ORDERING INFORMATION

Temp. Range	Package	Part Number
- 40 °C to 85 °C	miniQFN-10	DG2721DN-T1-E4

TRUTH TABLE

IN_1 (Pin 10)	IN_2 (Pin 8)	Function
X	0	$COM2 = NC_2$
X	1	$COM2 = NO_2$
0	X	$COM1 = NC_1$
1	X	$COM1 = NO_1$

PIN DESCRIPTIONS

Pin Name	Description
IN_1	Select Input COM_1
IN_2	Select Input COM_2
$NC_{1/2}$, $NO_{1/2}$, $COM_{1/2}$	Data Channel

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted

Parameter		Limit	Unit
Reference to GND	V+	- 0.3 to 5.5	V
	IN_X, NC_X, NO_X, COM_X[a]	- 0.3 to (V+ + 0.3)	
Current (Any Terminal except IN_X, NC_X, NO_X, COM_X)		30	mA
Continuous Current (IN_X, NC_X, NO_X, COM_X)		± 250	
Peak Current (Pulsed at 1 ms, 10 % duty cycle)		± 500	
Storage Temperature (D Suffix)		- 65 to 150	°C
Power Dissipation (Packages)[b]	miniQFN-10[c]	208	mW
ESD (Human Body Model) All Pins I/O to GND		 4 8	kV
Latch-up (Current Injection)		350	mA

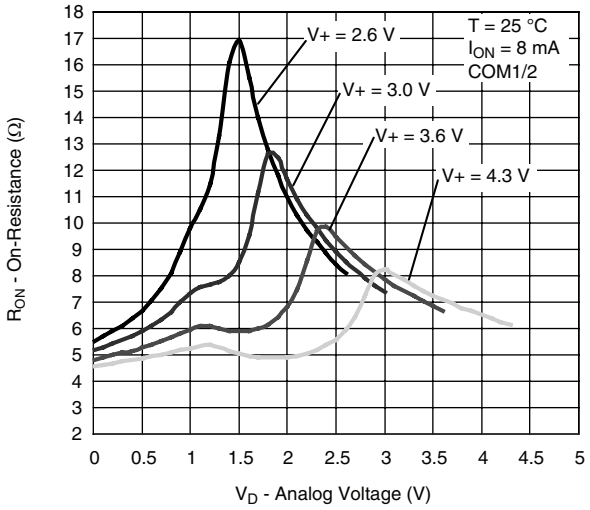
Notes:
a. Signals on IN_X, NC_X, NO_X, COM_X exceeding V+ will be clamped by internal diodes. Limit forward diode current to maximum current ratings.
b. All leads welded or soldered to PC board.
c. Derate 2.6 mW/°C above 70 °C.

SPECIFICATIONS V+ = 3.0 V							
Parameter	**Symbol**	**Test Conditions Otherwise Unless Specified**	**Temp.[a]**	**Limits - 40 °C to 85 °C Min.[b]**	**Typ.[c]**	**Max.[b]**	**Unit**
Analog Switch							
Analog Signal Range[d]	V_{ANALOG}	$R_{DS(on)}$	Full	0		V+	V
On-Resistance	$R_{DS(on)}$	V+ = 3.0 V, I_{COM} = 8 mA, $V_{NC/NO}$ = 0.4 V	Room		5.7	7	Ω
			Full			9	
On-Resistance Match[d]	ΔR_{ON}	V+ = 3.0 V, I_{COM} = 8 mA, $V_{NC/NO}$ = 0.4 V	Room		0.35		
On-Resistance Resistance Flatness[d]	R_{ON} Flatness	V+ = 3.0 V, I_{COM} = 8 mA, $V_{NC/NO}$ = 0.0 V, 1.0 V	Room		2		
Switch Off Leakage Current	$I_{(off)}$	V+ = 4.3 V, $V_{NC/NO}$ = 0.3 V, 3.0 V, V_{COM} = 3.0 V, 0.3 V	Full	- 100		100	nA
Channel On Leakage Current	$I_{(on)}$	V+ = 4.3 V, $V_{NC/NO}$ = 0.3 V, 4.0 V, V_{COM} = 4.0 V, 0.3 V	Full	- 200		200	
Digital Control							
Input Voltage High	V_{INH}	V+ = 3.0 V to 3.6 V	Full	1.3			V
		V+ = 4.3 V	Full	1.7			
Input Voltage Low	V_{INL}	V+ = 3.0 V to 4.3 V	Full			0.5	
Input Capacitance	C_{IN}		Full		5.6		pF
Input Current	I_{INL} or I_{INH}	V_{IN} = 0 or V+	Full	- 1		1	µA
Dynamic Characteristics							
Break-Before-Make Time[e, d]	t_{BBM}	V+ = 3.0 V, V_{COM} = 1.5 V, R_L = 50 Ω, C_L = 35 pF	Room		5		ns
			Full				
Turn-On Time[e, d]	t_{ON}		Room			30	
			Full				
Turn-Off Time[e, d]	t_{OFF}		Room			25	
			Full				
Charge Injection[d]	Q_{INJ}	C_L = 1 nF, R_{GEN} = 0 Ω, V_{GEN} = 0 V	Room		0.5		pC
Off-Isolation[d]	OIRR	V+ = 3.0 V to 3.6 V, R_L = 50 Ω, C_L = 5 pF, f = 240 MHz			- 30		dB
Crosstalk[d]	X_{TALK}				- 49		
Bandwidth[d]	BW	V+ = 3.0 V to 3.6 V, R_L = 50 Ω, C_L = 5 pF, - 3 dB			> 500		MHz
Channel-Off Capacitance[d]	$C_{NO(off)}$	V+ = 3.3 V, f = 1 MHz			4		pF
	$C_{NC(off)}$				4		
Channel-On Capacitance[d]	$C_{COM(on)}$				11		
Channel-to-Channel Skew[d]	$t_{SK(O)}$	V+ = 3.0 V to 3.6 V, R_L = 50 Ω, C_L = 5 pF			50		ps
Skew Off Opposite Transitions of the Same Output[d]	$t_{SK(p)}$				20		
Total Jitter[d]	t_J				200		
Power Supply							
Power Supply Range	V+			2.6		4.3	V
Power Supply Current	I+	V_{IN} = 0 V, or V+	Full			2	µA

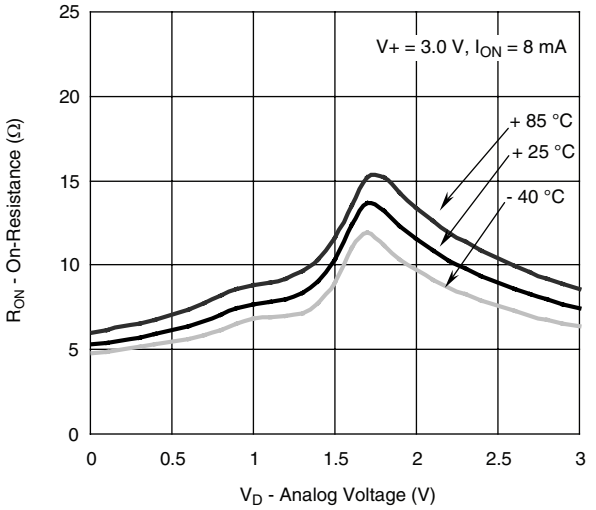
Notes:
a. Room = 25 °C, Full = as determined by the operating suffix.
b. The algebraic convention whereby the most negative value is a minimum and the most positive a maximum, is used in this data sheet.
c. Typical values are for design aid only, not guaranteed nor subject to production testing.
d. Guarantee by design, not subjected to production test.
e. V_{IN} = input voltage to perform proper function.
f. Crosstalk measured between channels.

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.

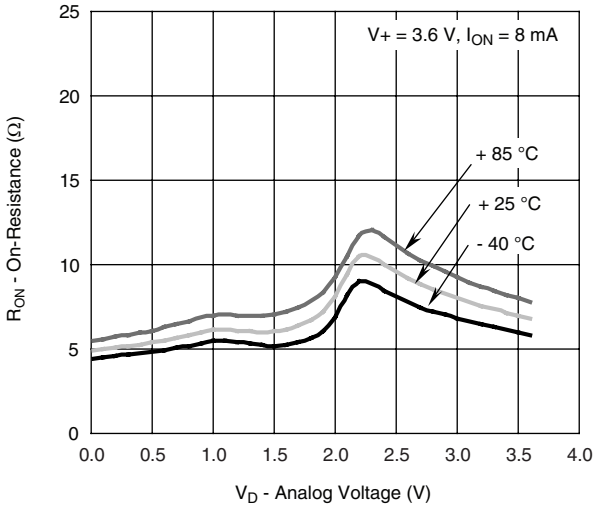
TYPICAL CHARACTERISTICS T_A = 25 °C, unless otherwise noted



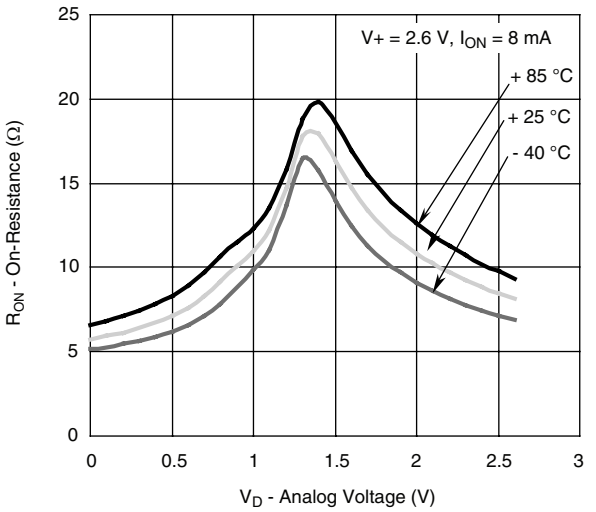
On-Resistance vs. V_D and Single Supply Voltage



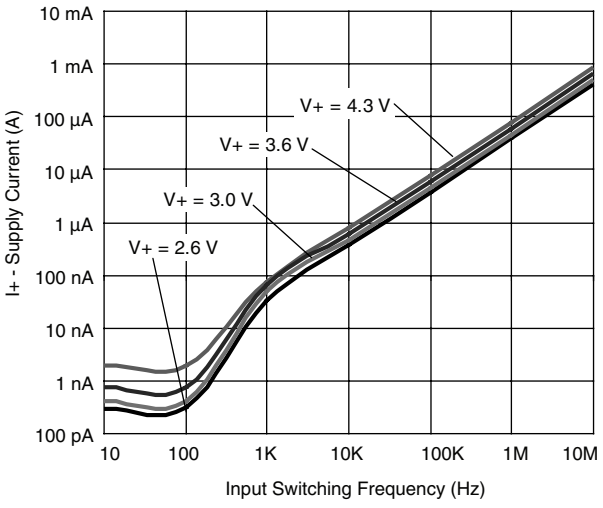
On-Resistance vs. Analog Voltage and Temperature



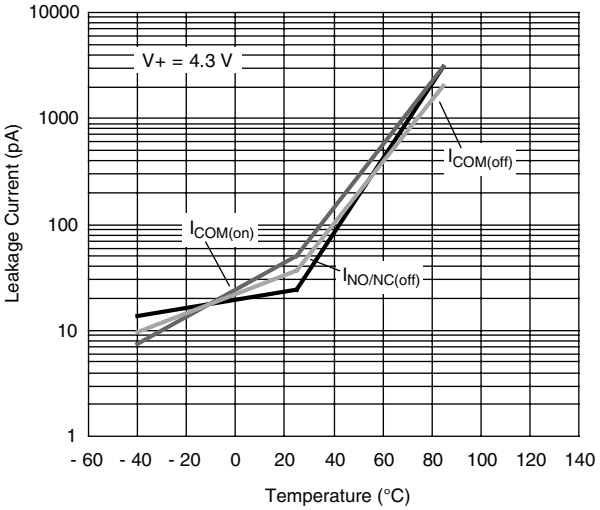
On-Resistance vs. Analog Voltage and Temperature



On-Resistance vs. Analog Voltage and Temperature

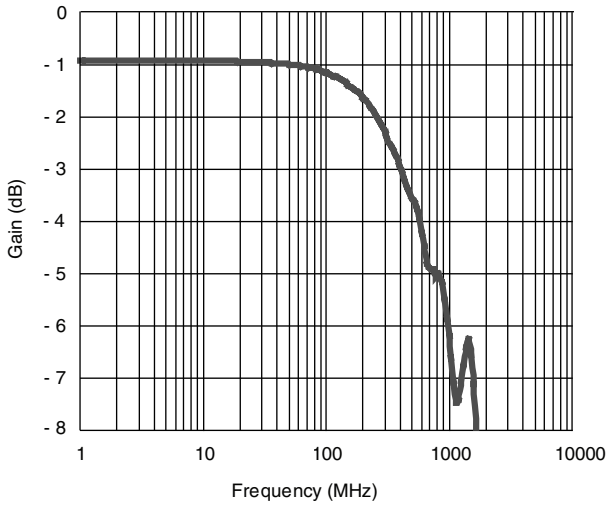


Supply Current vs. Input Switching Frequency

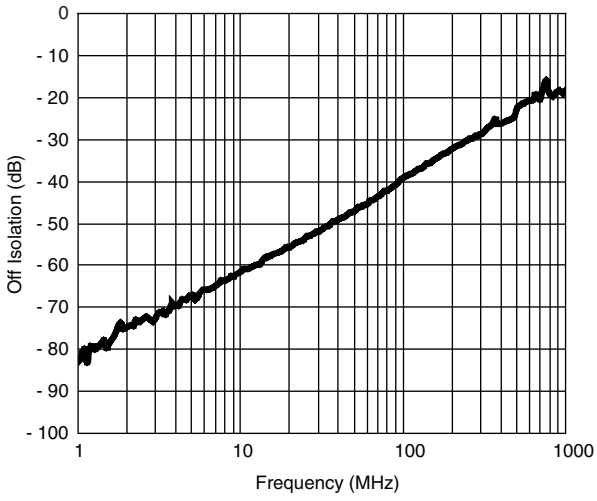


Leakage Current vs. Temperature

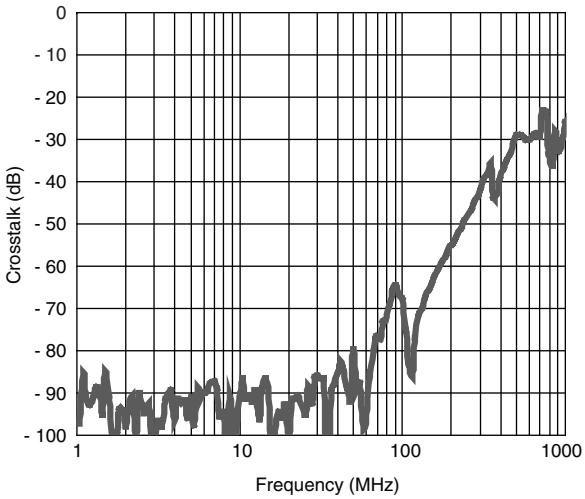
TYPICAL CHARACTERISTICS T_A = 25 °C, unless otherwise noted



Gain vs. Frequency, C_L = 5 pF, V+ = 3.3 V

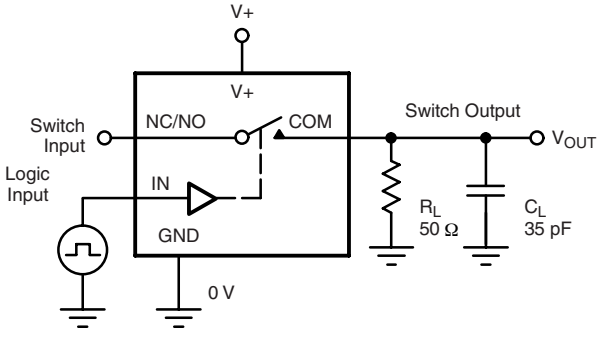


Off Isolation, V+ = 3.3 V



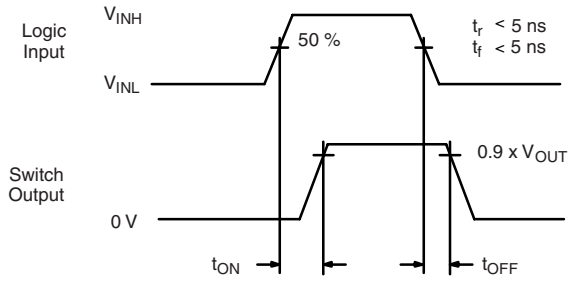
Crosstalk, V+ = 3.3 V

TEST CIRCUITS



C_L (includes fixture and stray capacitance)

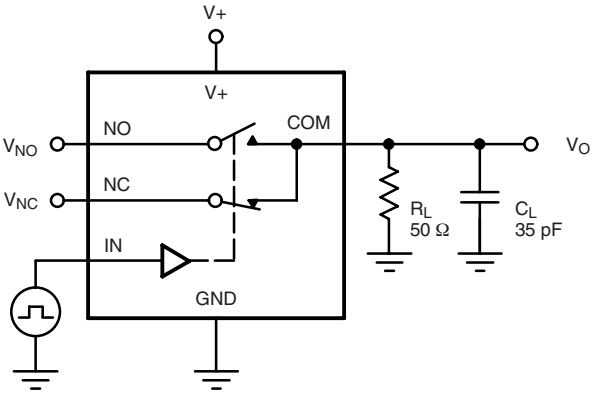
$$V_{OUT} = V_{COM}\left(\frac{R_L}{R_L + R_{ON}}\right)$$



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)

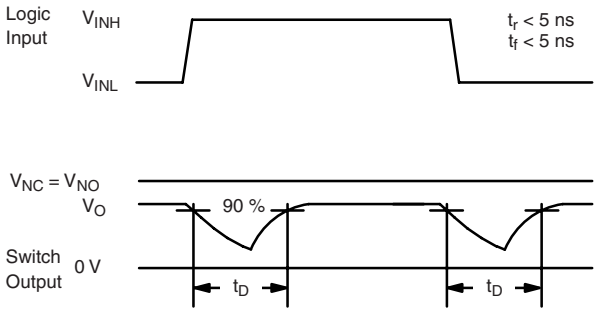
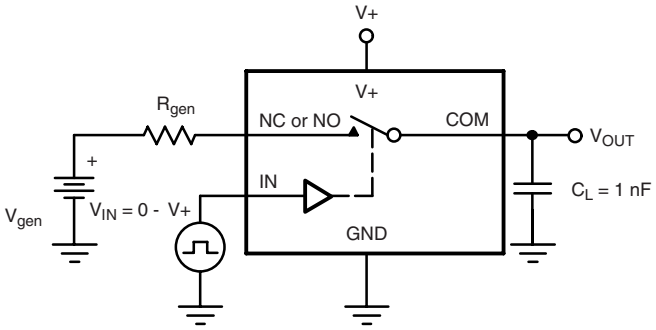
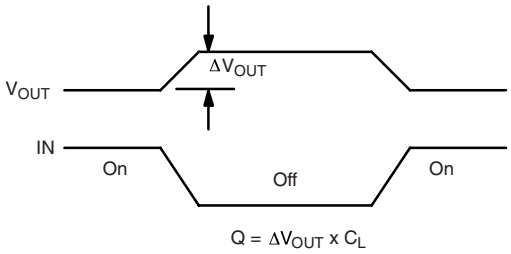


Figure 2. Break-Before-Make Interval





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

Figure 3. Charge Injection

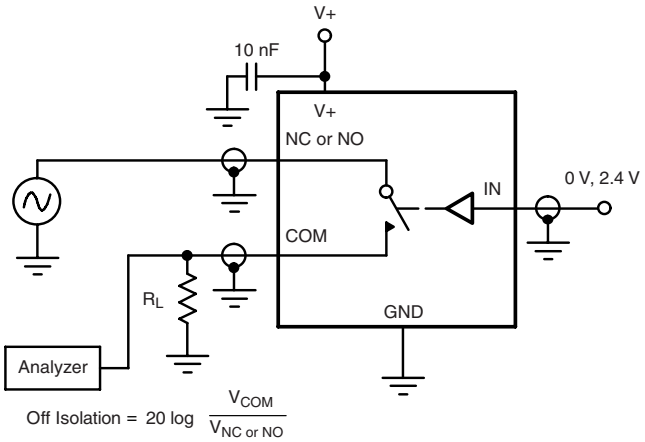


Figure 4. Off-Isolation

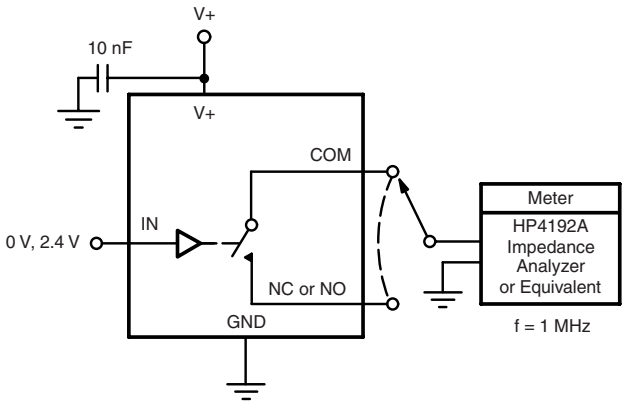


Figure 5. Channel Off/On Capacitance

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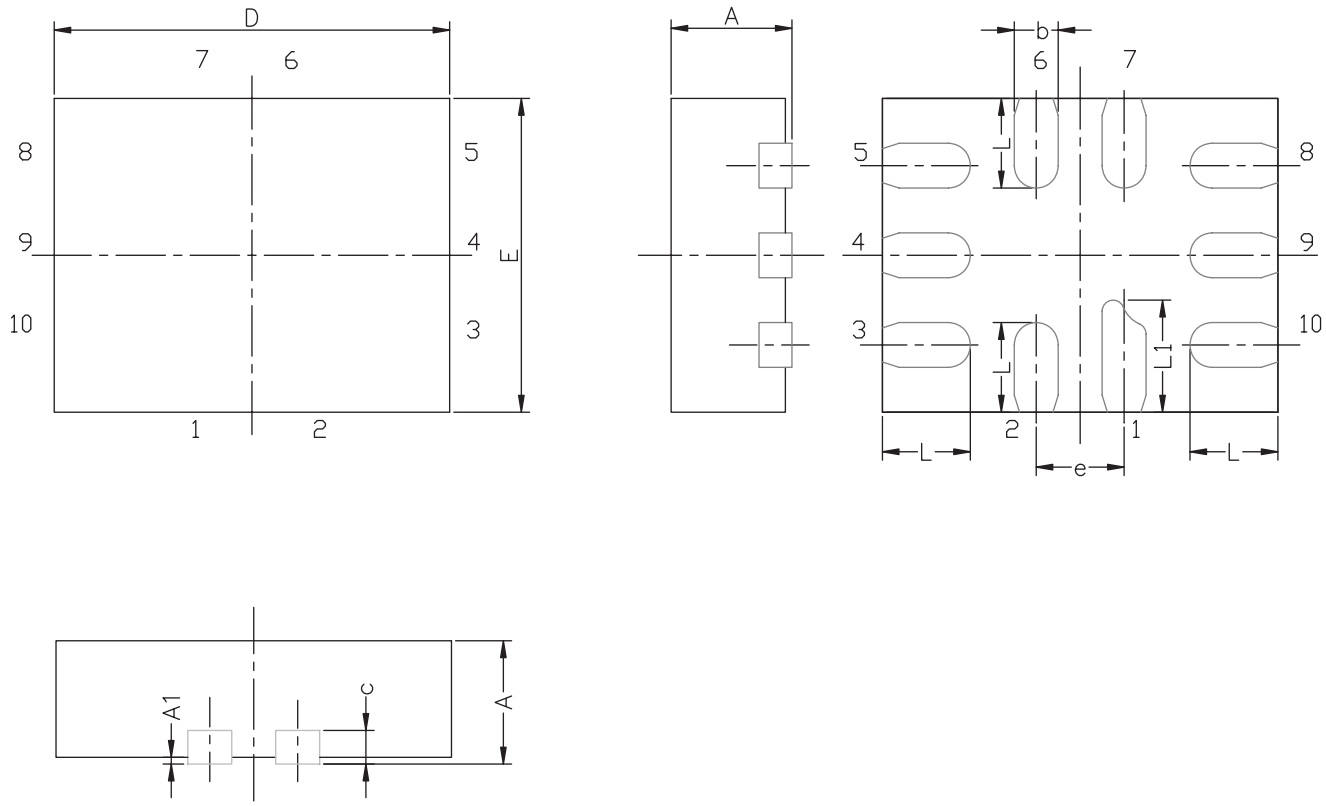
MINI QFN-10L CASE OUTLINE



DIM	MILLIMETERS			INCHES		
	MIN.	NAM.	MAX.	MIN.	NAM.	MAX.
A	0.50	0.55	0.60	0.0197	0.0217	0.0236
A1	0.00	-	0.05	0.000	-	0.002
b	0.15	0.20	0.25	0.006	0.008	0.010
c	0.15 REF			0.006 REF		
D	1.75	1.80	1.85	0.069	0.071	0.073
E	1.35	1.40	1.45	0.053	0.055	0.057
e	0.40 BSC			0.016 BSC		
L	0.35	0.40	0.45	0.014	0.016	0.018
L1	0.45	0.50	0.55	0.0177	0.0197	0.0217

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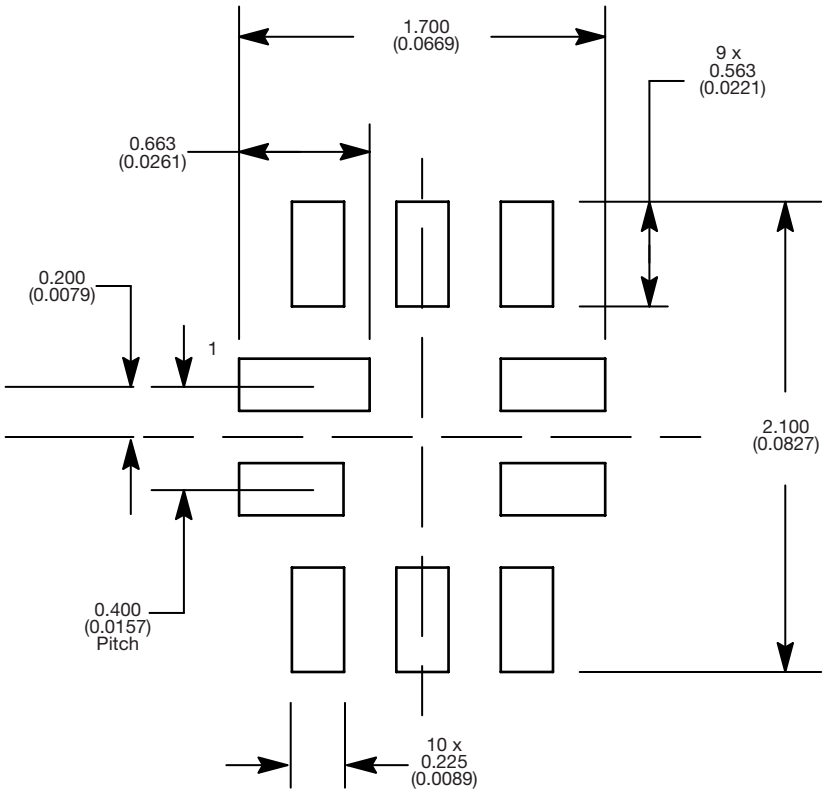
DWG: 5957

RECOMMENDED MINIMUM PADS FOR MINI QFN 10L



Mounting Footprint
Dimensions in mm (inch)

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