

ABSOLUTE MAXIMUM RATINGS			
Parameter		Limit	Unit
Referenced V+ to GND		- 0.3 to + 6	V
IN, COM, NC, NO ^a		- 0.3 to (V+ + 0.3)	
Continuous Current (NO, NC, COM)		± 300	mA
Peak Current (Pulsed at 1 ms, 10 % duty cycle)		± 500	
Storage Temperature (D Suffix)		- 65 to 150	°C
ESD per Method 3015.7		> 2	kV
Power Dissipation (Packages) ^b	MSOP-10 ^c	320	mW
	DFN-10 ^d	1191	

Notes:

a. Signals on NC, NO, or COM or IN exceeding V+ will be clamped by internal diodes. Limit forward diode current to maximum current ratings.

b. All leads welded or soldered to PC Board.

c. Derate 4.0 mW/°C above 70 °C.

d. Derate 14.9 mW/°C above 70 °C.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

SPECIFICATIONS (V+ = 3 V)							
Parameter	Symbol	Test Conditions Otherwise Unless Specified V+ = 3 V, ± 10 %, V _{IN} = 0.5 or 1.4 V ^e	Temp ^a	Limits - 40 to 85 °C			Unit
				Min ^b	Typ ^c	Max ^b	
Analog Switch							
Analog Signal Range ^d	V _{NO} , V _{NC} V _{COM}	V+ = 2.7 V, V _{COM} = 0.6 V/1.5 V, I _{NO} , I _{NC} = 100 mA	Full	0		V+	V
On-Resistance	r _{ON}		Room Full		0.35	0.5 0.6	Ω
r _{ON} Flatness ^d	r _{ON} Flatness		Room		0.09	0.2	
On-Resistance Match Between Channels ^d	Δr _{DS(on)}		Room			0.05	
Switch Off Leakage Current	I _{NO(off)} I _{NC(off)}	V+ = 3.3 V V _{NO} , V _{NC} = 0.3 V/3 V, V _{COM} = 3 V/0.3 V	Room Full	- 1 - 10		1 10	nA
	I _{COM(off)}		Room Full	- 1 - 10		1 10	
Channel-On Leakage Current	I _{COM(on)}	V+ = 3.3 V, V _{NO} , V _{NC} = V _{COM} = 0.3 V/3 V	Room Full	- 1 - 10		1 10	
Digital Control							
Input High Voltage ^d	V _{INH}		Full	1.4			V
Input Low Voltage	V _{INL}		Full			0.5	
Input Capacitance	C _{in}		Full		10		pF
Input Current	I _{INL} or I _{INH}	V _{IN} = 0 or V+	Full	1		1	μA



SPECIFICATIONS (V+ = 3 V)							
Parameter	Symbol	Test Conditions Otherwise Unless Specified V+ = 3 V, ± 10 %, VIN = 0.4 or 2.0 V ^e	Temp ^a	Limits - 40 to 85 °C			Unit
				Min ^b	Typ ^c	Max ^b	
Dynamic Characteristics							
Turn-On Time	tON	VNO or VNC = 2.0 V, RL = 50 Ω, CL = 35 pF	Room Full		52	82 90	ns
Turn-Off Time	tOFF		Room Full		43	73 78	
Break-Before-Make Time	td		Full	1	6		
Charge Injection ^d	QINJ	CL = 1 nF, VGEN = 1.5 V, RGEN = 0 Ω	Room		21		pC
Off-Isolation ^d	OIRR	RL = 50 Ω, CL = 5 pF, f = 100 kHz	Room		- 69		dB
Crosstalk ^d	XTALK		Room		- 69		
NO, NC Off Capacitance ^d	CNO(off)	VIN = 0 or V+, f = 1 MHz	Room		145		pF
	CNC(off)		Room		145		
Channel-On Capacitance ^d	CNO(on)	VIN = 0 or V+, f = 1 MHz	Room		406		
	CNC(on)		Room		406		
Power Supply							
Power Supply Current	I+	VIN = 0 or V+	Full			1.0	μA

Notes:

a. Room = 25 °C, Full = as determined by the operating suffix.

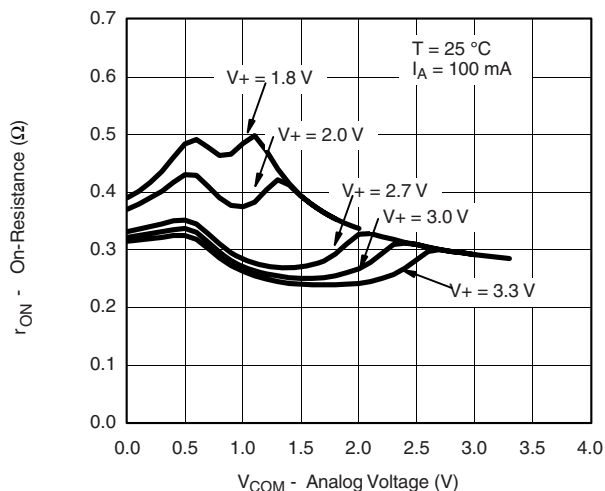
b. Typical values are for design aid only, not guaranteed nor subject to production testing.

c. The algebraic convention whereby the most negative value is a minimum and the most positive a maximum, is used in this data sheet.

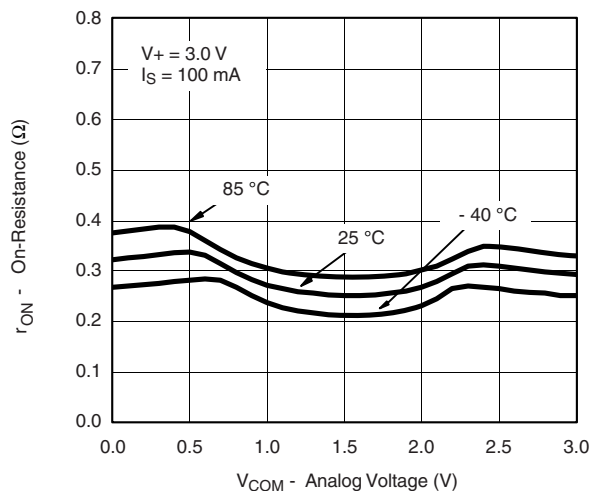
d. Guarantee by design, nor subjected to production test.

e. V_{IN} = input voltage to perform proper function.

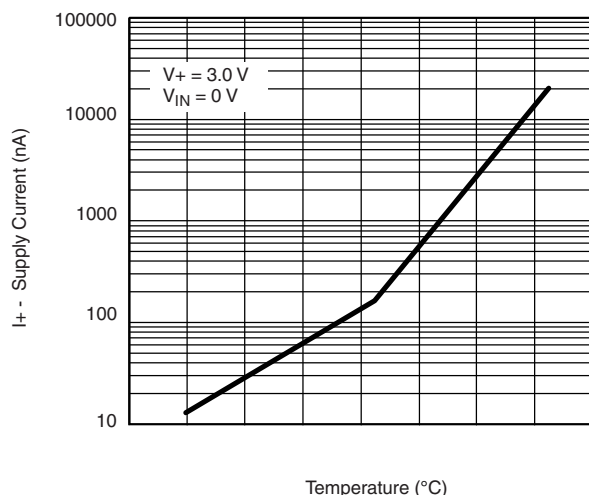
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



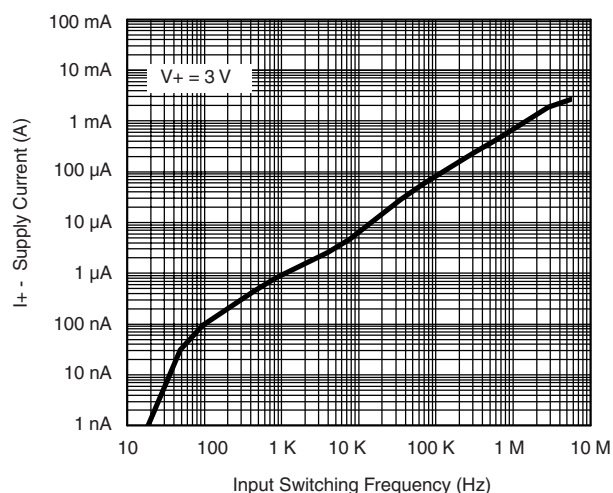
r_{ON} vs. V_{COM} and Supply Voltage



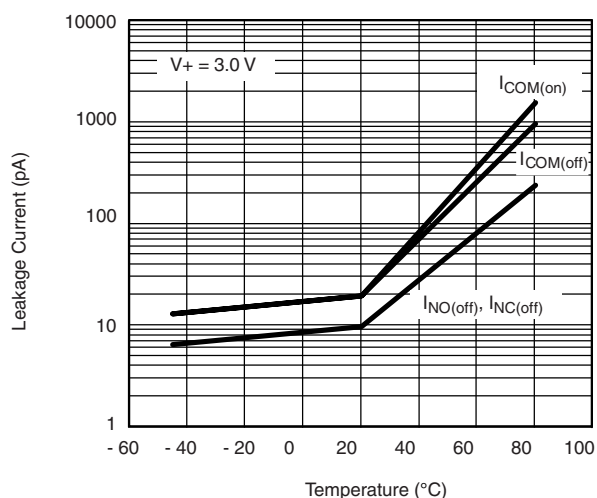
r_{ON} vs. Analog Voltage and Temperature (NC1)



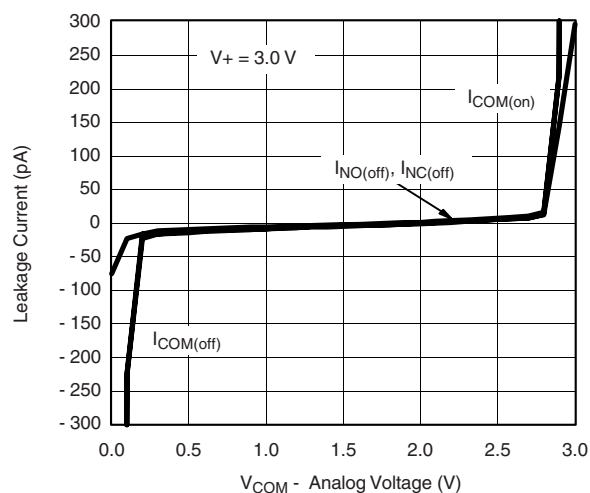
Supply Current vs. Temperature



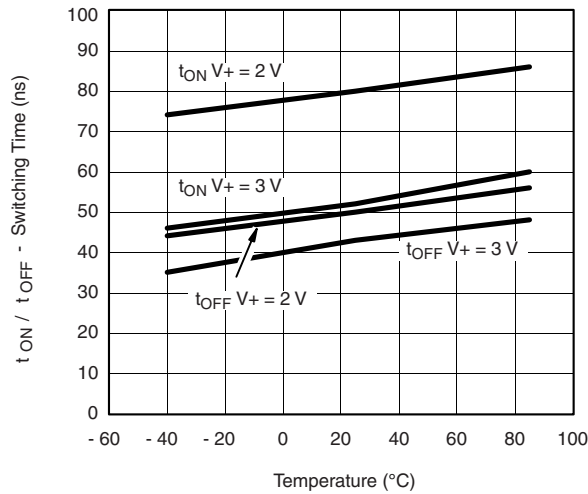
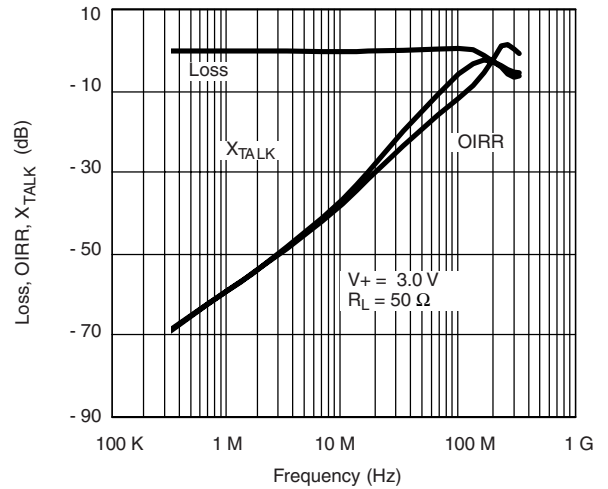
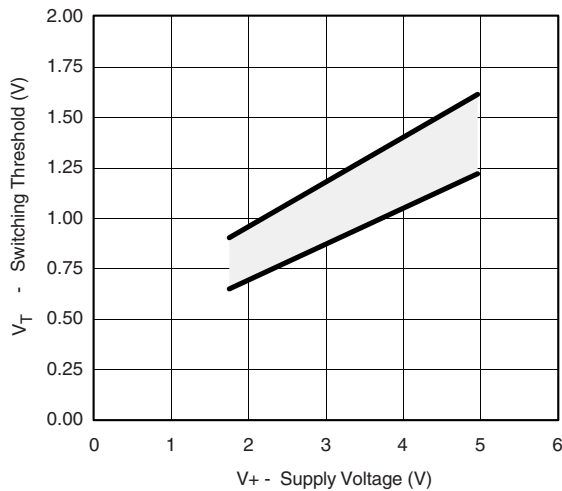
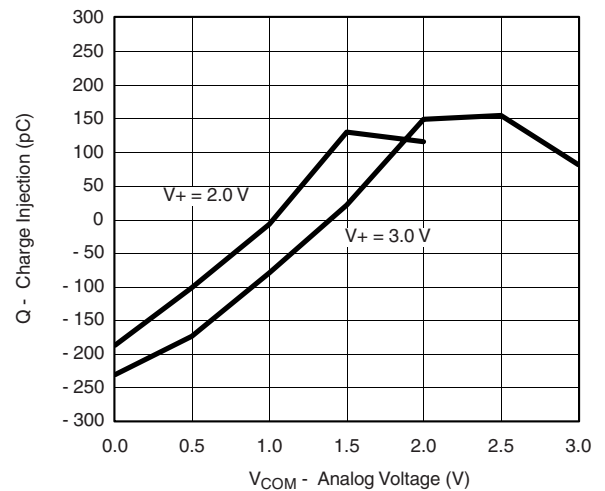
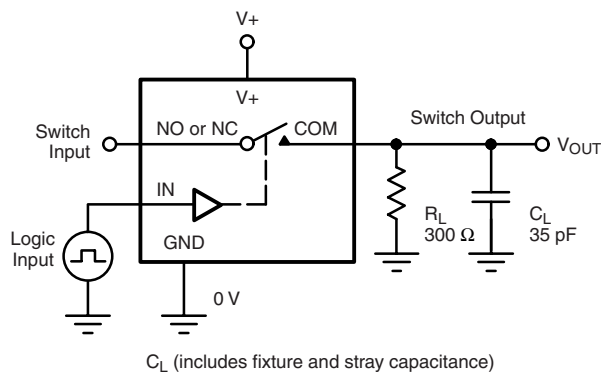
Supply Current vs. Input Switching Frequency



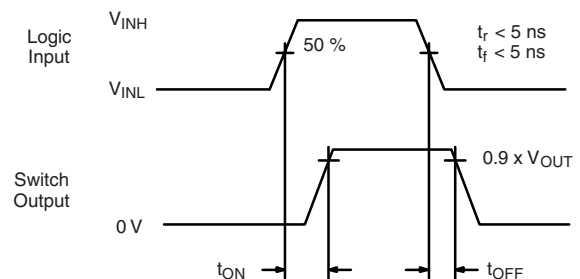
Leakage Current vs. Temperature



Leakage vs. Analog Voltage

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

Switching Time vs. Temperature

Insertion Loss, Off-Isolation Crosstalk vs. Frequency

Switching Threshold vs. Supply Voltage

Charge Injection vs. Analog Voltage
TEST CIRCUITS


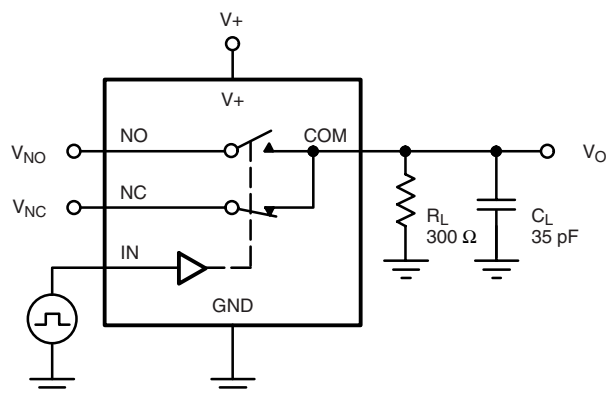
$$V_{OUT} = V_{COM} \left(\frac{R_L}{R_L + R_{ON}} \right)$$



Logic "1" = Switch On
Logic input waveforms inverted for switches that have the opposite logic sense.

Figure 1. Switching Time

TEST CIRCUITS



C_L (includes fixture and stray capacitance)

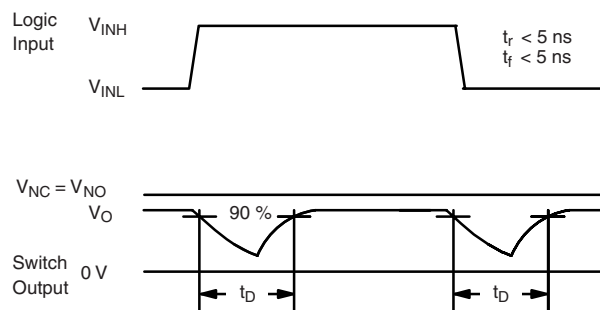
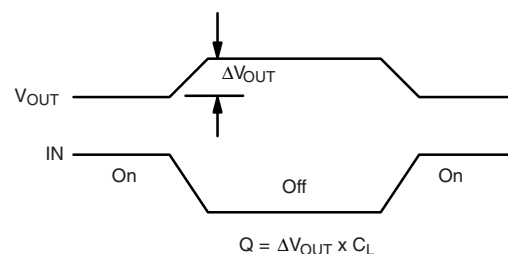
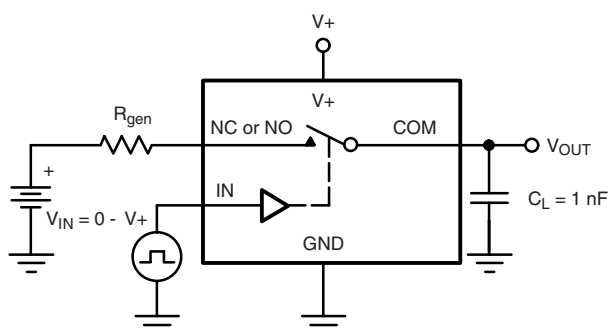


Figure 2. Break-Before-Make Interval



IN depends on switch configuration: input polarity determined by sense of switch.

Figure 3. Charge Injection

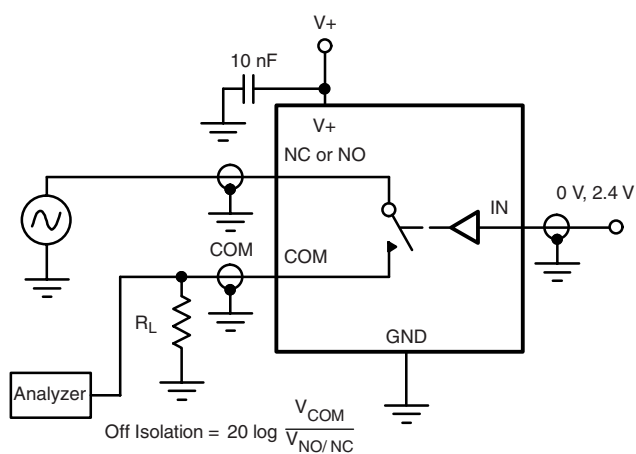


Figure 4. Off-Isolation

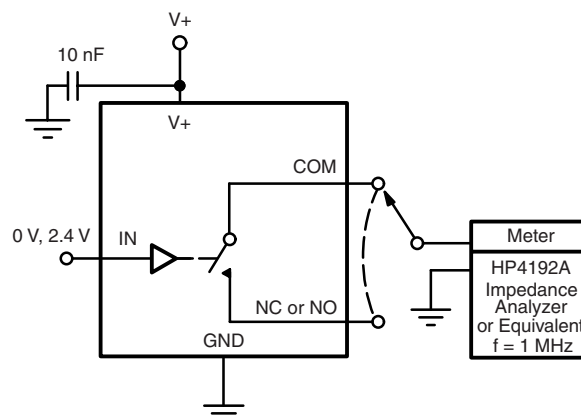


Figure 5. Channel Off/On Capacitance

Vishay Siliconix maintains worldwide manufacturing capability. Products may be manufactured at one of several qualified locations. Reliability data for Silicon Technology and Package Reliability represent a composite of all qualified locations. For related documents such as package/tape drawings, part marking, and reliability data, see <http://www.vishay.com/ppg?72939>.



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.