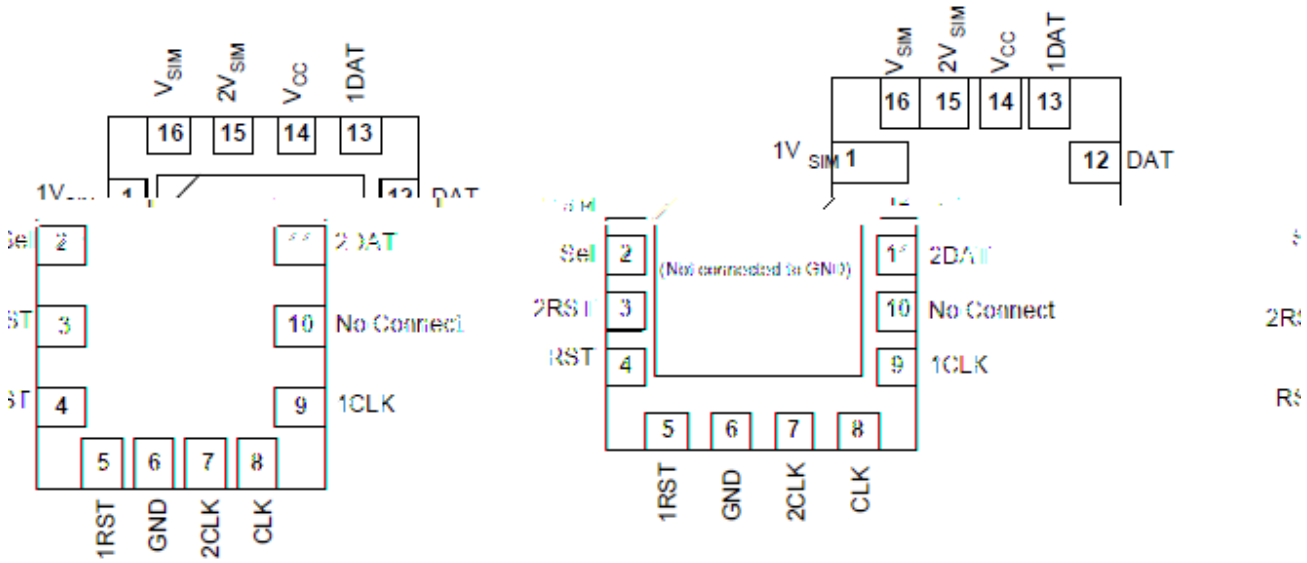
BCT4567
Low-Power, Dual SIM Card Analog Switch

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

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

REV1.

Electrical Characteristics (continued)

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

Parameter	Symbol	Conditions		Min	Typ	Max	Units
DYNAMIC CHARACTERISTICS							
Turn-On Time Sel to Output (DAT,CLK,RST)	T_{ON}	Pf, VSW = 1.5 V, Figure 11, Figure 12	T_A = +25°C		20	30	ns
			T_A = T_{MIN} to T_{MAX}			50	
Turn-Off Time Sel to Output (DAT,CLK,RST)	T_{OFF}	pF, VSW = 1.5 V, Figure 11, Figure 12	T_A = +25°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°C	2	15		ns
			T_A = T_{MIN} to T_{MAX}	2			
Charge Injection	Q	C_L = 50 pF, R_{GEN} $_{GEN}$ = 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 TA = +25°C. Limits across the full temperature range are guaranteed by design and correlation.

Test Diagrams /Timing Diagrams

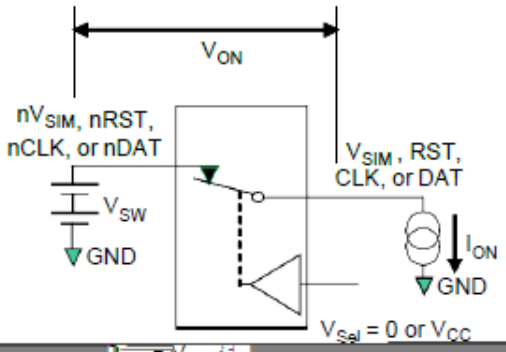


Figure 9. On Resistance

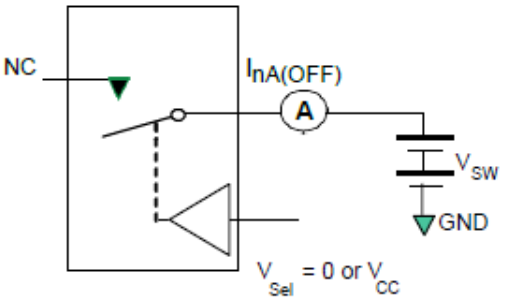


Figure 10. Off Leakage

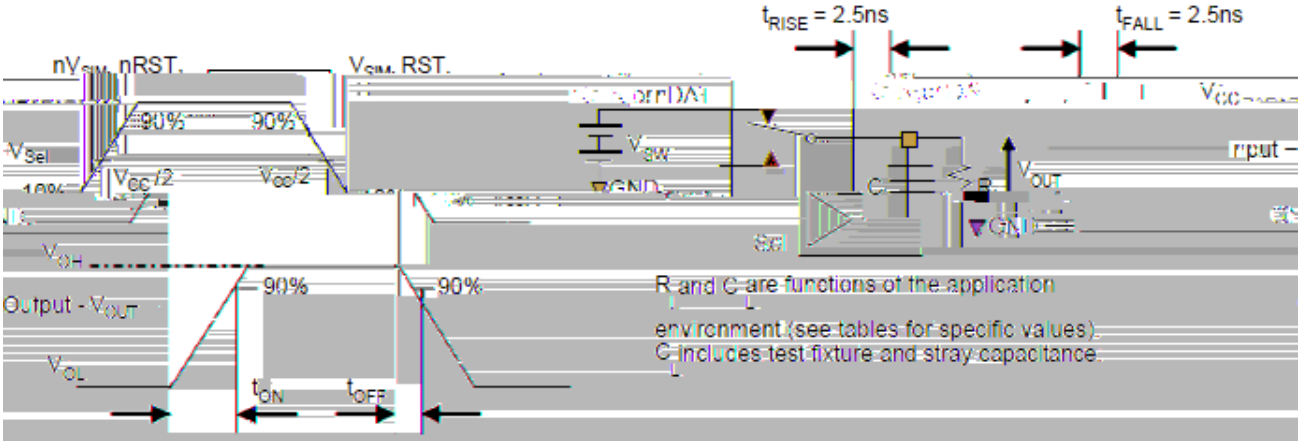
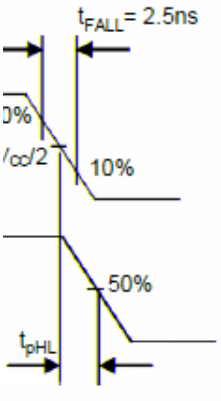
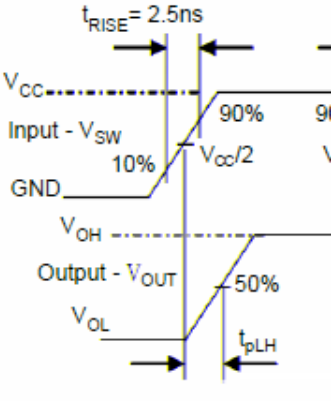


Figure 12. Turn-On / Turn-Off Waveforms

Figure 11. AC Test Circuit Load





Test Diagrams /Timing Diagrams

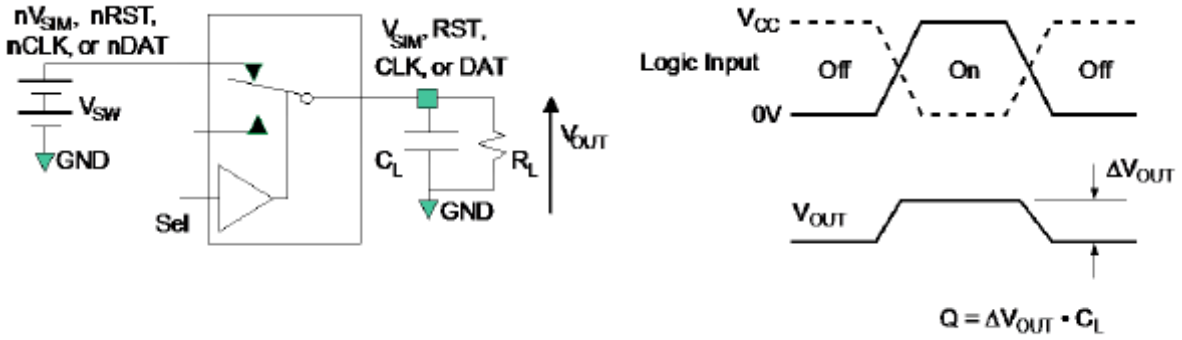


Figure 14. Charge Injection

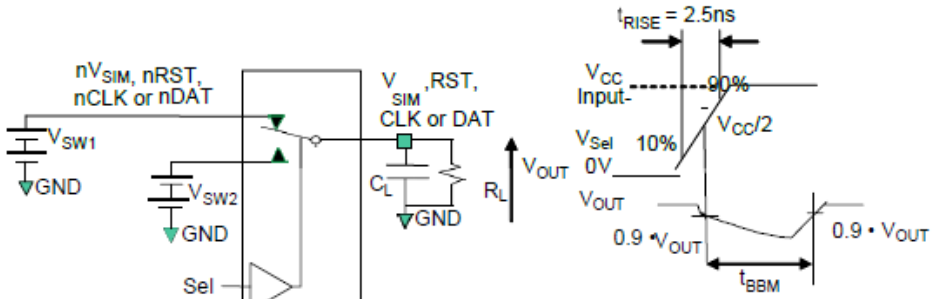
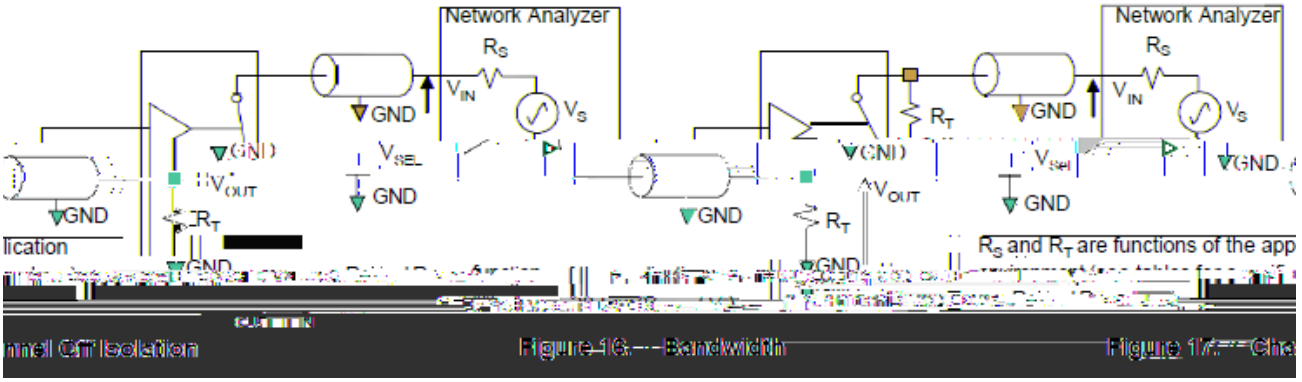


Figure 15. Break-Before-Make Interval Timing



Test Diagrams /Timing Diagrams

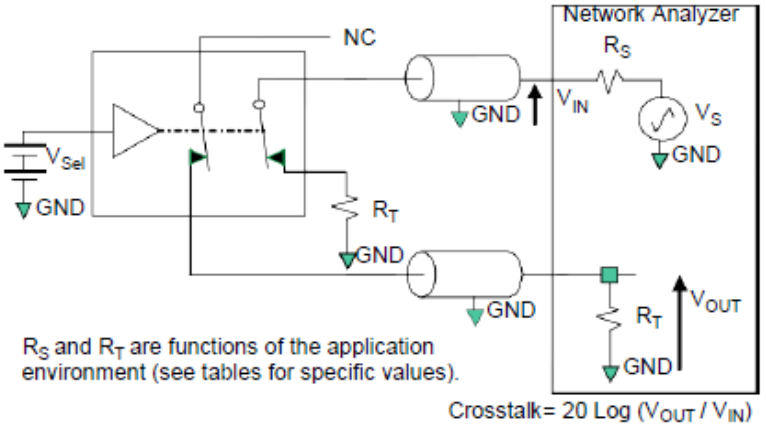


Figure 18. Non-Adjacent Channel-to-Channel Crosstalk

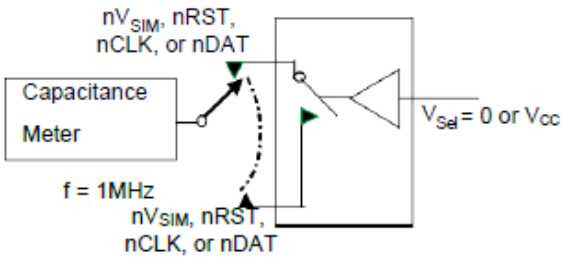


Figure 19. Channel Off Capacitance

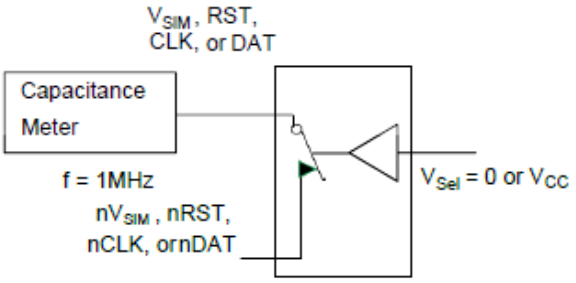
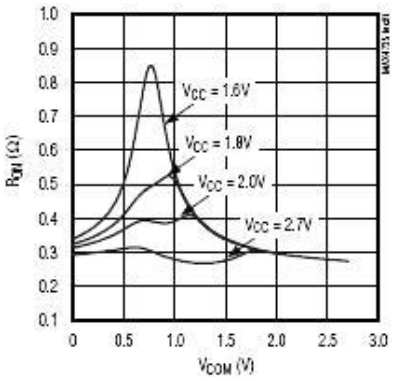


Figure 20. Channel On Capacitance

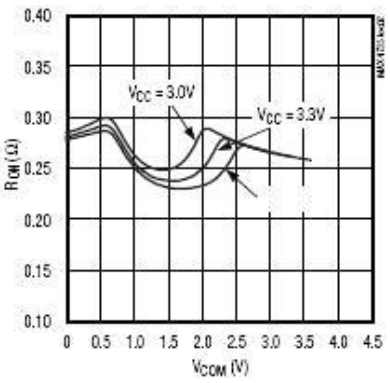
Typical Operating Characteristics

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

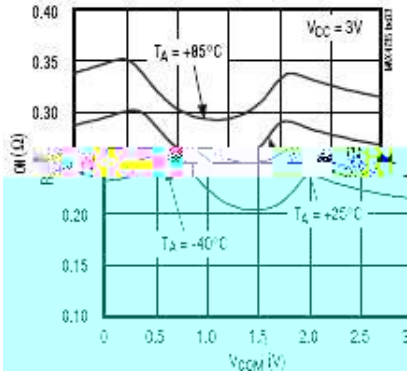
ON-RESISTANCE vs. COM_ VOLTAGE



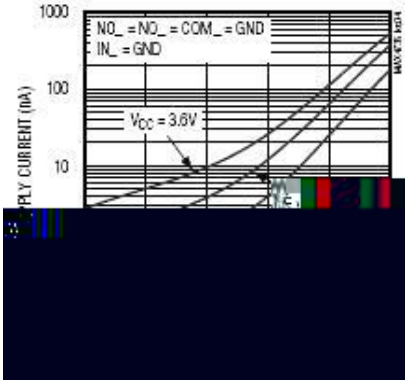
ON-RESISTANCE vs. COM_ VOLTAGE



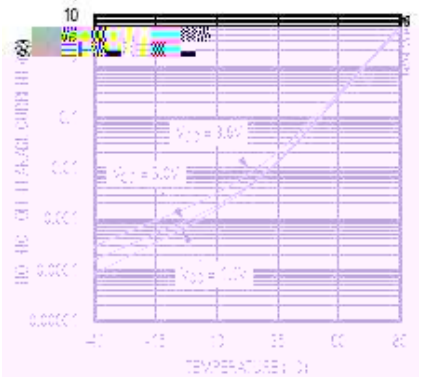
ON-RESISTANCE vs. COM_ VOLTAGE AND TEMPERATURE



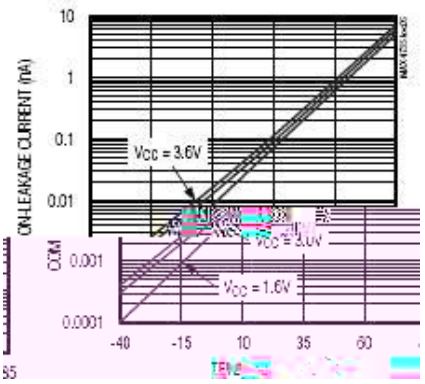
SUPPLY CURRENT vs. TEMPERATURE



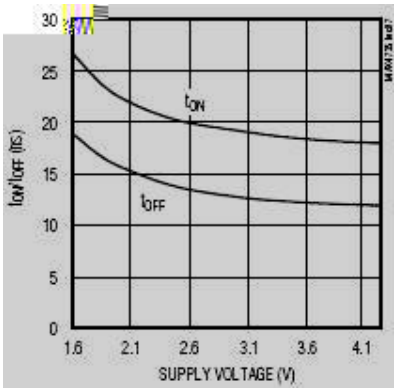
NO /NC OFF-LEAKAGE CURRENT vs. TEMPERATURE



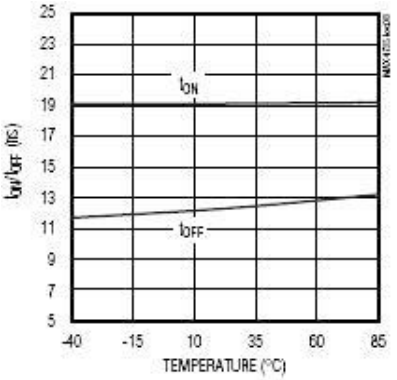
COM ON-LEAKAGE CURRENT vs. TEMPERATURE



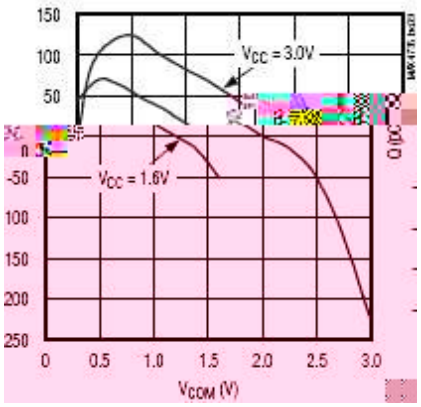
TURN-ON/OFF TIME vs. SUPPLY VOLTAGE



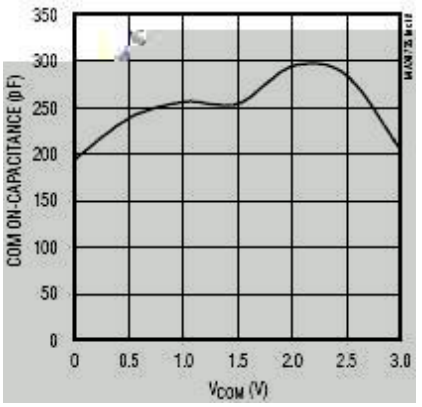
TURN-ON/OFF TIME vs. TEMPERATURE



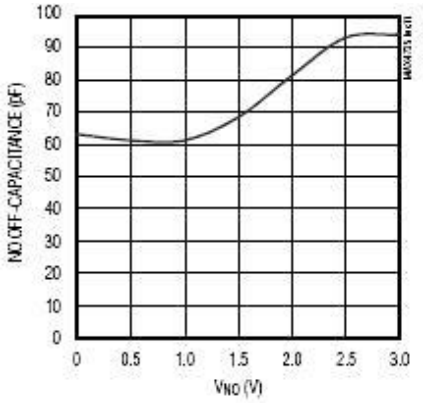
CHARGE INJECTION vs. COM_ VOLTAGE



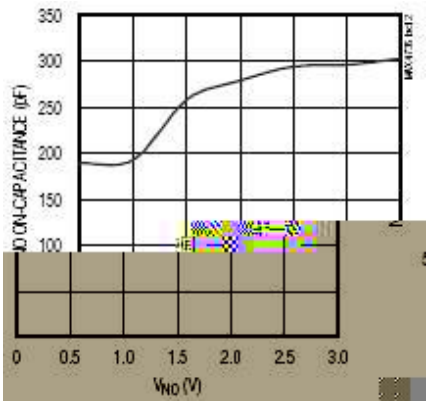
COM_ ON-CAPACITANCE vs. COM_ VOLTAGE



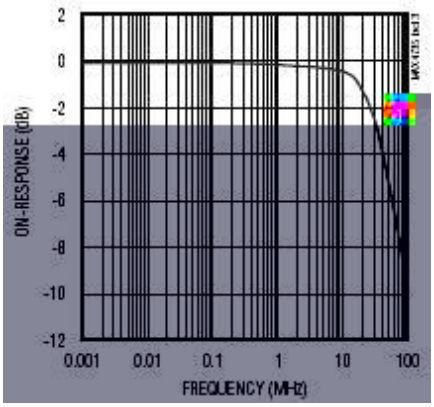
NO_ OFF-CAPACITANCE vs. NO_ VOLTAGE



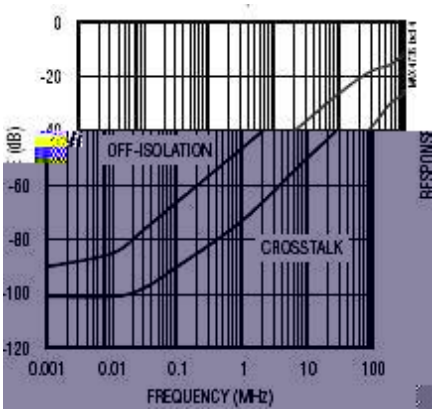
NO_ ON-CAPACITANCE vs. NO_ VOLTAGE



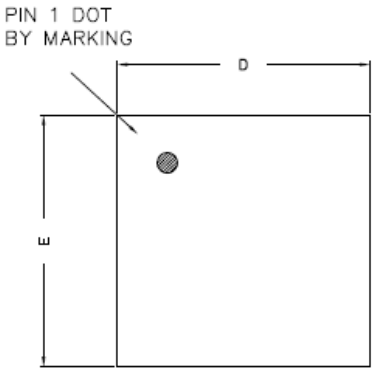
ON-RESPONSE vs. FREQUENCY



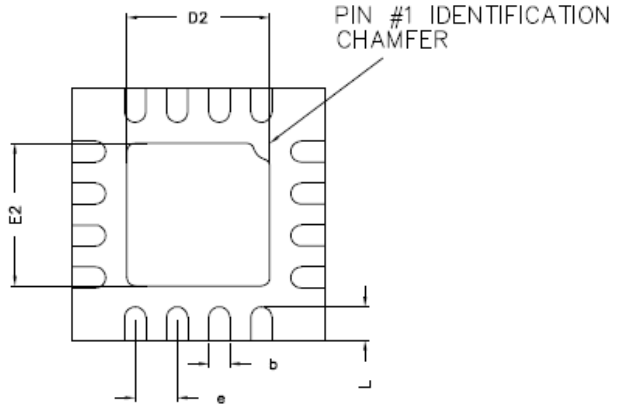
OFF-ISOLATION AND CROSSTALK vs. FREQUENCY



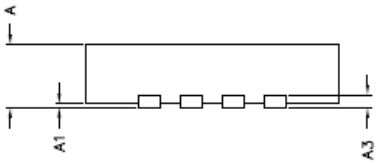
PACKAGE OUTLINE DIMENSIONS: TQFN 3x3 -16L



TOP VIEW



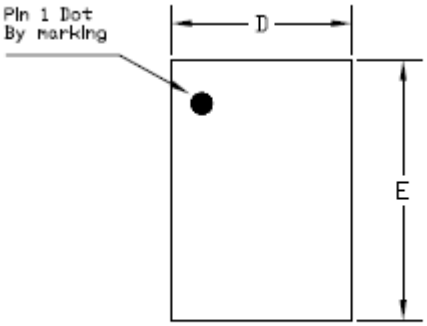
BOTTOM VIEW



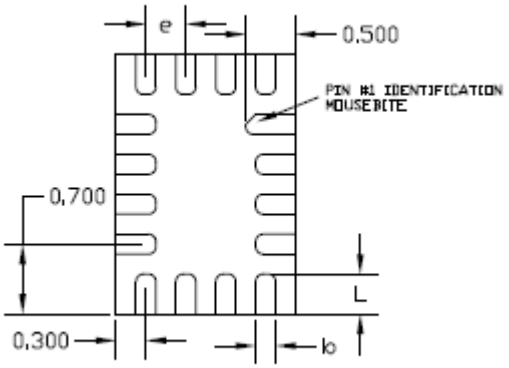
SIDE VIEW

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		

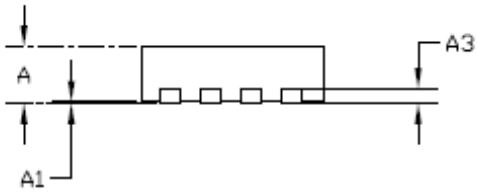
PACKAGE OUTLINE DIMENSIONS: UTQFN 1.8x2.6 -16L



TOP VIEW



BOTTOM VIEW



SIDE VIEW

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		