

**PS508/PS509**

**Precision 8-Channels, Differential 4-Channels, 36V Analog Multiplexers**

**Features**

- Low On-Capacitance
  - PS508: 30pF
  - PS509: 20pF
- Low Input Leakage: 30pA
- Low Charge Injection: 0.9pC
- Rail-to-Rail Operation
- Wide Supply Range: ±5V to ±18V, 10V to 36V
- Low On-Resistance: 125Ω
- Transition Time: 171ns
- Break-Before-Make Switching Action
- EN Pin Connectable to VDD
- Logic Levels: 2V to VDD
- Low Supply Current: 135µA
- ESD Protection HBM: 2000V
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. “Green” Device (Note 3)
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative.  
<https://www.diodes.com/quality/product-definitions/>
- Packaging (Pb-free & Green):
  - 16-pin TSSOP (L)
  - 16-pin QSOP (Q)
  - 16-pin SOIC (W)

**Truth Tables**

PS509			
EN	A1	A0	STATE
0	X*	X*	All channels are off
1	0	0	Channels 1A and 1B on
1	0	1	Channels 2A and 2B on
1	1	0	Channels 3A and 3B on
1	1	1	Channels 4A and 4B on

\* X denotes don't care.

**Notes:**

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

**Description**

The PS508 and PS509 are modern, complementary metal-oxide semiconductor (CMOS), analog multiplexers (muxes). The PS508 offers 8:1 single-ended channels, whereas the PS509 offers differential 4:1 or dual 4:1 single-ended channels. The PS508 and PS509 work equally well with either dual supplies (±5V to ±18V) or a single supply (10 V to 36 V). They also perform well with symmetric supplies (such as VDD = 12V, VSS = -12V), and un-symmetric supplies (such as VDD = 12V, VSS = -5V). All digital inputs have TTL-logic compatible thresholds, ensuring both TTL and CMOS logic compatibility when operating in the valid supply voltage range.

The PS508 and PS509 have very low on and off leakage currents, allowing these multiplexers to switch signals from high input impedance sources with minimal error. A low supply current of 135 µA allows for use in portable applications.

**Applications**

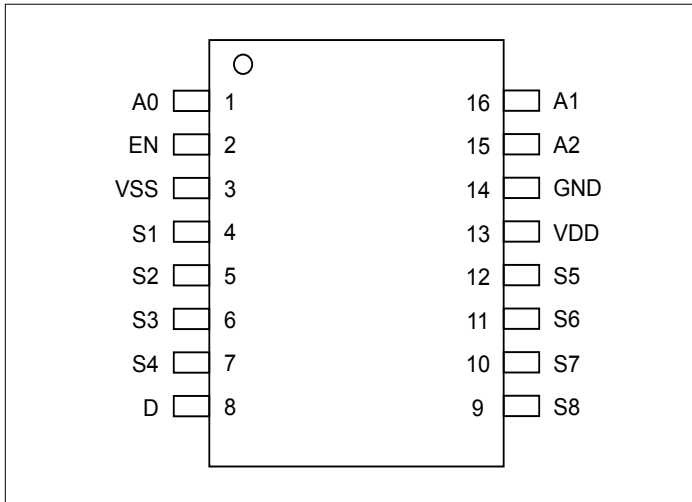
- Factory Automation and Industrial Process Controls
- Programmable Logic Controllers (PLC)
- Analog Input Modules
- ATE Test Equipment
- Digital Multimeters
- Battery Monitoring Systems

**Truth Tables**

PS508				
EN	A2	A1	A0	STATE
0	X*	X*	X*	All channels are off
1	0	0	0	Channel 1 on
1	0	0	1	Channel 2 on
1	0	1	0	Channel 3 on
1	0	1	1	Channel 4 on
1	1	0	0	Channel 5 on
1	1	0	1	Channel 6 on
1	1	1	0	Channel 7 on
1	1	1	1	Channel 8 on

\* X denotes don't care.

### Pin Configuration PS508

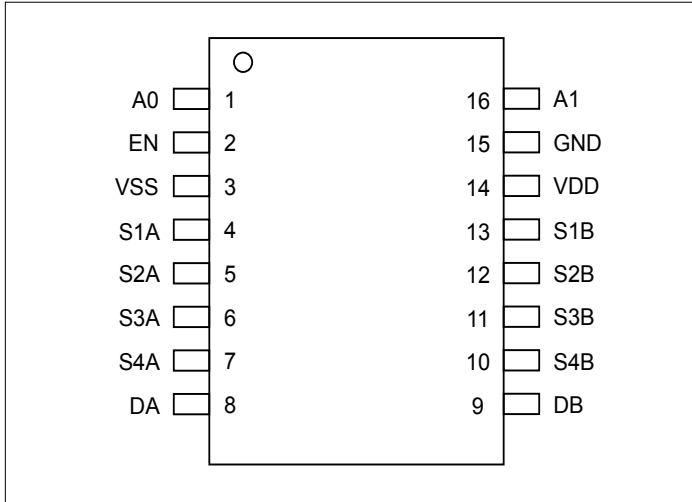


### Pin Description

Pin#	Pin Name	Type	Description
1	A0	I	Address line 0.
16	A1	I	Address line 1.
15	A2	I	Address line 2.
8	D	I/O	Drain pin.
2	EN	I	Active high digital input. When this pin is low, all switches are turned off. When this pin is high, the A[2:0] logic inputs determine which switch is turned on.
14	GND	Power	Ground.
4	S1	I/O	Source pin 1.
5	S2	I/O	Source pin 2.
6	S3	I/O	Source pin 3.
7	S4	I/O	Source pin 4.
12	S5	I/O	Source pin 5.
11	S6	I/O	Source pin 6.
10	S7	I/O	Source pin 7.
9	S8	I/O	Source pin 8.
13	VDD	Power	Positive power supply. This pin is the most positive power-supply potential. For reliable operation, connect a decoupling capacitor ranging from 0.1 $\mu$ F to 10 $\mu$ F between VDD and GND.
3	VSS	Power	Negative power supply. This pin is the most negative power-supply potential. In single-supply applications, this pin can be connected to ground. For reliable operation, connect a decoupling capacitor ranging from 0.1 $\mu$ F to 10 $\mu$ F between VSS and GND.

Note: I = Input, O = Output and I/O = Input/Output

**Pin Configuration PS509**



**Pin Description**

Pin#	Pin Name	Type	Description
1	A0	I	Address line 0.
16	A1	I	Address line 1.
8	DA	I/O	Drain pin A. Can be an input or output.
9	DB	I/O	Drain pin B. Can be an input or output.
2	EN	I	Active high digital input. When this pin is low, all switches are turned off. When this pin is high, the A[1:0] logic inputs determine which pair of switches is turned on.
15	GND	Pwr	Ground (0 V) reference
4	S1A	I/O	Source pin 1A. Can be an input or output.
5	S2A	I/O	Source pin 2A. Can be an input or output.
6	S3A	I/O	Source pin 3A. Can be an input or output.
7	S4A	I/O	Source pin 4A. Can be an input or output.
13	S1B	I/O	Source pin 1B. Can be an input or output.
12	S2B	I/O	Source pin 2B. Can be an input or output.
11	S3B	I/O	Source pin 3B. Can be an input or output.
10	S4B	I/O	Source pin 4B. Can be an input or output.
14	VDD	Pwr	Positive power supply. This pin is the most positive power supply potential. For reliable operation, connect a decoupling capacitor ranging from 0.1 μF to 10 μF between VDD and GND.
3	VSS	Pwr	Negative power supply. This pin is the most negative power supply potential. In single supply applications, this pin can be connected to ground. For reliable operation, connect a decoupling capacitor ranging from 0.1 μF to 10 μF between VSS and GND.

Note: I = Input, O = Output and I/O = Input/Output

## Maximum Ratings

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

Storage Temperature.....	-65°C to +150°C
Junction Temperature .....	150°C
Operating Temperature .....	-40°C to +125°C
Supply Voltage to Ground Potential, V <sub>DD</sub> .....	-0.3V to +40V
Supply Voltage to Ground Potential, V <sub>SS</sub> .....	-40 to +0.3V
Supply Voltage, V <sub>DD</sub> -V <sub>SS</sub> .....	+40V
Digital Input Voltage (EN A0, A1, A2 pins).....	V <sub>SS</sub> -0.3 to V <sub>DD</sub> +0.3V
Digital Input Current (EN A0, A1, A2 pins).....	-30 to +30 mA
Analog Input Voltage (Sx, SxA, SxB pins).....	V <sub>SS</sub> -2 to V <sub>DD</sub> +2V
Analog Input Current (Sx, SxA, SxB pins).....	-30 to +30 mA
Analog Output Voltage (D, DA, DB pins).....	V <sub>SS</sub> -2 to V <sub>DD</sub> +2V
Analog Output Current (D, DA, DB pins).....	-30 to +30 mA

### 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.

## ESD Ratings

Symbol	Parameters	Conditions	Value	Units
V <sub>(ESD)</sub>	Electrostatic discharge	Human-body model (HBM), per ANSI/ESDA/JEDEC JS-001 <sup>(1)</sup>	2000	V
		Charged-device model (CDM), per JEDEC specification JESD22-C101 <sup>(2)</sup>	500	V

### Note:

1. JEDEC document JEP155 states that 500-V HBM allow safe manufacturing with a standard ESD control process.
2. JEDEC document JEP157 states that 250-V HBM allow safe manufacturing with a standard ESD control process.

## Recommended Operating Conditions

Symbol	Parameters	Min.	Typ.	Max.	Units
V <sub>DD</sub> <sup>(1)</sup>	Positive power-supply voltage	Dual supply	5	18	V
		Single supply	10	36	
V <sub>SS</sub> <sup>(2)</sup>	Negative power-supply voltage (dual supply)	-5		-18	V
V <sub>DD</sub> - V <sub>SS</sub>	Supply voltage	10		36	V
V <sub>S</sub>	Source pins voltage <sup>(3)</sup>	V <sub>SS</sub>		V <sub>DD</sub>	V
V <sub>D</sub>	Drain pins voltage	V <sub>SS</sub>		V <sub>DD</sub>	V
V <sub>EN</sub>	Enable pin voltage	V <sub>SS</sub>		V <sub>DD</sub>	V
V <sub>A</sub>	Address pins voltage	V <sub>SS</sub>		V <sub>DD</sub>	V
I <sub>CH</sub>	Channel current (TA = 25°C)	-25		25	mA
TA	Operating temperature	-40		125	°C

### Note:

1. When V<sub>SS</sub> = 0 V, V<sub>DD</sub> can range from 10 V to 36 V.
2. V<sub>DD</sub> and V<sub>SS</sub> can be any value as long as 10 V ≤ (V<sub>DD</sub> - V<sub>SS</sub>) ≤ 36 V, and V<sub>DD</sub> ≥ 5 V.
3. V<sub>S</sub> is the voltage on all the S pins.

### Electrical Characteristics: Dual Supply

At  $T_A = 25^\circ\text{C}$ ,  $V_{DD} = 15\text{V}$ , and  $V_{SS} = -15\text{V}$  (unless otherwise noted)

Symbol	Parameters	Conditions	Min.	Typ.	Max.	Units	
Analog Switch							
	Analog signal range	$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$	$V_{SS}$		$V_{DD}$	V	
$R_{ON}$	On-resistance	$V_S = 0\text{V}, I_{CH} = 1\text{mA}$		125	170	$\Omega$	
				145	200	$\Omega$	
		$V_S = \pm 10\text{V}, I_{CH} = 1\text{mA}$	$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$			230	$\Omega$
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$			250	$\Omega$
$\Delta R_{ON}$	On-resistance mismatch between channels	$V_S = \pm 10\text{V}, I_{CH} = 1\text{mA}$		2.4	6	$\Omega$	
			$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$			9	$\Omega$
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$			11	$\Omega$
$R_{FLAT}$	On-resistance flatness	$V_S = 10\text{V}, 0\text{V}, -10\text{V}$		22	45	$\Omega$	
			$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$			53	$\Omega$
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$			58	$\Omega$
	On-resistance drift	$V_S = 0\text{V}$		0.52		$\% / ^\circ\text{C}$	
$I_{S(OFF)}$	Input leakage current	Switch state is off, $V_S = \pm 10\text{V}, V_D = \pm 10\text{V}^{(1)}$		-1	0.03	1	nA
			$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$	-10		10	nA
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$	-25		25	nA
$I_{D(OFF)}$	Output off leakage current	Switch state is off, $V_S = \pm 10\text{V}, V_D = \pm 10\text{V}^{(1)}$		-1	0.22	1	nA
			$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$	-10		10	nA
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$	-50		50	nA
$I_{D(ON)}$	Output on leakage current	Switch state is on, $V_D = \pm 10\text{V}, V_S = \text{floating}$		-1	0.25	1	nA
			$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$	-10		10	nA
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$	-50		50	nA
Logic Input							
$V_{IH}$	High-level input voltage		2.0			V	
$V_{IL}$	Low-level input voltage				0.8	V	
ID	Input current				0.15	$\mu\text{A}$	
Switch Dynamics <sup>(2)</sup>							
$t_{ON}$	Enable turn-on time	$V_S = \pm 10\text{V}, R_L = 300\Omega, C_L = 35\text{pF}$			126	210	ns
			$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$			210	ns
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$			210	ns
$t_{OFF}$	Enable turn-off time	$V_S = \pm 10\text{V}, R_L = 300\Omega, C_L = 35\text{pF}$			125	191	ns
			$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$			191	ns
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$			191	ns

**Electrical Characteristics: Dual Supply Cont.**

Symbol	Parameters	Conditions	Min.	Typ.	Max.	Units
$t_t$	Transition time	$V_S = 10V, R_L = 300\Omega,$ $C_L = 35pF,$		171	310	ns
			$T_A = -40^\circ C \text{ to } +85^\circ C$		310	ns
			$T_A = -40^\circ C \text{ to } +125^\circ C$		310	ns
$t_{BBM}$	Break-before-make time delay	$V_S = 10V, R_L = 300\Omega, C_L = 35pF, T_A = -40^\circ C \text{ to } +125^\circ C$	30	75		ns
$Q_j$	Charge injection	$C_L = 1nF, R_S = 0\Omega$	$V_S = 0V$	0.9		pC
			$V_S = -15V \text{ to } +15V$	$\pm 2$		pC
	Off-isolation	$R_L = 50\Omega, V_S = 1V_{RMS},$ $f = 1MHz$	Nonadjacent channel to D, DA, DB	-96		dB
			Adjacent channel to D, DA, DB	-85		dB
	Channel-to-channel crosstalk	$R_L = 50\Omega, V_S = 1V_{RMS},$ $f = 1MHz$	Nonadjacent channels	-96		dB
			Adjacent channels	-88		dB
$C_{S(OFF)}$	Input off-capacitance	$f = 1MHz, V_S = 0V$		5	7	pF
$C_{D(OFF)}$	Output off-capacitance	$f = 1MHz, V_S = 0V$	PS508	24	30	pF
			PS509	15	20	pF
$C_{D(ON)}$	Input/Output on-capacitance	$f = 1MHz, V_S = 0V$	PS508	30	36	pF
			PS509	20	25	pF
<b>Power Supply</b>						
	$V_{DD}$ supply current	All $V_A = 0V \text{ or } 3.3V,$ $V_S = 0V, V_{EN} = 3.3V$		135	200	$\mu A$
			$T_A = -40^\circ C \text{ to } +85^\circ C$		200	$\mu A$
			$T_A = -40^\circ C \text{ to } +125^\circ C$		200	$\mu A$
	$V_{SS}$ supply current	All $V_A = 0V \text{ or } 3.3V,$ $V_S = 0V, V_{EN} = 3.3V,$		135	200	$\mu A$
			$T_A = -40^\circ C \text{ to } +85^\circ C$		200	$\mu A$
			$T_A = -40^\circ C \text{ to } +125^\circ C$		200	$\mu A$

**Note:**

1. When VS is positive, VD is negative, and vice versa.
2. Specified by design, not production tested.

### Electrical Characteristics: Single Supply

 at  $T_A = 25^\circ\text{C}$ ,  $V_{DD} = 12\text{V}$ , and  $V_{SS} = 0\text{V}$  (unless otherwise noted)

Symbol	Parameters	Conditions	Min.	Typ.	Max.	Units	
Analog Switch							
	Analog signal range	$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$	$V_{SS}$		$V_{DD}$	V	
$R_{ON}$	On-resistance	$V_S = +10\text{V}$ , $I_{CH} = 1\text{mA}$	$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$	235	340	$\Omega$	
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$		430	$\Omega$	
				3.1	12	$\Omega$	
$\Delta R_{ON}$	On-resistance mismatch between channels	$V_S = +10\text{V}$ , $I_{CH} = 1\text{mA}$	$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$		19	$\Omega$	
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$		23	$\Omega$	
					0.47		$\%/^\circ\text{C}$
	On-resistance drift	$V_S = 10\text{V}$		0.47		$\%/^\circ\text{C}$	
$I_{S(OFF)}$	Input leakage current	Switch state is off, $V_S = 1\text{V}$ and $V_D = 10\text{V}$ , or $V_S = 10\text{V}$ and $V_D = 1\text{V}^{(1)}$	$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$	-1	0.03	1	nA
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$	-10		10	nA
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$	-25		25	nA
$I_{D(OFF)}$	Output off leakage current	Switch state is off, $V_S = 1\text{V}$ and $V_D = 10\text{V}$ , or $V_S = 10\text{V}$ and $V_D = 1\text{V}^{(1)}$	$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$	-1	0.22	1	nA
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$	-10		10	nA
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$	-50		50	nA
$I_{D(ON)}$	Output on leakage current	Switch state is on, $V_D = 1\text{V}$ and $10\text{V}$ , $V_S = \text{floating}$	$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$	-1	0.25	1	nA
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$	-10		10	nA
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$	-50		50	nA
Logic Input							
$V_{IH}$	High-level input voltage		2.0			V	
$V_{IL}$	Low-level input voltage				0.8	V	
ID	Input current				0.15	$\mu\text{A}$	
Switch Dynamics <sup>(2)</sup>							
$t_{ON}$	Enable turn-on time	$V_S = 8\text{V}$ , $R_L = 300\Omega$ , $C_L = 35\text{pF}$	$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$		115	220	ns
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$			220	ns
						220	ns
$t_{OFF}$	Enable turn-off time	$V_S = 8\text{V}$ , $R_L = 300\Omega$ , $C_L = 35\text{pF}$	$T_A = -40^\circ\text{C}$ to $+85^\circ\text{C}$		118	200	ns
			$T_A = -40^\circ\text{C}$ to $+125^\circ\text{C}$			200	ns
						200	ns

**Electrical Characteristics: Single Supply Cont.**

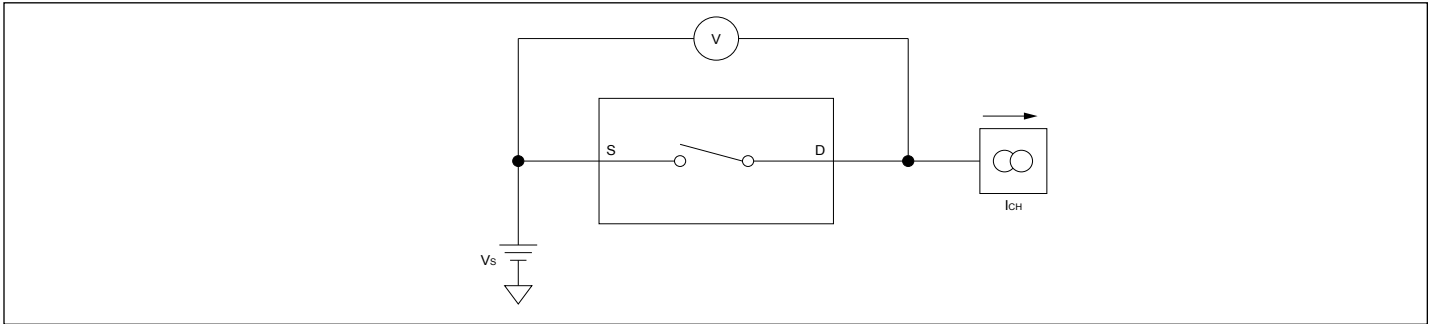
Symbol	Parameters	Conditions	Min.	Typ.	Max.	Units	
$t_t$	Transition time	$V_s = 8V, R_L = 300\Omega, C_L = 35pF$		212	418	ns	
		$V_s = 8V, R_L = 300\Omega, C_L = 35pF$	$T_A = -40^\circ C \text{ to } +85^\circ C$		418	ns	
		$V_s = 8V, R_L = 300\Omega, C_L = 35pF$	$T_A = -40^\circ C \text{ to } +125^\circ C$		418	ns	
$t_{BBM}$	Break-before-make time delay	$V_s = 8V, R_L = 300\Omega, C_L = 35pF, T_A = -40^\circ C \text{ to } +125^\circ C$	30	120		ns	
$Q_j$	Charge injection	$C_L = 1nF, R_s = 0\Omega$	$V_s = 6V$		0.5	pC	
			$V_s = 0V \text{ to } 12V,$		$\pm 1.5$	pC	
	Off-isolation	$R_L = 50\Omega, V_s = 1V_{RMS}, f = 1MHz$	Nonadjacent channel to D, DA, DB		-96	dB	
			Adjacent channel to D, DA, DB		-85	dB	
	Channel-to-channel crosstalk	$R_L = 50\Omega, V_s = 1V_{RMS}, f = 1MHz$	Nonadjacent channels		-96	dB	
			Adjacent channels		-88	dB	
$C_{S(OFF)}$	Input off-capacitance	$f = 1MHz, V_s = 6V$		5	7	pF	
$C_{D(OFF)}$	Output off-capacitance	$f = 1MHz, V_s = 6V$	PS508		24	30	pF
			PS509		15	20	pF
$C_{D(ON)}$	Input/Output on-capacitance	$f = 1MHz, V_s = 6V$	PS508		30	36	pF
			PS509		21	25	pF
<b>Power Supply</b>							
	VDD supply current	All $V_A = 0V \text{ or } 3.3V, V_s = 0V, V_{EN} = 3.3V$			104	160	$\mu A$
			$T_A = -40^\circ C \text{ to } +85^\circ C$			160	$\mu A$
			$T_A = -40^\circ C \text{ to } +125^\circ C$			160	$\mu A$
	VSS supply current	All $V_A = 0V \text{ or } 3.3V, V_s = 0V, V_{EN} = 3.3V$			104	160	$\mu A$
			$T_A = -40^\circ C \text{ to } +85^\circ C$			160	$\mu A$
			$T_A = -40^\circ C \text{ to } +125^\circ C$			160	$\mu A$

**Note:**

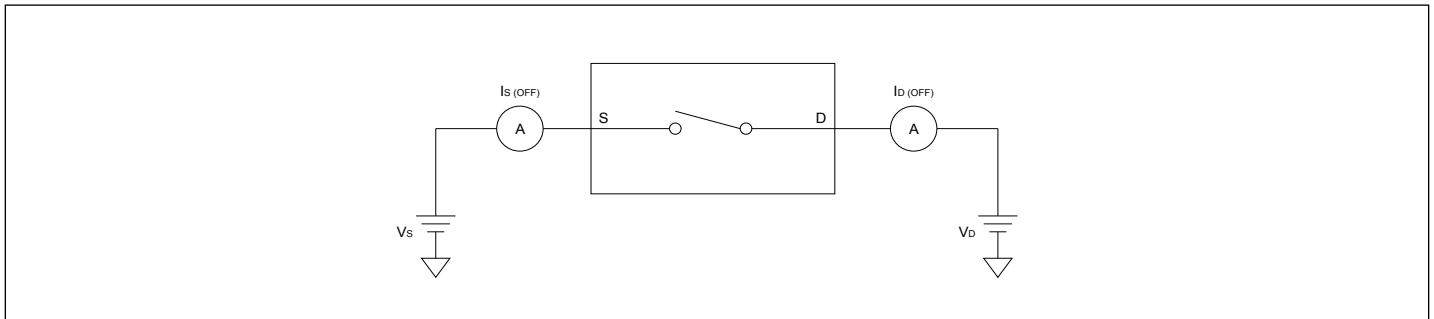
1. When  $V_S$  is 1 V,  $V_D$  is 10 V, and vice versa.
2. Specified by design, not production tested.



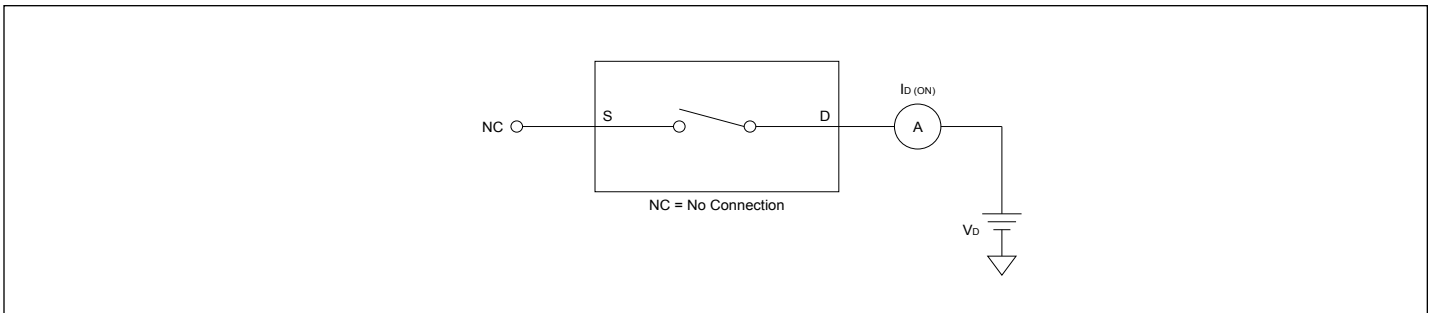
**Test Circuit**



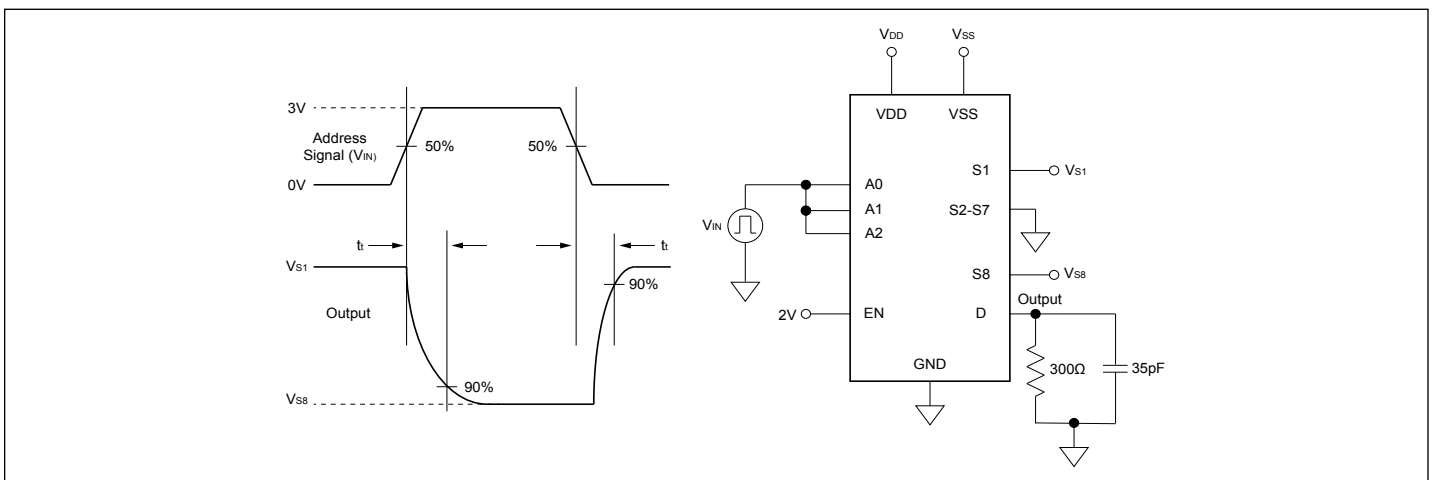
**Figure 1. On-Resistance Measurement Setup**



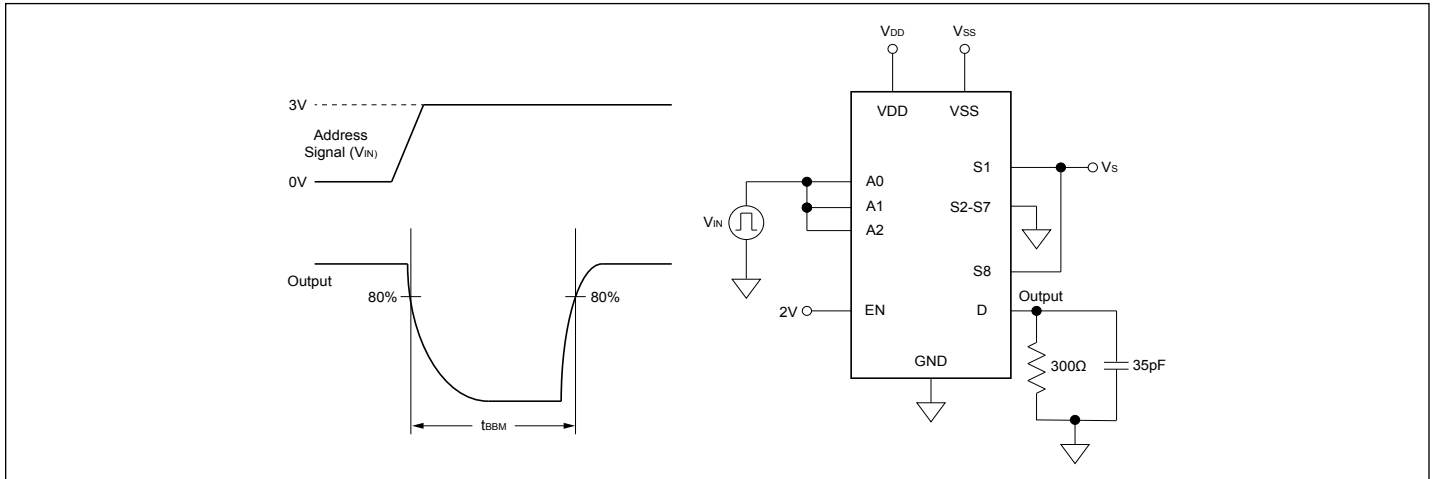
**Figure 2. Off-Leakage Measurement Setup**



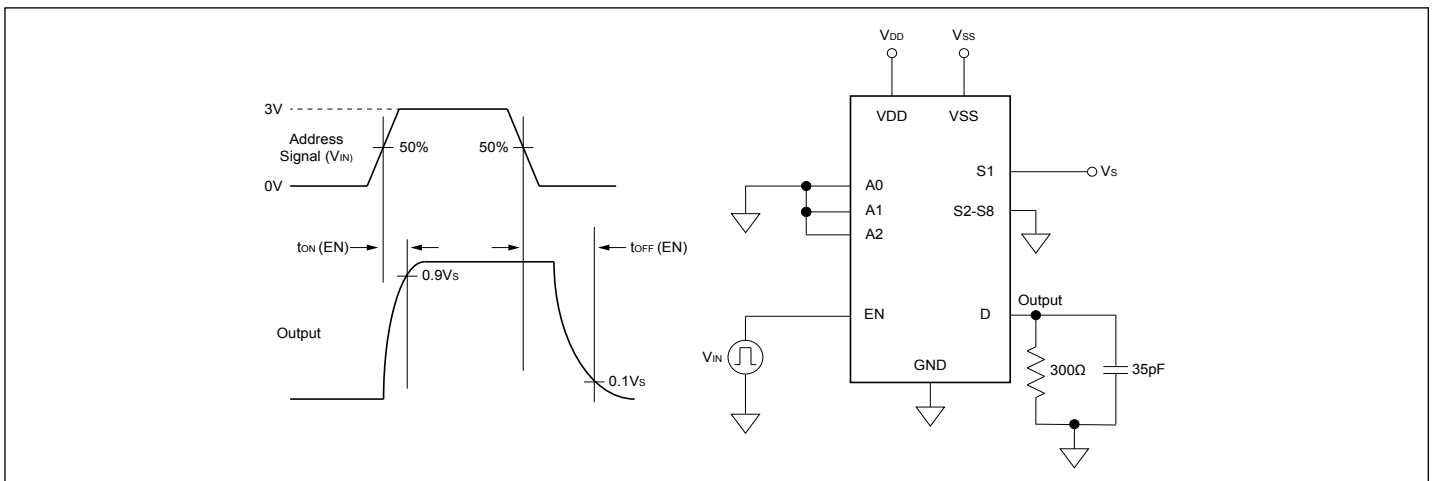
**Figure 3. On-Leakage Measurement Setup**



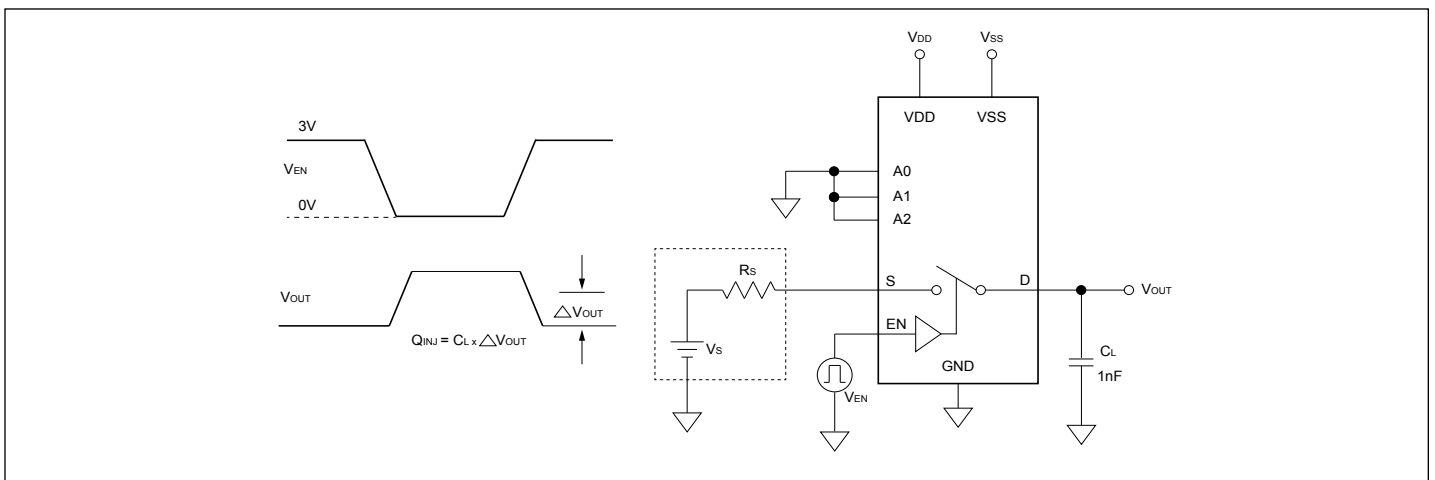
**Figure 4. Transition-Time Measurement Setup**



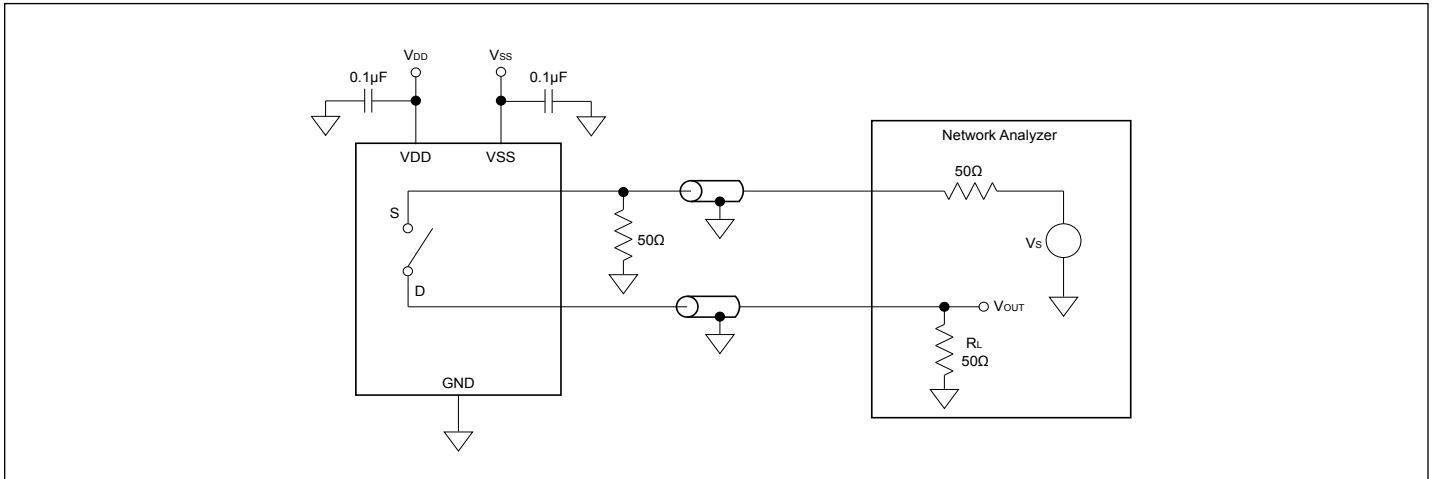
**Figure 5. Break-Before-Make Delay Measurement Setup**



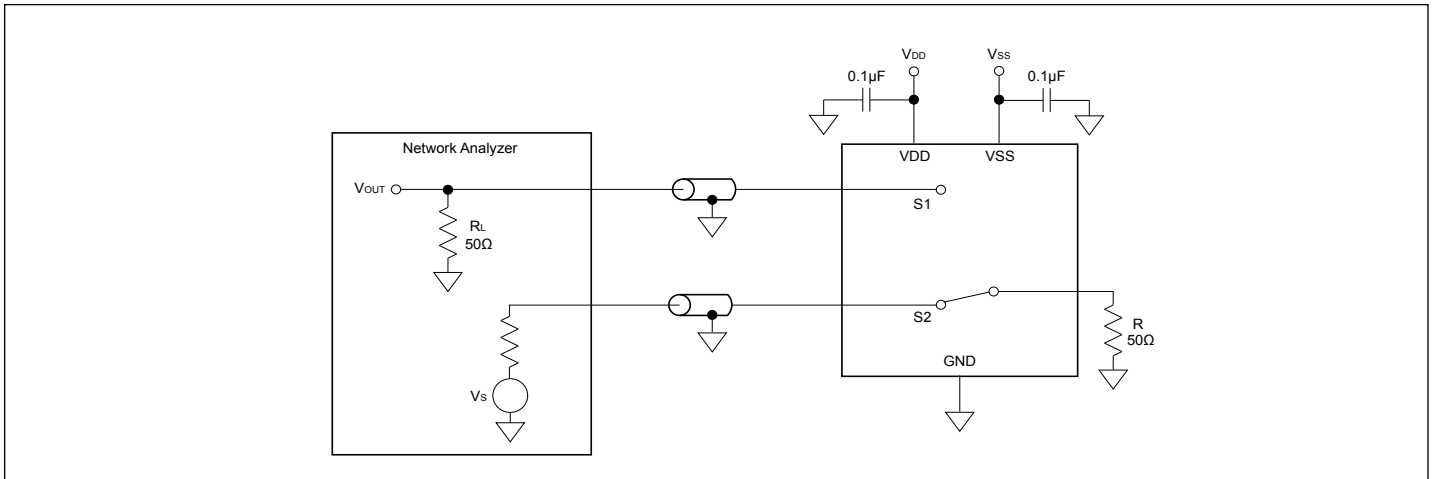
**Figure 6. Turn-On and Turn-Off Time Measurement Setup**



**Figure 7. Charge-Injection Measurement Setup**



**Figure 8. Off Isolation Measurement Setup**

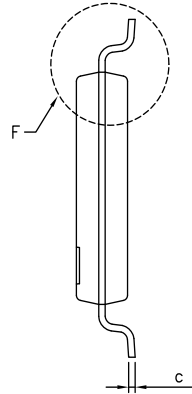
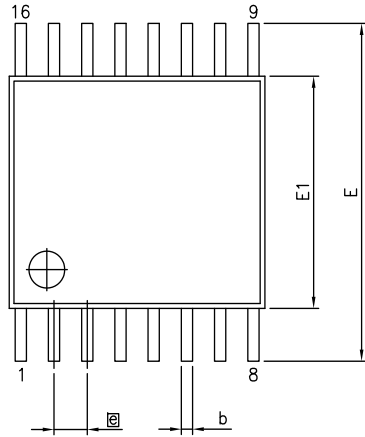


**Figure 9. Channel-to-Channel Crosstalk Measurement Setup**

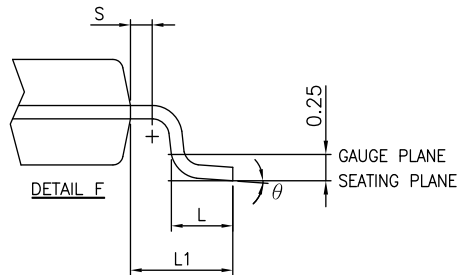
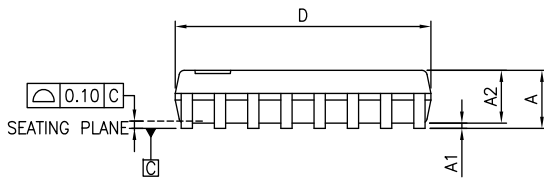
## Part Marking

Top mark not available at this time. To obtain advance information regarding the top mark, please contact your local sales representative.

**Packaging Mechanical: 16-TSSOP (L)**




SYMBOLS	MIN.	NOM.	MAX.
A	–	–	1.20
A1	0.05	–	0.15
A2	0.80	1.00	1.05
b	0.19	–	0.30
c	0.09	–	0.20
D	4.90	5.00	5.10
E1	4.30	4.40	4.50
E	6.20	6.40	6.60
e	0.65 BSC		
L1	1.00 REF		
L	0.45	0.60	0.75
S	0.20	–	–
$\theta$	0°	–	8°



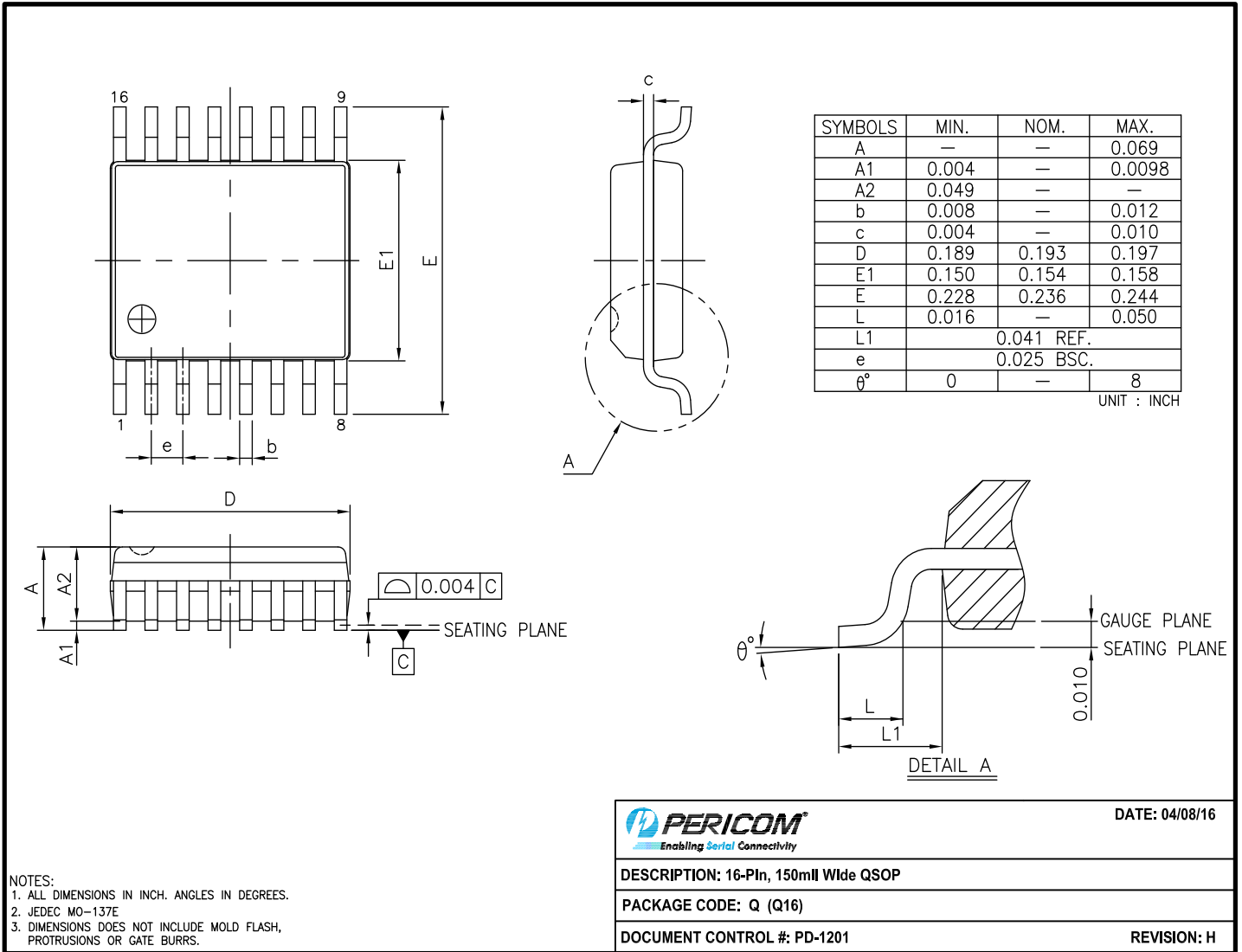
**NOTES:**

1. ALL DIMENSIONS IN MILLIMETERS. ANGLES IN DEGREES.
2. JEDEC MO-153F
3. DIMENSIONS DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

16-0061

 <p>Enabling Serial Connectivity</p>	DATE: 03/24/16
DESCRIPTION: 16-Pin, 173mil Wide TSSOP	
PACKAGE CODE: L (L16)	
DOCUMENT CONTROL #: PD-1310	REVISION: G

**Packaging Mechanical: 16-QSOP (Q)**



NOTES:  
 1. ALL DIMENSIONS IN INCH. ANGLES IN DEGREES.  
 2. JEDEC MO-137E  
 3. DIMENSIONS DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

<b>PERICOM</b> Enabling Serial Connectivity	DATE: 04/08/16
DESCRIPTION: 16-Pin, 150mil Wide QSOP	
PACKAGE CODE: Q (Q16)	
DOCUMENT CONTROL #: PD-1201	REVISION: H

16-0056

**Packaging Mechanical: 16-SOIC (W)**

SYMBOLS	MIN.	NOM.	MAX.
A	—	—	1.75
A1	0.10	—	0.25
A2	1.00	—	—
b	0.31	—	0.51
c	0.10	—	0.25
D	9.80	9.90	10.0
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27 BSC		
L	0.40	—	1.27
h	0.15	—	0.50
$\theta^\circ$	0	—	8

**NOTES:**  
 1. ALL DIMENSIONS IN MILLIMETERS. ANGLES IN DEGREES.  
 2. JEDEC OUTLINE : MS-012 AC  
 3. DIMENSIONS DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.  
 4. THE MIN. DIMENSION OF A2 AND h ARE OUT OF JEDEC SPEC.

**DIODES** **PERICOM** A PRODUCT LINE OF DIODES INCORPORATED  
 DATE: 06/30/16  
 DESCRIPTION: 16-Pin, 150mil Wide SOIC  
 PACKAGE CODE: W  
 DOCUMENT CONTROL #: PD-1004 REVISION: G

16-0145

For latest package info.

please check: <http://www.diodes.com/design/support/packaging/pericom-packaging/packaging-mechanicals-and-thermal-characteristics/>

**Ordering Information**

Ordering Code	Package Code	Package Description
PS508LEX	L	16-pin, 173mil Wide (TSSOP)
PS508QEX	Q	16-pin, 150mil Wide (QSOP)
PS508WEX	W	16-pin, 150mil Wide (SOIC)
PS509LEX	L	16-pin, 173mil Wide (TSSOP)
PS509QEX	Q	16-pin, 150mil Wide (QSOP)
PS509WEX	W	16-pin, 150mil Wide (SOIC)

**Notes:**

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. E = Pb-free and Green
5. X suffix = Tape/Reel

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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

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