



BCT4567

Low-Power, Dual SIM Card Analog Switch

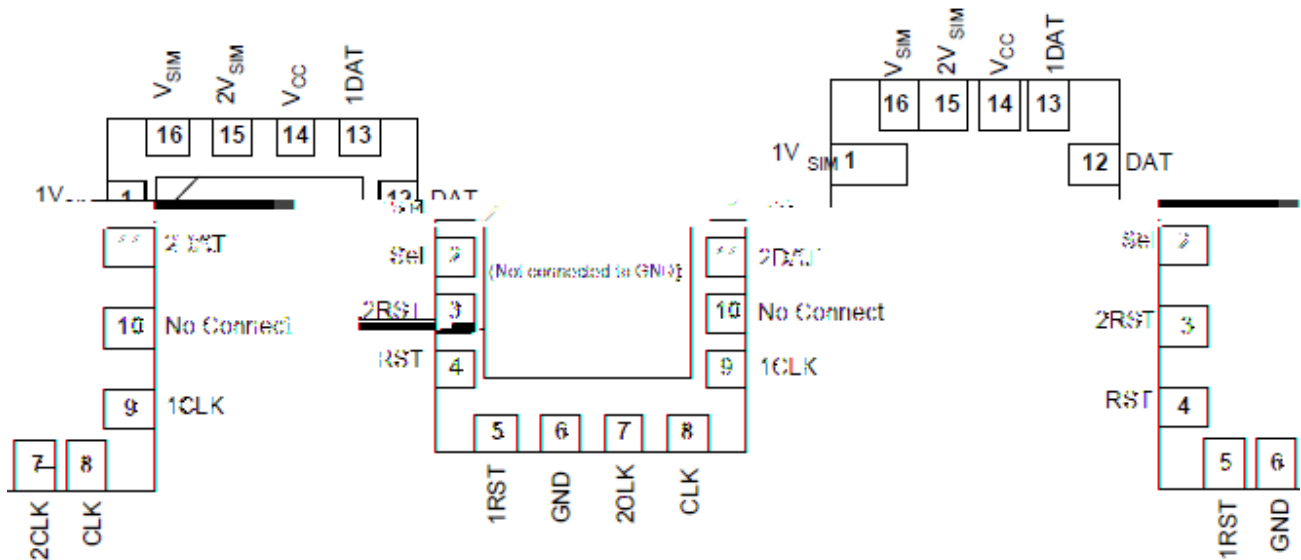
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Low-Power, Dual SIM Card Analog Switch

GENERAL DESCRIPTION

The BCT4567 is a quad-SPDT switch with one common control inputs targeted at dual SIM

Pin Configurations



Pin Description

Pin	Name	Function
1	1VSIM	SIM supply output 2
2	SEL	Select input
3	2RST	RST Normally Open Terminal
4	RST	RST Common Terminal
5	1RST	RST Normally Closed Terminal
6	GND	Ground
7	2CLK	CLK Normally Open Terminal
8	CLK	CLK Common Terminal
9	1CLK	CLK Normally Closed Terminal
10	NC	Not Connect
11	2DAT	DAT Normally Open Terminal
12	DAT	DAT Common Terminal
13	1DAT	DAT Normally Closed Terminal
14	VCC	Power Supply
15	2VSIM	SIM supply output 1
16	VSIM	SIM supply input



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Truth Table

SEL	SWITCH STATE
0	1DAT = DAT, 1RST = RST, 1CLK = CLK, 1V _{SIM} = V _{SIM}
1	2DAT = DAT, 2RST = RST, 2CLK = CLK, 2V _{SIM} = V _{SIM}

Absolute Maximum Ratings

VCC, SEL to GND.....-0.3V to +6.0V
All Other Pins to GND-0.3V to (VCC + 0.3V)
Continuous Current ±400mA
Peak Current (pulsed at 1ms, 10% duty cycle)±500mA
Continuous Power Dissipation (TA = +70°C) (15.6mW/°C above +70°C)1.25W
Operating Temperature Range-40°C to +85°C
Storage Temperature Range.....-65°C to +150°C
Junction

BCT4567
Low-Power, Dual SIM Card
Analog Switch



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Electrical Characteristics (continued)

(unless otherwise noted. Typical values are at $V_{CC} = 3.3V$, $T_A = +25^{\circ}C$.) (2)

Parameter	Symbol	Conditions	Min	Typ	Max	Units	
DYNAMIC CHARACTERISTICS							
Turn-On Time Sel to Output (DAT,CLK,RST)	T_{ON}	P_f , $V_{SW} = 1.5 V$, Figure 11, Figure 12	$T_A = +25^{\circ}C$		20	30	ns
			$T_A = T_{MIN}$ to T_{MAX}			50	
Turn-Off Time Sel to Output (DAT,CLK,RST)	T_{OFF}	pF , $V_{SW} = 1.5 V$, Figure 11, Figure 12	$T_A = +25^{\circ}C$		15	40	ns
			$T_A = T_{MIN}$ to T_{MAX}			50	
Break-Before-Make Time (DAT,CLK,RST)	t_{BBM}	R_L $L =$ 35 pF $V_{SW1} =$ $V_{SW2} = 1.5 V$ Figure 15	$T_A = +25^{\circ}C$	2	15		ns
			$T_A = T_{MIN}$ to T_{MAX}	2			
Charge Injection	Q	$C_L = 50 pF$, R_{GEN} $V_{GEN} = 0 V$		100		pC	
On-Channel Bandwidth -3dB (DAT,CLK,RST)	BW	R_L $L = 5 pF$ Figure 16		100		MHz	
Off-Isolation (DAT,CLK,RST)	V_{ISO}	R_L 0KHz Figure 17		-66		dB	
Crosstalk	V_{CT}	R_L 0KHz Figure 18		-86		dB	
RST, CLK, DAT Off Capacitance	C_{OFF}	$V_{CC} = 3.3 V$, Figure 19		30		pF	
RST, CLK, DAT On Capacitance	C_{ON}	$V_{CC} = 3.3 V$, $f = 1 MHz$ Figure 20		100		pF	

Note 2: Devices are 100% tested at $T_A = +25^{\circ}C$. Limits across the full temperature range are guaranteed by design and correlation.

Test Diagrams /Timing Diagrams

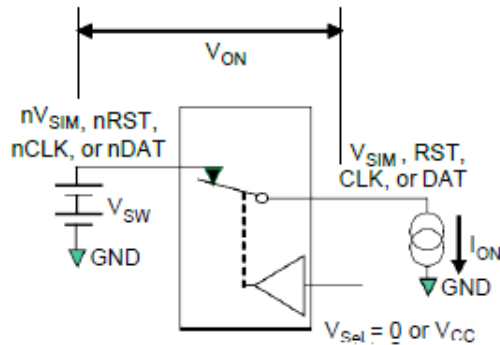


Figure 9. On Resistance

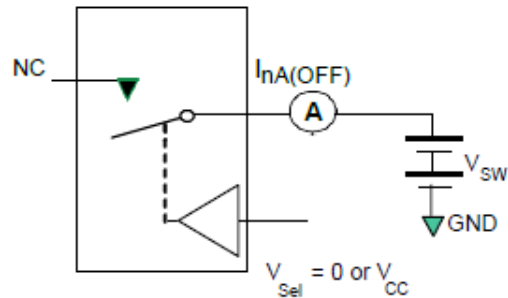


Figure 10. Off Leakage

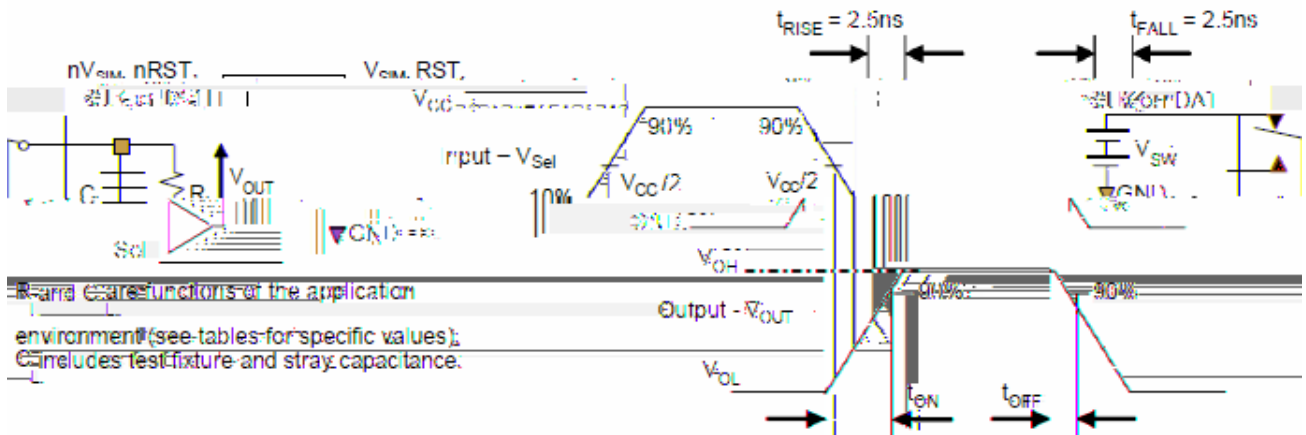


Figure 11. AC Test Circuit Load

Figure 12. Turn-On / Turn-Off Waveforms

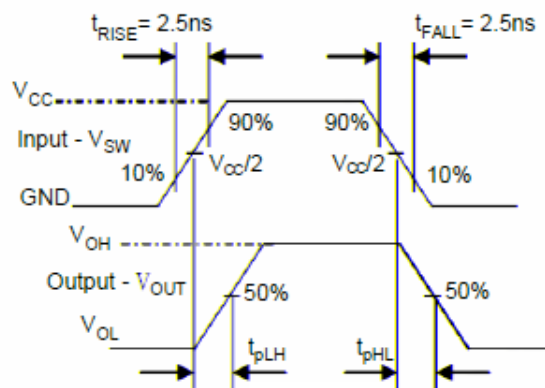


Figure 13. Propagation Delay

Test Diagrams /Timing Diagrams

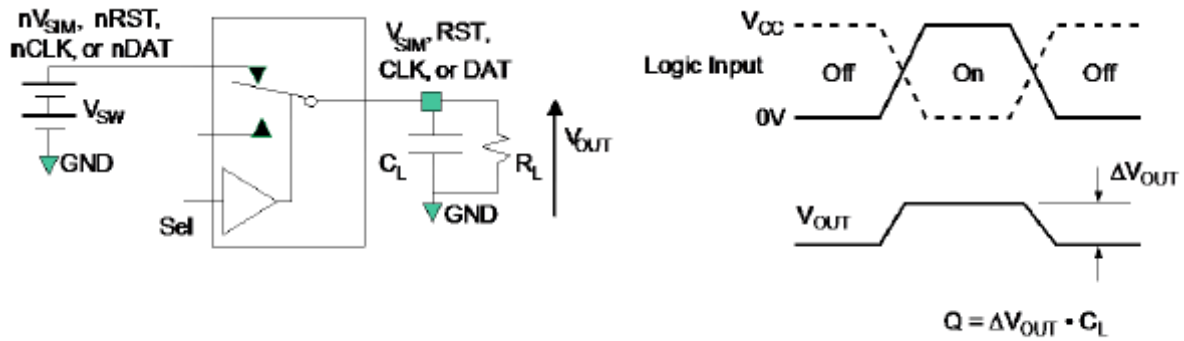
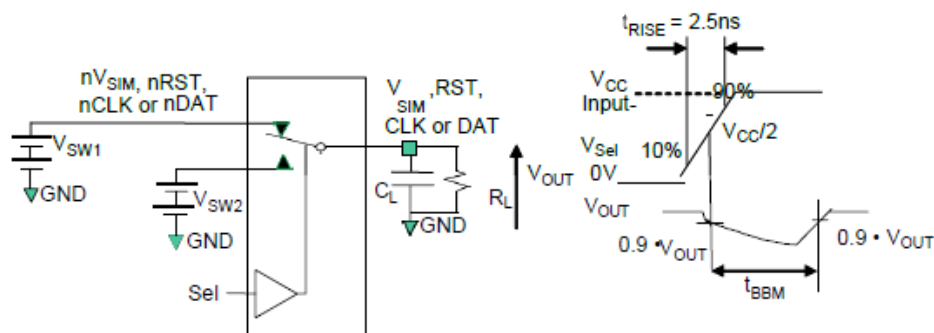


Figure 14. Charge Injection



R_L and C_L are functions of the application environment (see tables for specific values).

Figure 15. Break-Before-Make Interval Timing

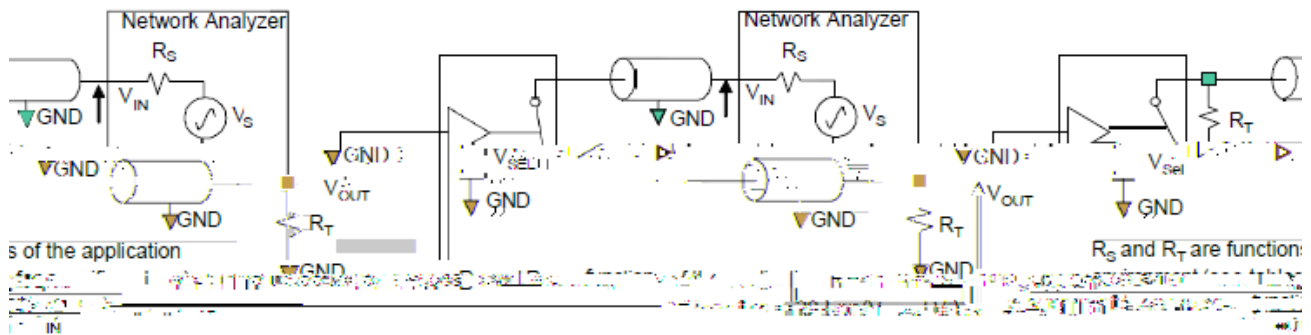


Figure 16. Bandwidth

Figure 17. Channel Off Isolation

Test Diagrams /Timing Diagrams

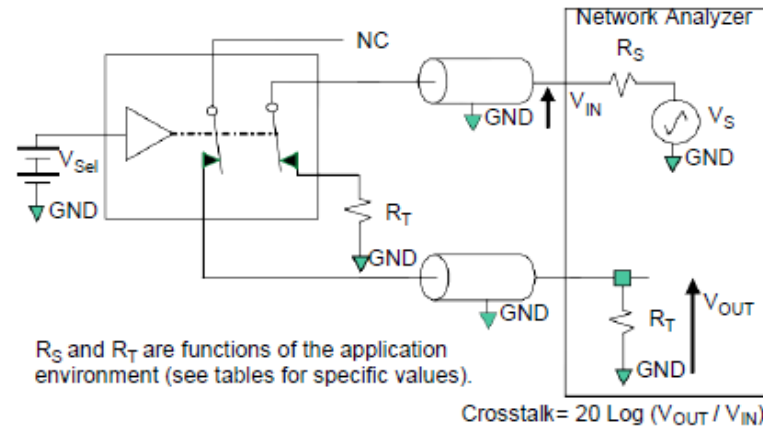


Figure 18. Non-Adjacent Channel-to-Channel Crosstalk

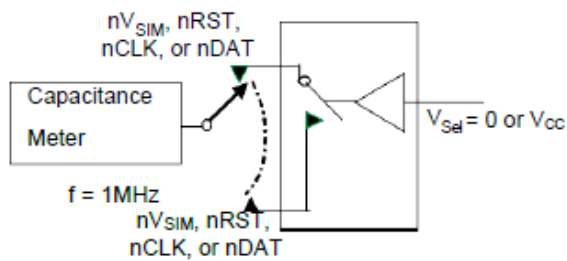


Figure 19. Channel Off Capacitance

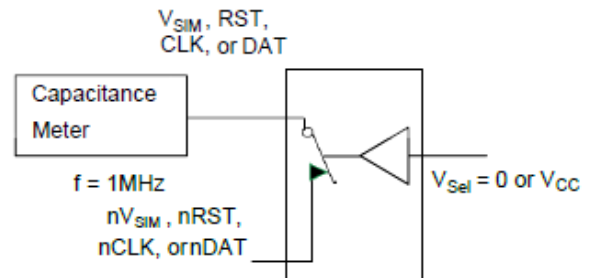
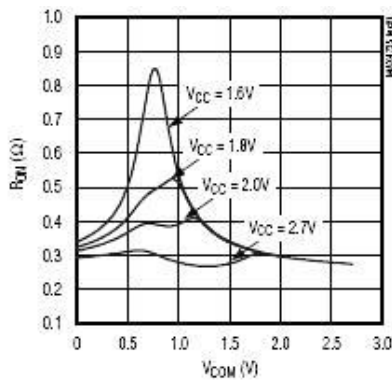


Figure 20. Channel On Capacitance

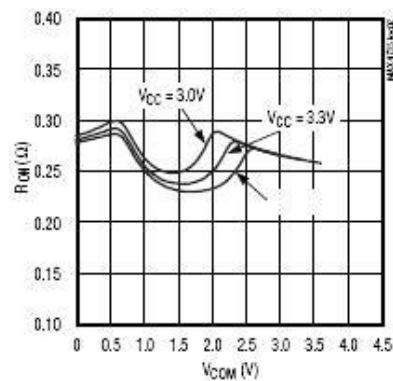
Typical Operating Characteristics

(VCC = 3V, TA = +25°C, unless otherwise noted.)

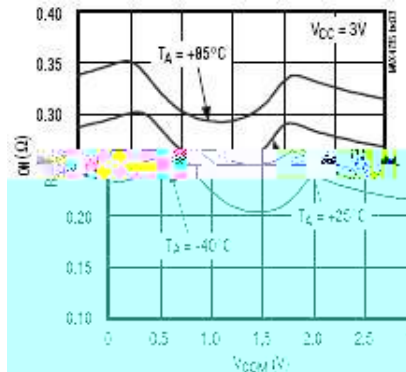
ON-RESISTANCE vs. COM_ VOLTAGE



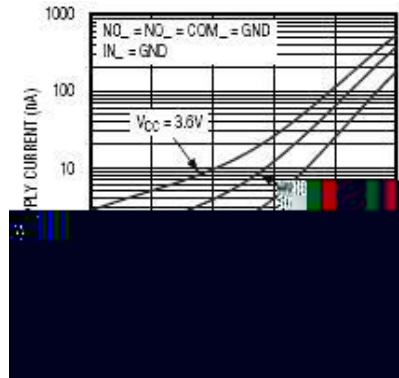
ON-RESISTANCE vs. COM_ VOLTAGE



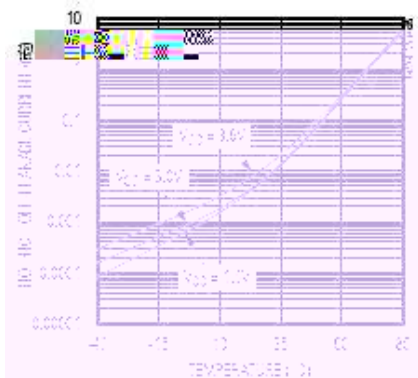
ON-RESISTANCE vs. COM_ VOLTAGE AND TEMPERATURE



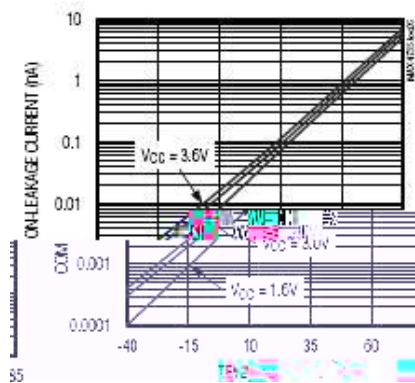
SUPPLY CURRENT vs. TEMPERATURE



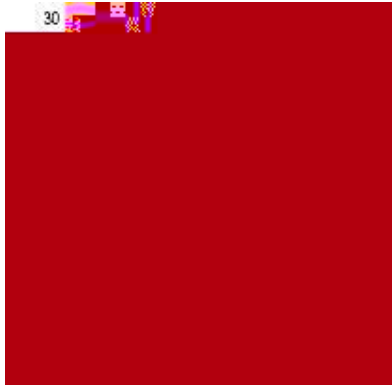
NO /NC OFF-LEAKAGE CURRENT vs. TEMPERATURE



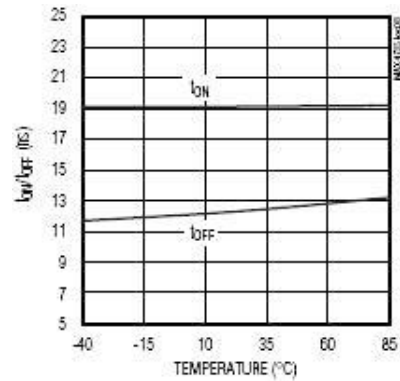
COM ON-LEAKAGE CURRENT vs. TEMPERATURE



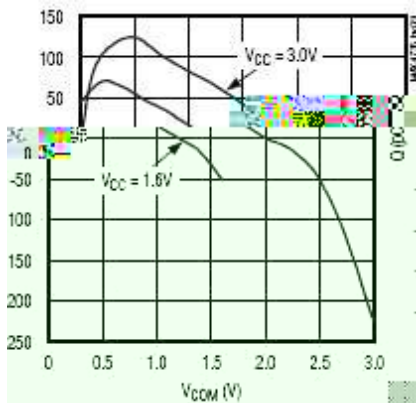
TURN-ON/OFF TIME vs. SUPPLY VOLTAGE



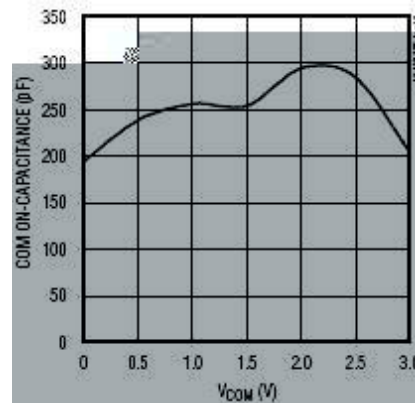
TURN-ON/OFF TIME vs. TEMPERATURE



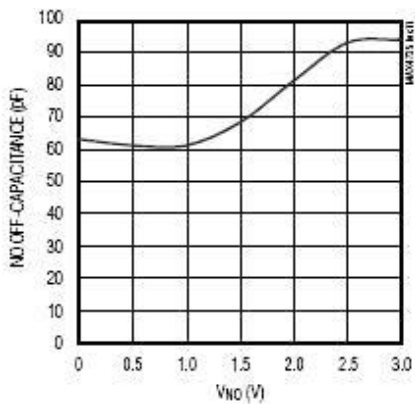
CHARGE INJECTION vs. COM_ VOLTAGE



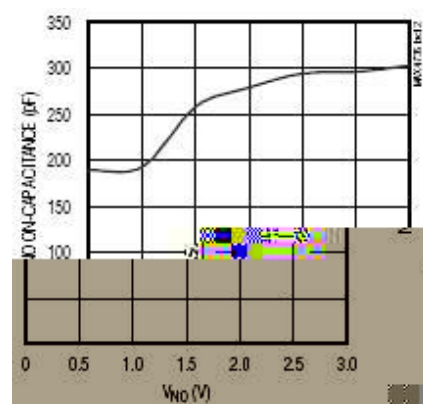
COM_ ON-CAPACITANCE vs. COM_ VOLTAGE



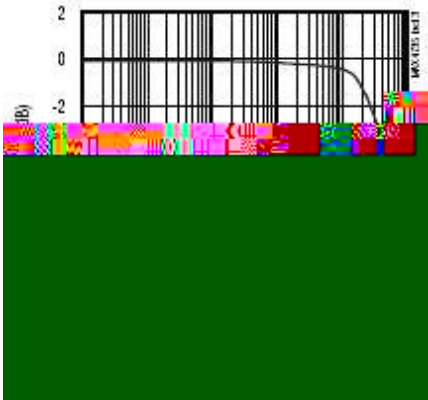
NO_ OFF-CAPACITANCE vs. NO_ VOLTAGE



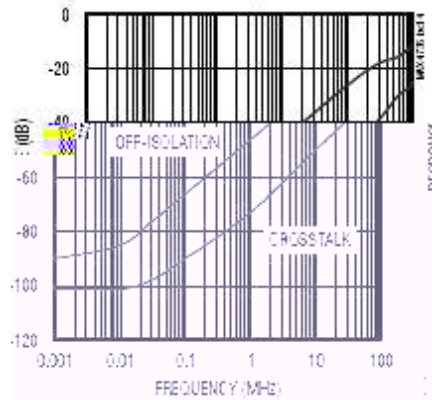
NO_ ON-CAPACITANCE vs. NO_ VOLTAGE



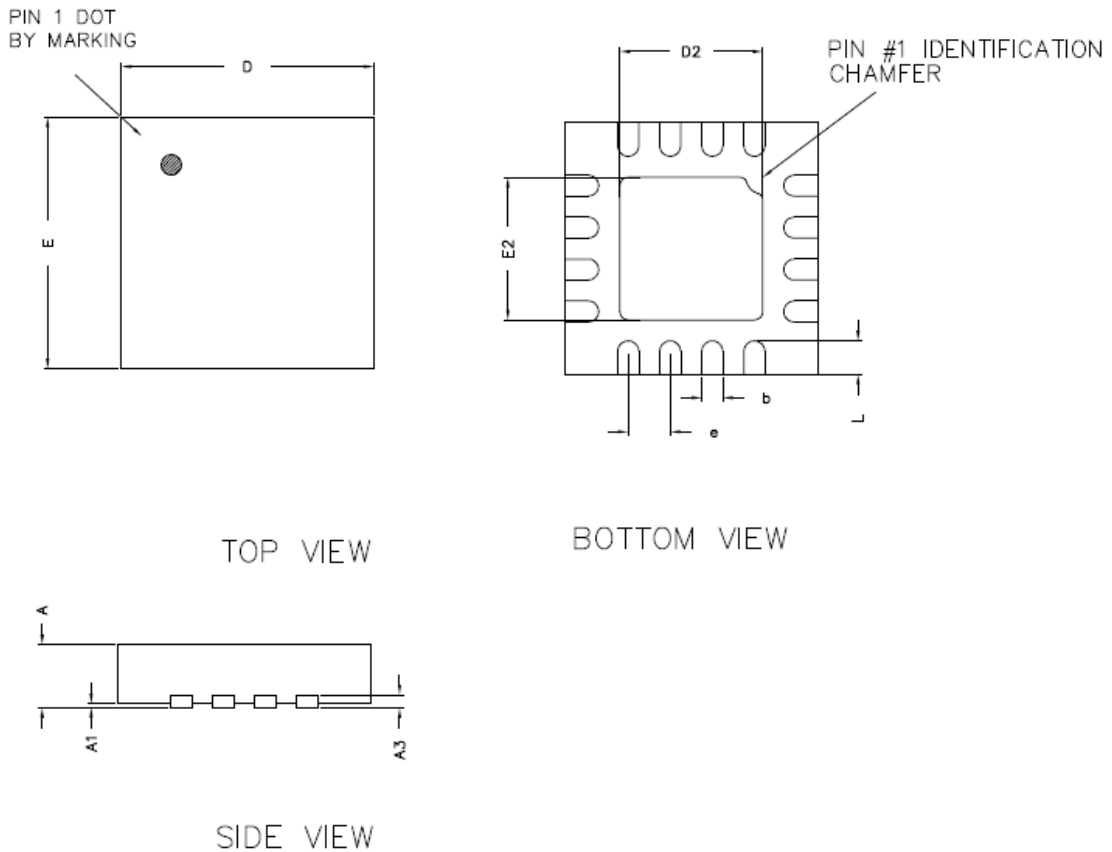
ON-RESPONSE vs. FREQUENCY



OFF-ISOLATION AND CROSSTALK vs. FREQUENCY

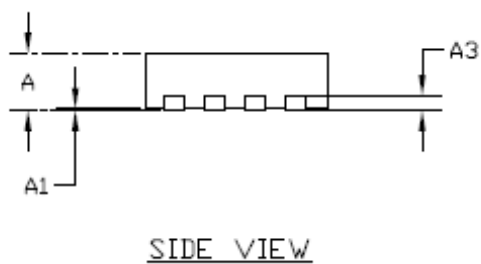
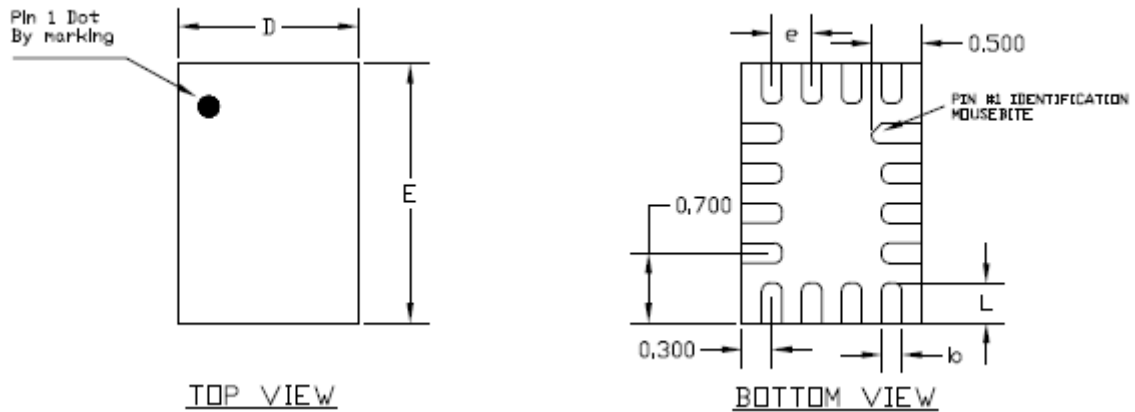


PACKAGE OUTLINE DIMENSIONS: TQFN 3x3 -16L



COMMON DIMENSIONS(MM)			
PKG.	W: VERY VERY THIN		
REF.	MIN.	NOM.	MAX
A	0.70	0.75	0.80
A1	0.00	—	0.05
A3	0.2 REF.		
D	2.95	3.00	3.05
E	2.95	3.00	3.05
b	0.18	0.25	0.30
L	0.30	0.40	0.50
D2	1.55	1.70	1.80
E2	1.55	1.70	1.80
e	0.5 BSC		

PACKAGE OUTLINE DIMENSIONS: UTQFN 1.8x2.6 -16L



COMMON DIMENSIONS(MM)			
PKG.	UT:ULTRA THIN		
REF.	MIN.	NOM.	MAX
A	>0.50	0.55	0.60
A1	0.00	-	0.05
A3	0.15 REF.		
D	1.75	1.80	1.85
E	2.55	2.60	2.65
L	0.30	0.40	0.50
b	0.15	0.20	0.25
e	0.40 BSC		