ORDERING INFORMATION		
Temp. Range	**Package**	**Part Number**
- 40 to 85 °C	8-Pin SOT23	DG449DS-T1-E3

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C, unless otherwise noted)				
Parameter (Voltages Referenced to V-)		**Symbol**	**Limit**	**Unit**
V+			44	V
GND			25	
Digital Inputs[a], $V_{no/nc}$, V_{COM}			(V-) - 2 V to (V+) + 2 V or 30 mA, whichever occurs first	
Current , (Any Terminal) Continuous			30	mA
Current (NO, NC or COM) Pulsed at 1 ms, 10 % duty cycle			100	
Storage Temperature			- 65 to 150	°C
Power Dissipation (Package)[b]	8-Pin SOT-23[c]		675	mW

Notes:
a. Signals on NO, NC, COM, or IN exceeding V+ or 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 8.4 mW/°C above 70 °C.

SPECIFICATIONS[a]

Parameter	Symbol	Test Conditions Unless Otherwise Specified V+ = 15 V, V- = - 15 V V_{IN} = 2.4 V, 0.8 V[f]	Temp.[b]	D Suffix - 40 °C to 85 °C Min.[d]	Typ.[c]	Max.[d]	Unit
Analog Switch							
Analog Signal Range[e]	V_{ANALOG}		Full	- 15		15	V
On-Resistance	R_{ON}	$I_{no/nc}$ = 1 mA, V_{COM} = ± 8.5 V V+ = 13.5 V, V- = - 13.5 V	Room Full		38	45 57	Ω
On Resistance MATCH	ΔR_{ON}		Room Full			5 6	
On-Resistance Flatness	R_{ON} Flatness	$I_{no/nc}$ = 1 mA, V_{COM} = ± 5 V, 0 V V+ = 13.5 V, V- = - 13.5 V	Room Full		2.6	7 8	
Switch Off Leakage Current	$I_{no/nc(off)}$	V+ = 16.5, V- = - 16.5 V V_{COM} = ± 15.5 V $V_{no/nc}$ = -/+ 15.5 V	Room Full	- 1 - 10	- 0.1	1 10	nA
	$I_{COM(off)}$		Room Full	- 1 - 10	- 0.1	1 10	
Channel On Leakage Current	$I_{COM(on)}$	V+ = 16.5 V, V- = - 16.5 V_{COM} = $V_{no/nc}$ = ± 15.5 V	Room Full	- 2 - 20	- 0.1	2 20	
Digital Control							
Input, High Voltage	I_{INH}		Full	2.4			V
Input, Low Voltage	I_{INL}		Full			0.8	
Input Capacitance[e]	C_{IN}		Room		4		pF
Input Current V_{IN} High or Low	I_{IN}	V_{IN} = 0 or 5 V		- 1		1	µA
Dynamic Characteristics							
Turn-On Time	t_{ON}	R_L = 300 Ω, C_L = 35 pF $V_{no/nc}$ = ± 10 V	Room Full		107	146 155	ns
Turn-Off Time	t_{OFF}		Room Full		69	104 116	
Charge Injection[e]	Q	C_L = 1 nF, V_{gen} = 0 V, R_{gen} = 0 Ω	Room		5		pC
Off-Isolation[e]	OIRR	R_L = 50 Ω, C_L = 5 pF, f = 1 MHz	Room		- 69		dB
Crosstalk[e]	X_{TALK}	R_L = 50 Ω, C_L = 5 pF, f = 1 MHz			- 80		
Source NO, NC Off Capacitance[e]	$C_{no/nc(off)}$	f = 1 MHz	Room		8		pF
Channel On Capacitance[e]	$C_{COM(on)}$	f = 1 MHz	Room		18		
Power Supplies							
Positive Supply Current	I+	V+ = 16.5 V, V- = - 16.5 V V_{IN} = 0, 5 V or, V+	Room Full		4	20 30	µA
Negative Supply Current	I-		Room Full	- 1 - 3			

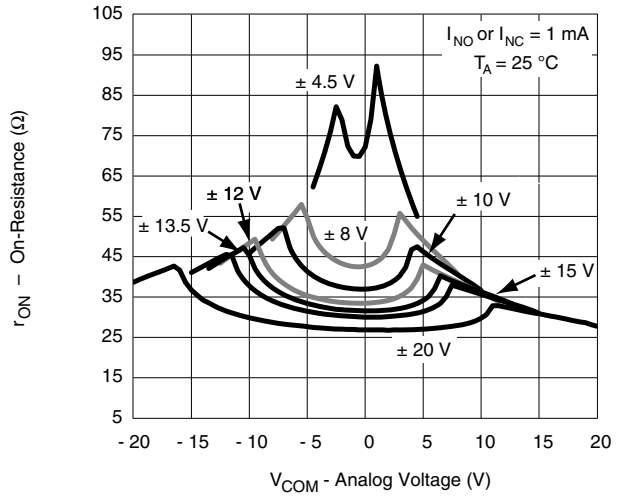
SPECIFICATIONS[a]

Parameter	Symbol	Test Conditions Unless Otherwise Specified V+ = 12 V, V- = 0 V V_{IN} = 2.4 V, 0.8 V[f]	Temp.[b]	D Suffix - 40 °C to 85 °C Min.[d]	Typ.[c]	Max.[d]	Unit
Analog Switch							
Analog Signal Range[e]	V_{ANALOG}		Full	0		12	V
On-Resistance	R_{ON}	$I_{no/nc}$ = 1 mA, V_{COM} = 3, 8 V V+ = 10.8 V	Room Full		67	85 96	Ω
On-Resistance MATCH	ΔR_{ON}		Room Full			4 5	
On-Resistance Flatness	R_{ON} Flatness	$I_{no/nc}$ = 1 mA, V_{COM} = 2, 6, 10 V V+ = 10.8 V	Room Full		17	25 31	
Dynamic Characteristics							
Turn-On Time	t_{ON}	$V_{NO, NC}$ = 10 V, R_L = 300 Ω, C_L = 35 pF	Room Full		133	168 192	nS
Turn-Off Time	t_{OFF}		Room Full		58	92 96	
Charge Injection[e]	Q	C_L = 1 nF, V_{gen} = 0 V, R_{gen} = 0 Ω	Room		6		pC
Power Supplies							
Positive Supply Current	I+	V+ = 13.2 V, V_{IN} = 0 V, 5 V or V+	Room Full		3	20 30	µA

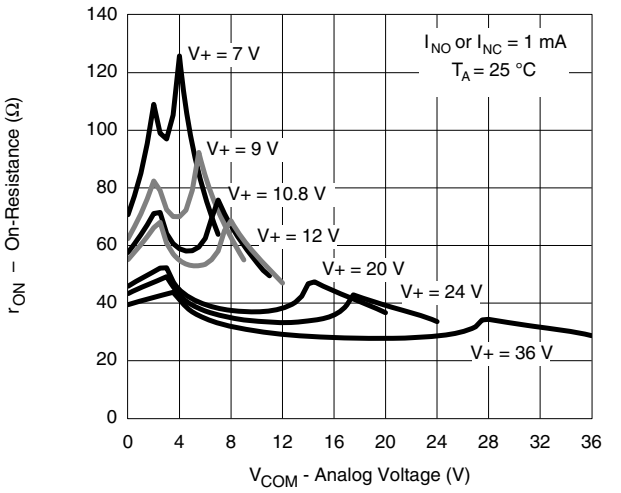
Notes:
a. Refer to PROCESS OPTION FLOWCHART .
b. Room = 25 °C, Full = as determined by the operating temperature suffix.
c. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
d. The algebraic convention whereby the most negative value is a minimum and the most positive a maximum, is used in this data sheet.
e. Guaranteed by design, not subject to production test.
f. V_{IN} = input voltage to perform proper function.

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.

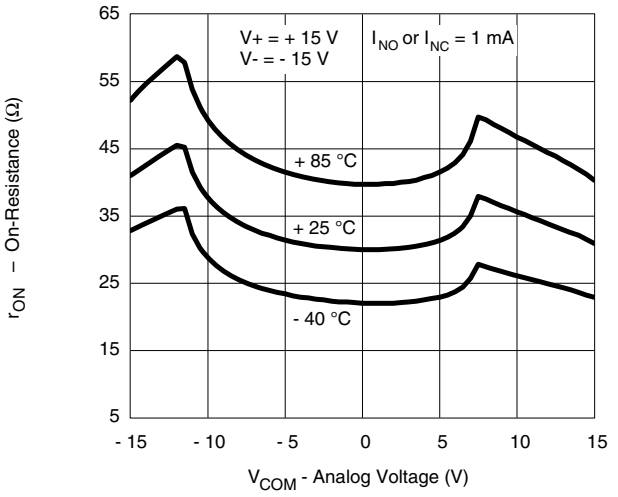
TYPICAL CHARACTERISTICS (T_A = 25 °C, unless otherwise noted)



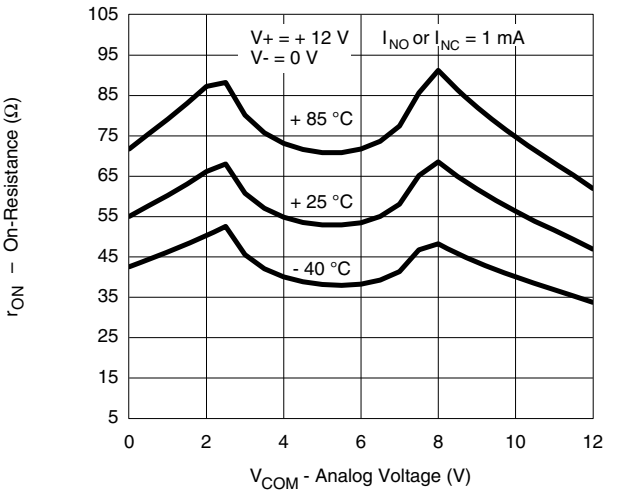
R_{ON} vs. V_{COM} and Dual Supply Voltage



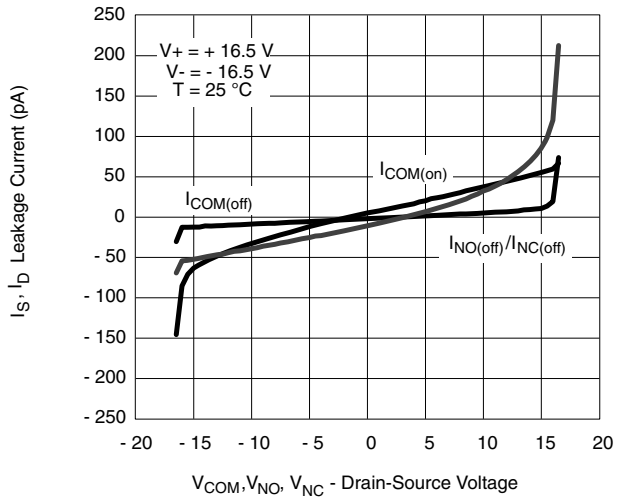
On Resistance vs. V_{COM} and Single Supply Voltage



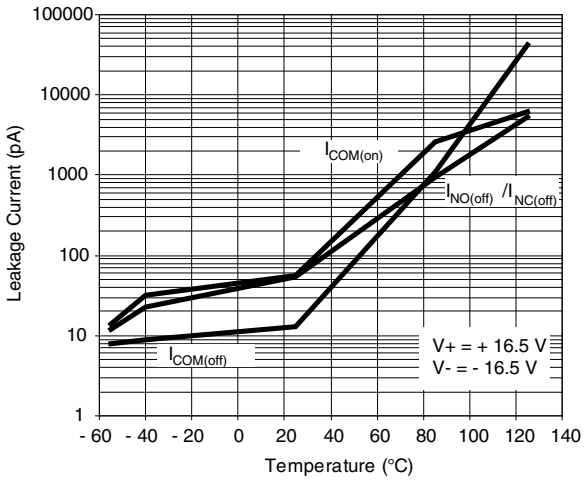
On Resistance vs. V_{COM} and Temperature



On Resistance vs. V_{COM} and Temperature

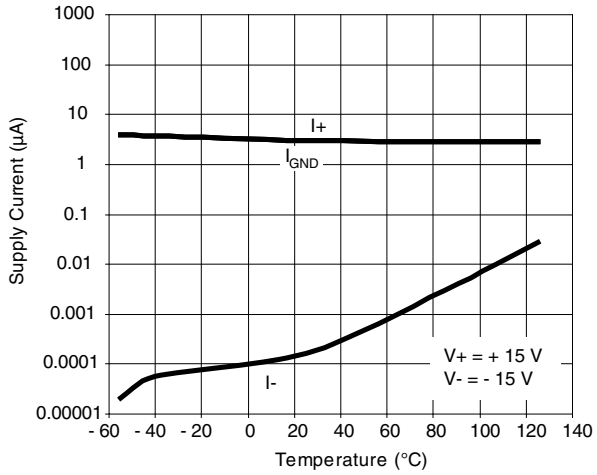


Leakage Current vs. Analog Voltage

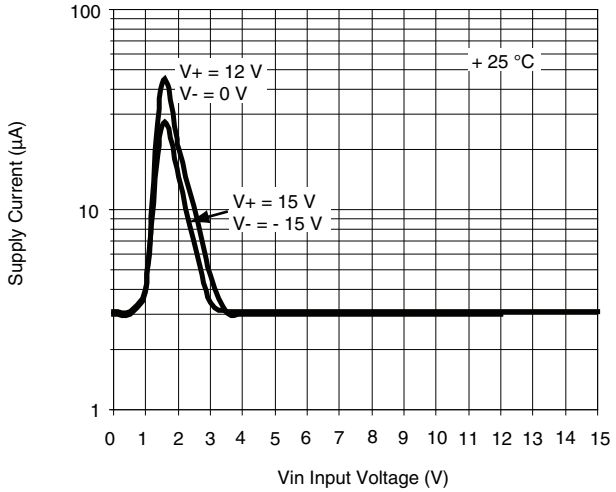


Leakage Current vs. Temperature

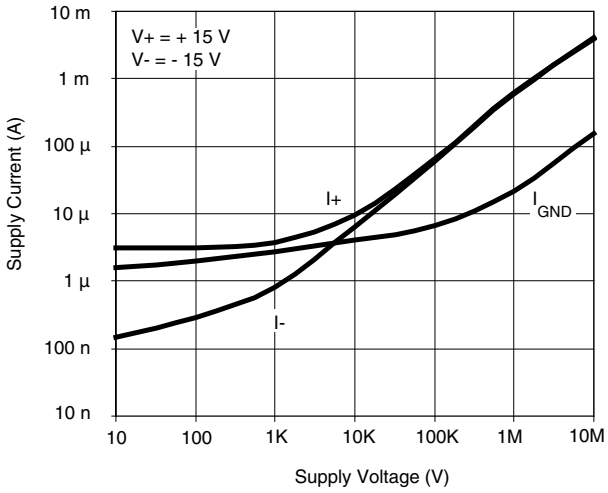
TYPICAL CHARACTERISTICS (T_A = 25 °C, unless otherwise noted)



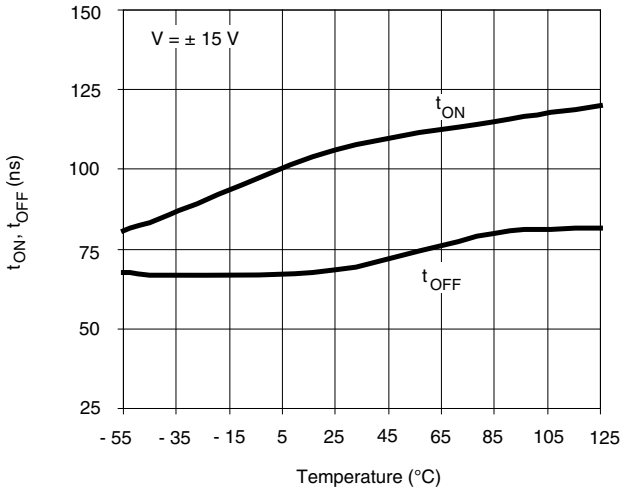
Supply Current vs. Temperature



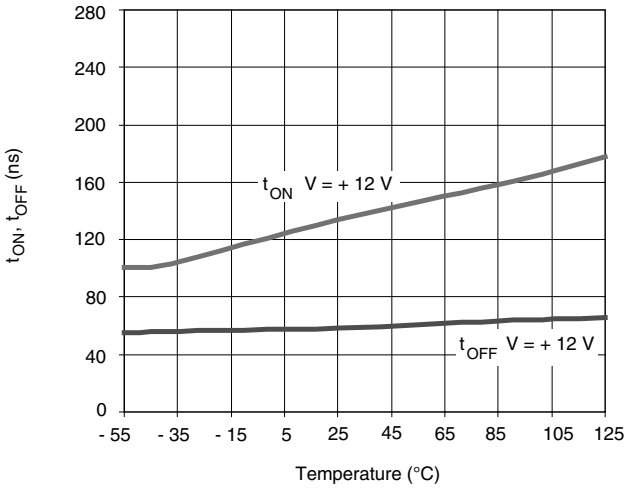
Supply Current vs. Input Voltage



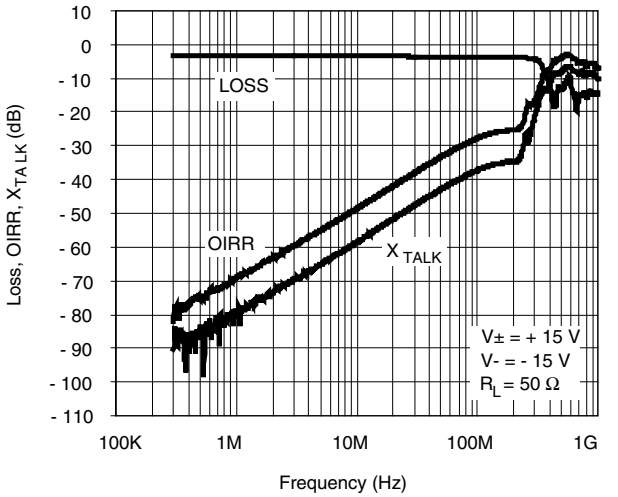
Supply Current vs. Input Switching Frequency



Switching Time vs. Temperature and Single Supply Voltage

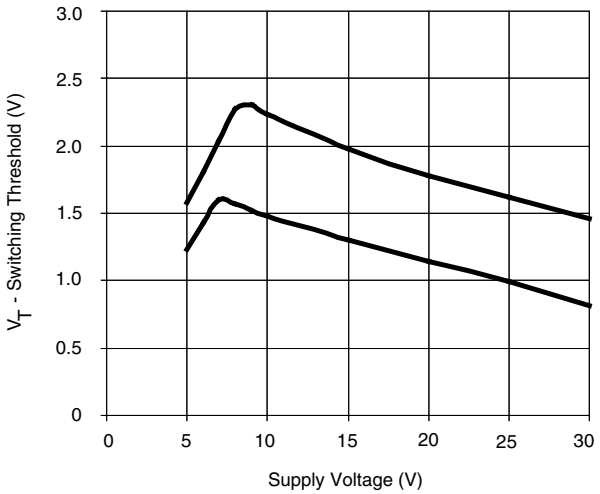


Switching Time vs. Temperature and Single Supply Voltage

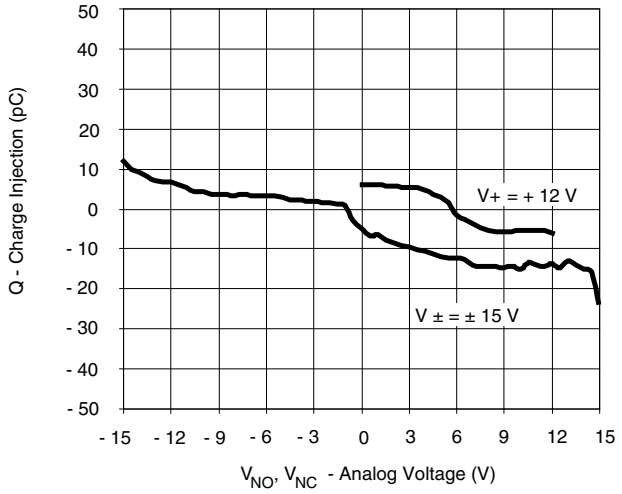


Insertion Loss, Off-Isolation, Crosstalk vs. Frequency

TYPICAL CHARACTERISTICS (T_A = 25 °C, unless otherwise noted)



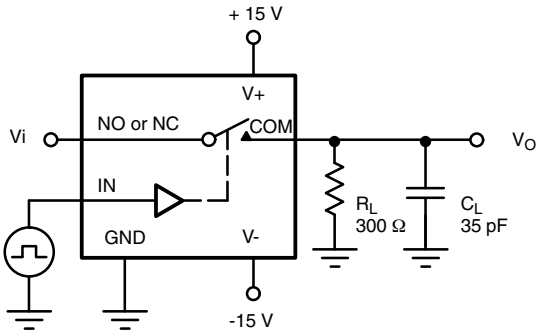
Switching Threshold vs. Supply Voltage



Charge Injection vs. Analog Voltage

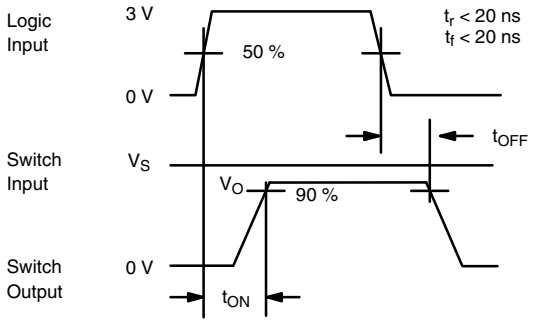
TEST CIRCUITS

V_O is the steady state output with the switch on.



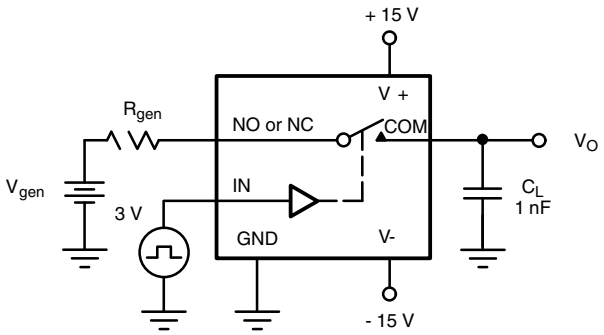
C_L (includes fixture and stray capacitance)

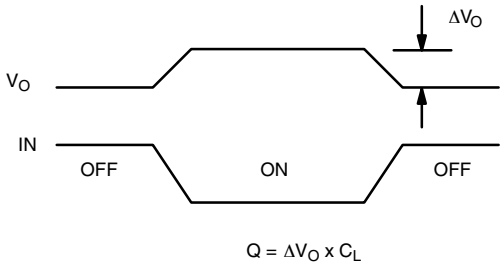
$$V_O = V_i \frac{R_L}{R_L + r_{ON}}$$



Note: Logic input waveform is inverted for switches that have the opposite logic sense.

Figure 1. Switching Time

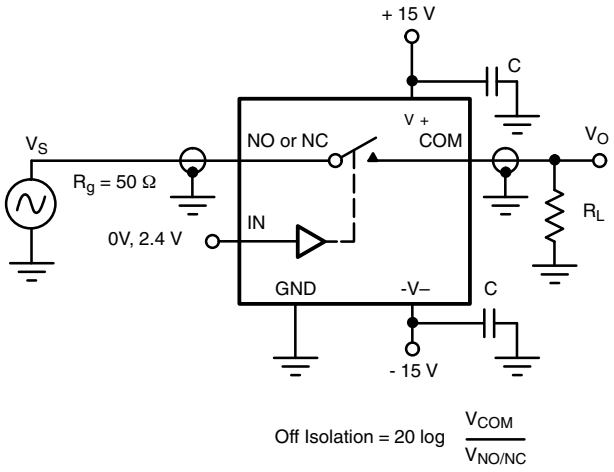




$Q = \Delta V_O \times C_L$

Figure 2. Charge Injection

Figure 3. Off Isolation



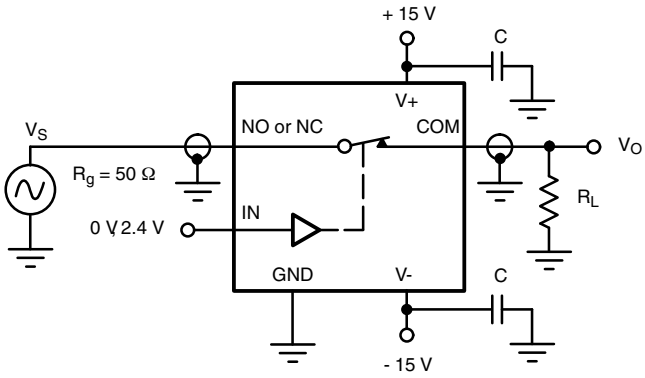


Figure 4. Insertion Loss

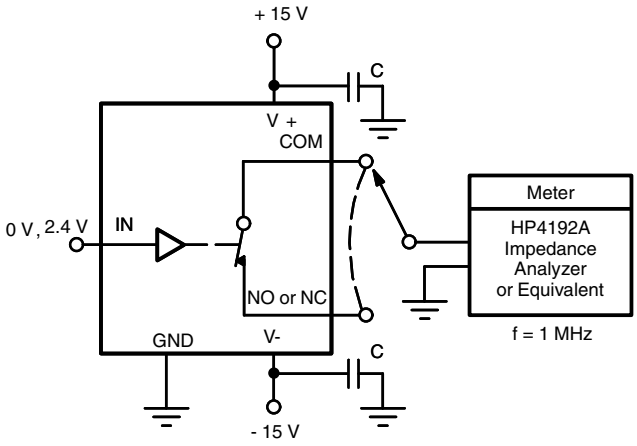
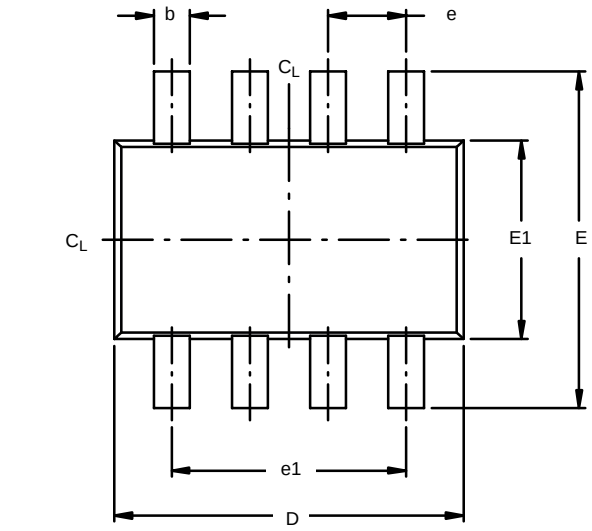
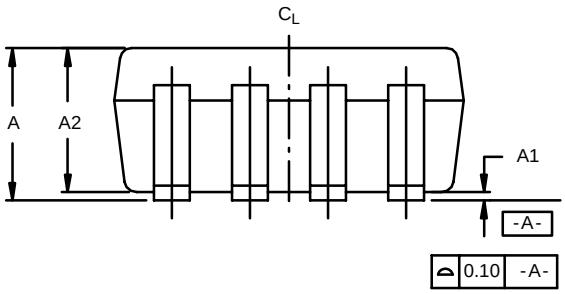


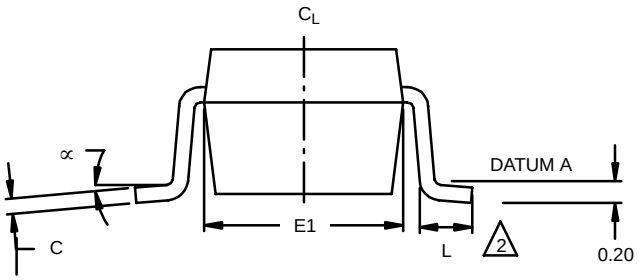
Figure 5. Channel ON/OFF Capacitances

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 www.vishay.com/ppg?73897.

SOT-23 : 8-LEAD







NOTES:

1. All dimensions are in millimeters.
2. Foot length measured at intercept point between Datum A and lead surface.
3. Package outline exclusive of mold flash and metal burr.
4. Package outline inclusive of solder plating.
5. No molding flash allowed on the top and bottom lead surface.

Dim	MILLIMETERS			INCHES		
	Min	Nom	Max	Min	Nom	Max
A	0.90	1.27	1.45	0.035	0.05	0.057
A1	0.00	0.0762	0.15	0.000	0.003	0.006
A2	0.90	1.20	1.30	0.035	0.047	0.051
b	0.22	0.30	0.38	0.009	0.012	0.015
C	0.09	0.152	0.20	0.004	0.006	0.008
D	2.80	2.9	3.00	0.11	0.114	0.118
E	2.60	2.8	23.00	0.102	0.11	0.118
E1	1.50	1.65	1.75	0.059	0.065	0.069
e	0.65 REF			0.026 REF		
e1	1.95 REF			0.077 REF		
L	0.35	0.45	0.55	0.014	0.018	0.022
∝	0°	4°	8°	0°	4°	8°

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DWG: 5895

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