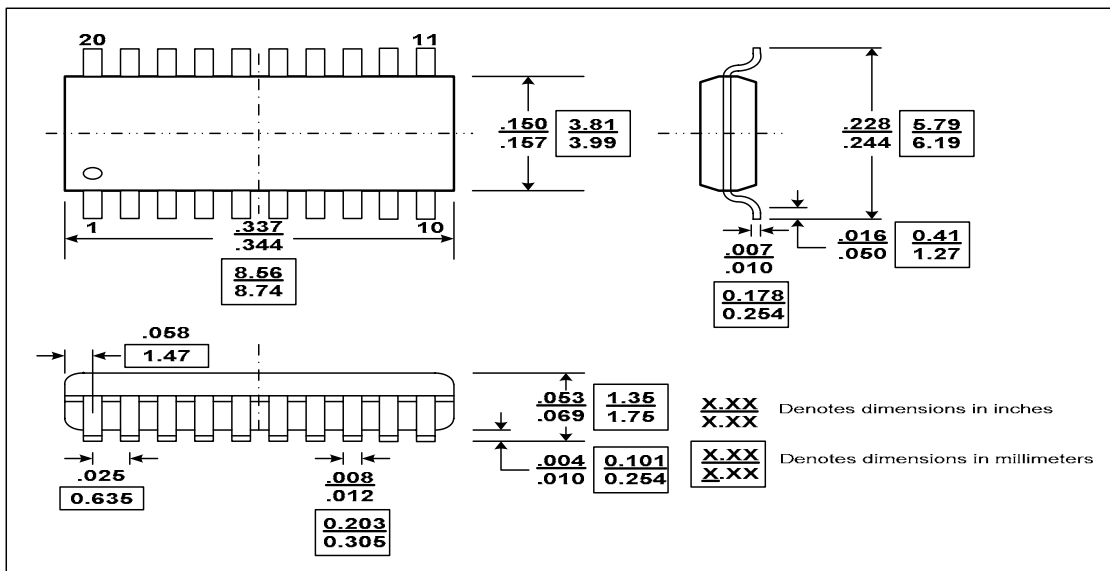
Test Circuit



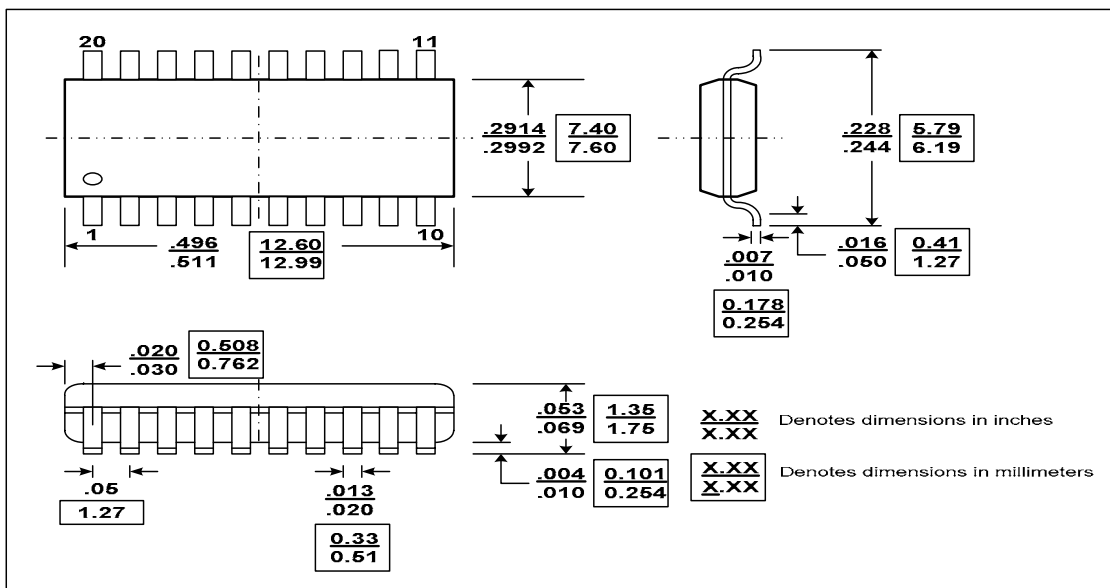


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Packaging Mechanical Drawing: 20 pin QSOP



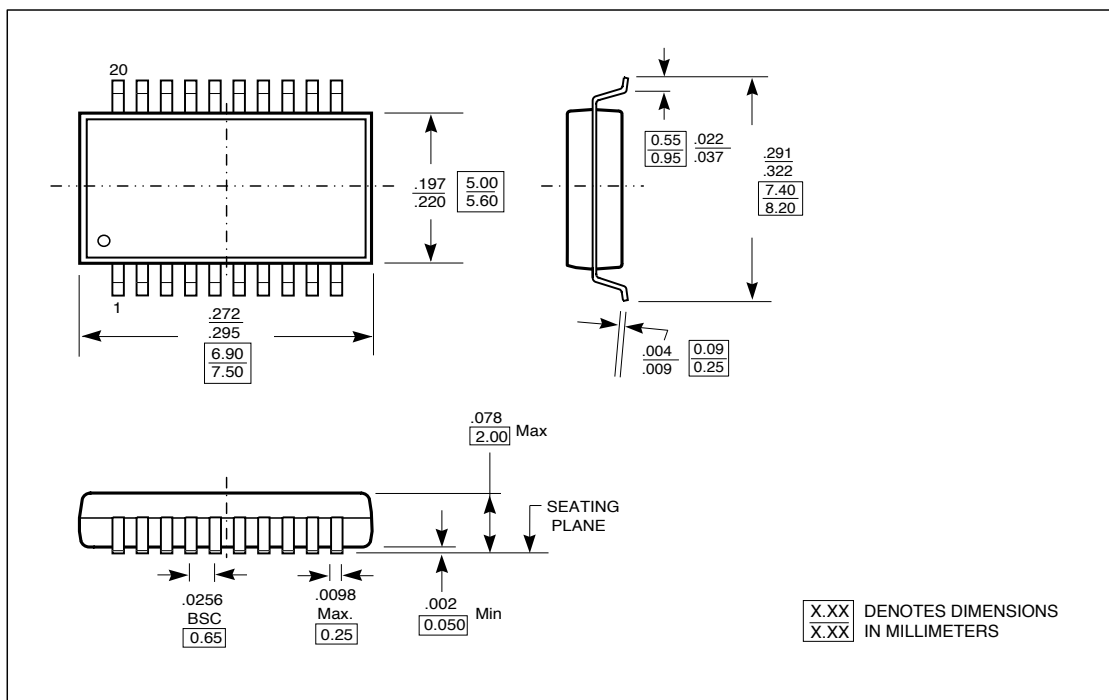
Packaging Mechanical Drawing: 20 pin SOIC





400MHz Noise Cancellation TTL/CMOS Potato Chip

Packaging Mechanical Drawing: 20 pin SSOP



IC Ordering Information

Ordering Code	Package	Top-Marking	T _A
PO49HSTL32807ACU for Tube	20pin 300mil SOIC	Pb-free & Green	PO49HSTL32807AC -40°C to 85°C
PO49HSTL32807ACR for Tape & Reel	20pin 300mil SOIC	Pb-free & Green	PO49HSTL32807AC -40°C to 85°C
PO49HSTL32807AQU for Tube	20pin 150mil QSOP	Pb-free & Green	PO49HSTL32807AQ -40°C to 85°C
PO49HSTL32807AQR for Tape & Reel	20pin 150mil QSOP	Pb-free & Green	PO49HSTL32807AQ -40°C to 85°C
PO49HSTL32807ASSU for Tube	20pin 209mil SSOP	Pb-free & Green	PO49HSTL32807ASS -40°C to 85°C
PO49HSTL32807ASSR for Tape & Reel	20pin 209mil SSOP	Pb-free & Green	PO49HSTL32807ASS -40°C to 85°C

IC Package Information

PACKAGE CODE	PACKAGE TYPE	TAPE WIDTH (mm)	TAPE PITCH (mm)	TAPE & REEL PIN 1 LOCATION	TAPE TRAILER LENGTH	QTY PER TAPE	TAPE LEADER LENGTH	QTY PER TUBE
C	20pin 300mil SOIC	24	12	Top Left Corner	26 (12")	1000	43 (20")	38
Q	20pin 150mil QSOP	16	8	Top Left Corner	39 (12")	3000	64 (20")	55
SS	20pin 209mil SSOP	16	12	Top Left Corner	26 (12")	2000	43 (20")	66