Absolute Maximum Ratings(1)

Supply Voltage V_{DD}	–0.5V to +7V
DC Switch Voltage (V_S)(2)	–0.5V to V_{DD} +0.5V
DC Input Voltage (V_{IN})(2)	–0.5V to +7.0V
DC Output Current (V_{OUT})	128mA
DC V_{DD} or Ground Current (I_{CC}/I_{GND})	±100mA
Storage Temperature Range (T_{STG})	–65°C to +150°C
Junction Temperature under Bias (T_J)	150°C
Junction Lead Temperature (T_L) (Soldering, 10 seconds)	260°C
Power Dissipation (P_D) @ +85°C	180mW

Recommended Operating Conditions(3)

Supply Voltage Operating (V_{DD})	1.65V to 5.5V
Control Input Voltage (V_{IN})	0V to V_{DD}
Switch Input Voltage (V_{IN})	0V to V_{DD}
Output Voltage (V_{OUT})	0V to V_{DD}
Operating Temperature (T_A)	–40°C to +85°C
Input Rise and Fall Time (t_r,t_f)	
Control Input V_{DD} = 2.3V - 3.6V	0ns/V to 10ns/V
Control Input V_{DD} = 4.5V - 5.5V	0ns/V to 5ns/V
Thermal Resistance (θ_{JA})	350°C/W

Notes:

1. Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions beyond those indicated in the operational sections of this specification is not implied.
2. The input and output negative voltage ratings may be exceeded if the inut and output diode current ratings are observed.
3. Control input must be held HIGH or LOW; it must not float.

DC Electrical Characteristics (Over the Operating temperature range, T_A = –40°C to 85°C)

Parameters	Description	Test Conditions	Supply Voltage	Temp	Min.	Typ.	Max.	Units
V_{IAR}	Analog Input Signal Range		V_{DD}	T_A = 25ºC & -40ºC to 85ºC	0		V_{DD}	V
R_{ON}	On-Resistance (4)	I_O = 30mA, V_{IN} = 0V	4.5V	T_A = 25ºC		4	6	Ω
		I_O = -30mA, V_{IN} = 2.4V				5	8	
		I_O = -30mA, V_{IN} = 4.5V				8	13	
R_{ON}		I_O = 30mA, V_{IN} = 0V	4.5V	T_A = -40ºC to 85ºC			6	
		I_O = -30mA, V_{IN} = 2.4V					8	
		I_O = -30mA, V_{IN} = 4.5V					13	
R_{ON}		I_O = 24mA, V_{IN} = 0V	3.0V	T_A = 25ºC		5	8	
		I_O = -24mA, V_{IN} = 3.0V				12	19	
R_{ON}		I_O = 24mA, V_{IN} = 0V	3.0V	T_A = -40ºC to 85ºC			8	
		I_O = -24mA, V_{IN} = 3.0V					19	
R_{ON}		I_O = 24mA, V_{IN} = 0V	2.3V	T_A = 25ºC		6	9	
		I_O = -24mA, V_{IN} = 2.3V				16	24	
R_{ON}		I_O = 24mA, V_{IN} = 0V	2.3V	T_A = -40ºC to 85ºC			9	
		I_O = -24mA, V_{IN} = 2.4V					24	
R_{ON}		I_O = 24mA, V_{IN} = 0V	1.65V	T_A = 25ºC		8	12	
		I_O = -24mA, V_{IN} = 1.65V				27	39	
R_{ON}		I_O = 24mA, V_{IN} = 0V	1.65V	T_A = -40ºC to 85ºC			12	
		I_O = -24mA, V_{IN} = 1.65V					39	

DC Electrical Characteristics Cont. (Over the Operating temperature range, T_A = –40°C to 85°C)

Parameters	Description	Test Conditions	Supply Voltage	Temp	Min.	Typ.	Max.	Units
ΔR_{ON}	On-Resistance Match Between Channels(4, 5, 6)	I_A = -30mA, V_{BN} = 3.15V	4.5V	T_A = 25ºC		0.15		Ω
		I_A = -24mA, V_{BN} = 2.1V	3.0V			0.2		
		I_A = -8mA, V_{BN} = 1.6V	2.3V			0.3		
		I_A = -4mA, V_{BN} = 1.15V	1.65V			0.3		
R_{ONF}	On-Resistance Flatness(4, 5, 7)	I_A = -30mA, 0 ≤ V_{BN} ≤ V_{DD}	5.0V	T_A = 25ºC		6		
		I_A = -24mA, 0 ≤ V_{BN} ≤ V_{DD}	3.3V			12		
		I_A = -8mA, 0 ≤ V_{BN} ≤ V_{DD}	2.5V			22		
		I_A = -4mA, 0 ≤ V_{BN} ≤ V_{DD}	1.8V			90		
V_{IH}	Input High Voltage	Logic High Level	V_{CC} = 1.65V to 1.95V	T_A = 25°C & –40°C to 85°C	0.75 V_{CC}			V
			V_{CC} = 2.3V to 5.5V		0.7 V_{CC}			
V_{IL}	Input Low Voltage	Logic LowLevel	V_{CC} = 1.65V to 1.95V				0.25 V_{CC}	
			V_{CC} = 2.3V to 5.5V				0.25 V_{CC}	
	Input Leakage Curent	0 ≤ V_{IN} ≤ 5.5V	V_{CC} ≤ 0V ≤ 5.5V	T_A = 25ºC			±0.1	µA
				T_A = -40ºC to 85ºC			±1.0	
I_{OFF}	OFF State Leakage Current	0 ≤ V_{IN} ≤ 5.5V	V_{CC} ≤ 1.65V ≤ 5.5V	T_A = 25ºC			±0.1	
				T_A = -40ºC to 85ºC			±10	
I_{CC}	Quiescent Supply Current	All Channels ON or OFF, V_{IN} = V_{DD} or GND, I_{OUT} = 0	V_{CC} = 5.5V	T_A = 25ºC			1	
				T_A = -40ºC to 85ºC			10	

Notes:

4. Measured by voltage drop between A and B pins at the indicated current through the device. On-Resistance is determined by the lower of the voltages on two ports (A or B).
5. Parameter is characterized but not tested in production.
6. ΔR_{ON} = R_{ON} max – R_{ON} min. measured at identical V_{DD}, temperature and voltage levels.
7. Flatness is defined as difference between maximum and minimum value of On-Resistance over the specified range of conditions.
8. Guaranteed by design.

Capacitance(12)

Parameters	Description	Test Conditions	Supply Voltage	Temp	Min.	Typ.	Max.	Units
C_{IN}	Controll Input	f = 1 MHz(12)	V_{CC} = 5.0V	T_A = 25ºC		2.3		pF
C_{IO-B}	For B Port, Switch OFF					6.5		
C_{IOA-ON}	For A Port, Switch ON					18.5		

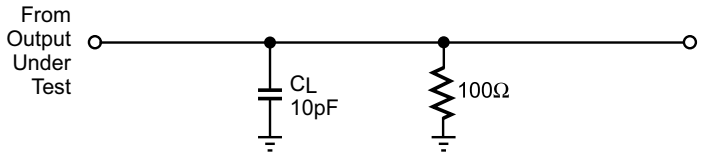
Switch and AC Characteristics

Parameters	Description	Test Conditions	Supply Voltage	Temp	Min.	Typ.	Max.	Units
t_{PLH} t_{PHL}	Propagation Delay: A to Bn	See test circut diagram 1 and 2 V_I Open(10)	V_{CC} = 2.3V to 2.7V	T_A = 25ºC & -40ºC to 85ºC		1.2		ns
			V_{CC} = 3.0V to 3.6V			0.8		
			V_{CC} = 4.5V to 5.5V			0.3		
t_{PZL} t_{PZH}	Output Enable Turn ON Time: A to Bn	See test circut diagram 1 and 2 V_I = 2 V_{CC} for t_{PZL}, V_I = 0V for t_{PZH}	V_{CC} = 1.65V to 1.95V	T_A = 25ºC	7		23	
			V_{CC} = 2.3V to 2.7V		3.5		13	
			V_{CC} = 3.0V to 3.6V		2.5		6.9	
			V_{CC} = 4.5V to 5.5V		1.7		5.2	
t_{PZL} t_{PZH}	Output Enable Turn ON Time: A to Bn	See test circut diagram 1 and 2 V_I = 2 V_{CC} for t_{PZL}, V_I = 0V for t_{PZH}	V_{CC} = 2.5V	T_A = 25ºC & -40ºC to 85ºC			24	
			V_{CC} = 3.3V				14	
			V_{CC} = 3.0V to 3.6V				7.6	
			V_{CC} = 4.5V to 5.5V				5.7	
t_{PLZ} t_{PHZ}	Output Disable-Turn OFF Time: A to Bn	See test circut diagram 1 and 2 V_I = 2 V_{CC} for t_{PZL}, V_I = 0V for t_{PZH}	V_{CC} = 1.65V to 1.95V	T_A = 25ºC	3		12.5	
			V_{CC} = 2.3V to 2.7V		2		7	
			V_{CC} = 3.0V to 3.6V		1.5		5	
			V_{CC} = 4.5V to 5.5V		0.8		3.5	
t_{PLZ} t_{PHZ}	Output Disable-Turn OFF Time: A to Bn	See test circut diagram 1 and 2 V_I = 2 V_{CC} for t_{PZL}, V_I = 0V for t_{PZH}	V_{CC} = 2.5V	T_A = 25ºC & -40ºC to 85ºC			13	
			V_{CC} = 3.3V				7.5	
			V_{CC} = 3.0V to 3.6V				5.3	
			V_{CC} = 4.5V to 5.5V				3.8	
t_{BM}	Break Before Make Time	See Test Circut diagram 9.(9)	V_{CC} = 2.5V	T_A = 25ºC & -40ºC to 85ºC	0.5			
			V_{CC} = 3.3V		0.5			
			V_{CC} = 3.0V to 3.6V		0.5			
			V_{CC} = 4.5V to 5.5V		0.5			
Q	Charge Injection	C_L = 0.1nF, V_{GEN} = 0V, R_{GEN} = 0Ω, See test circut 4	V_{CC} = 5.0V	T_A = 25ºC		7		pC
			V_{CC} = 3.3V			3		
O_{IRR}	Off Isolation	R_L = 50Ω, V_{GEN} = 0V, R_{GEN} = 0Ω, See test circut 5(11)	V_{CC} = 1.65V to 5.5V	T_A = 25ºC		-57		dB
X_{TALK}	Crosstalk Isolation	See test circut 6	V_{CC} = 1.65V to 5.5V	T_A = 25ºC		-54		
f_{3dB}	-3dB Bandwidth	See test circut 9	V_{CC} = 1.65V to 5.5V	T_A = 25ºC		250		MHz

Notes:

9. Guaranteed by design.
10. Guaranteed by design but not production tested. The device contributes no other propagation delay other than the RC delay of the switch On-Resistance and the 50pF load capacitance, whne driven by an ideal voltage source with zero output impedance.
11. Off Isolation = 20 Log_{10} [V_A / V_{Bn}] and is measured in dB.
12. T_A = 25°C, f = 1MHz. Capacitance is characterized but not tested in production.

Test Circuits and Timing Diagrams



Notes: Input driven by 50Ω source terminated in 50Ω.
C_L includes load and stray capacitance.
Input PRR = 1.0 MHz; t_W = 500ns.

Figure 1. AC Test Circuit

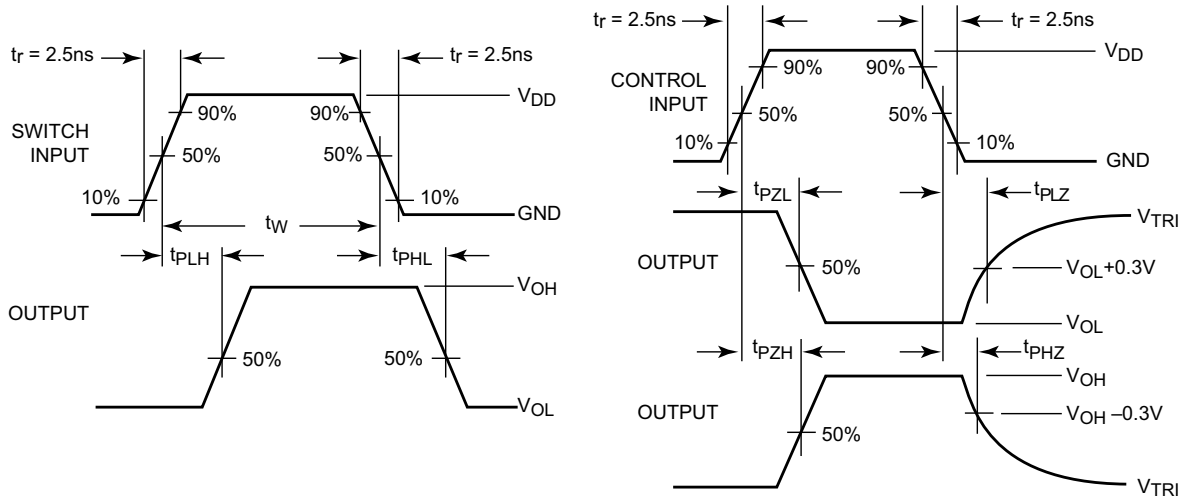


Figure 2. AC Waveforms

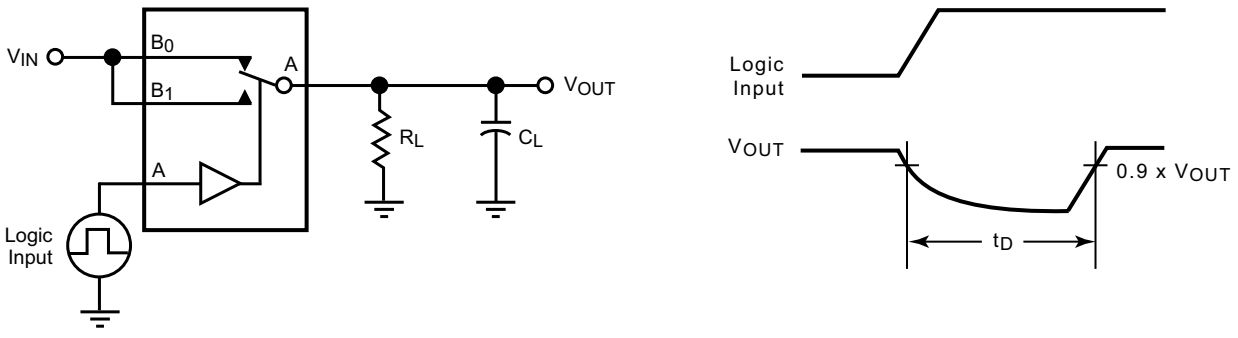


Figure 3. Break Before Make Interval Timing

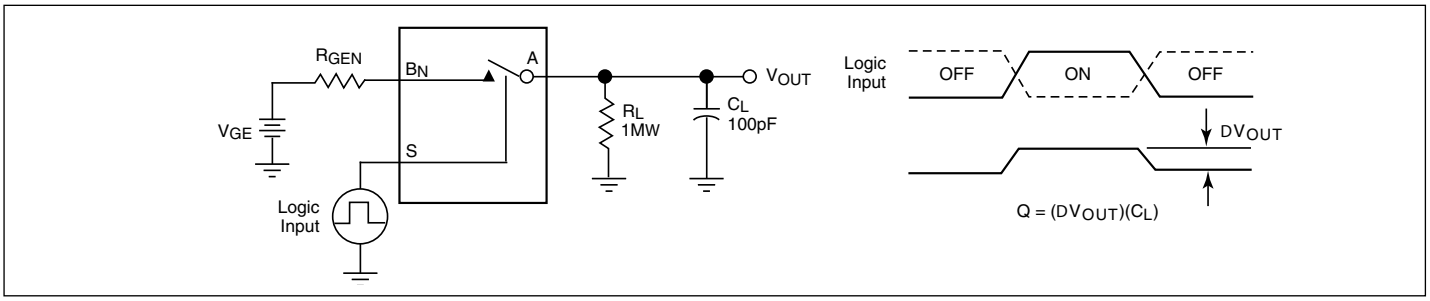


Figure 4. Charge Injection Test

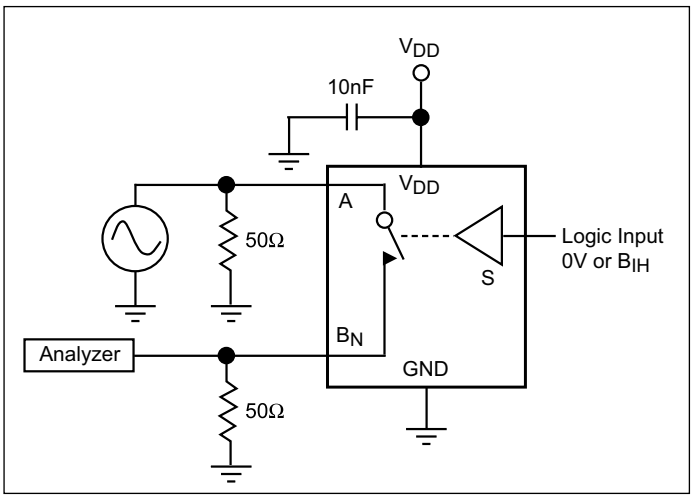


Figure 5. Off Isolation

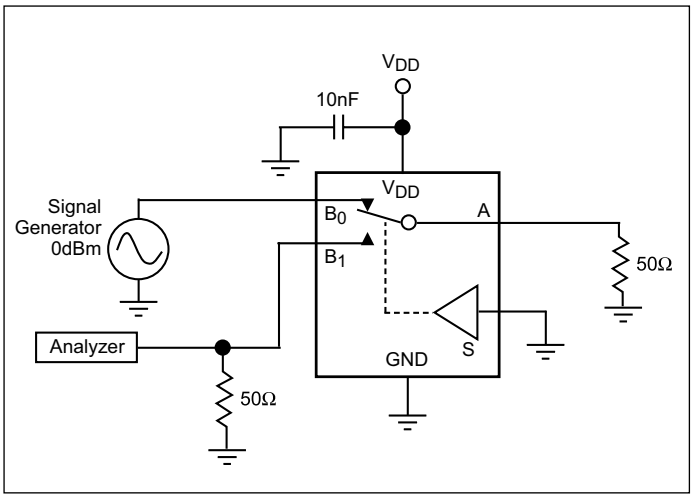


Figure 6. Crosstalk

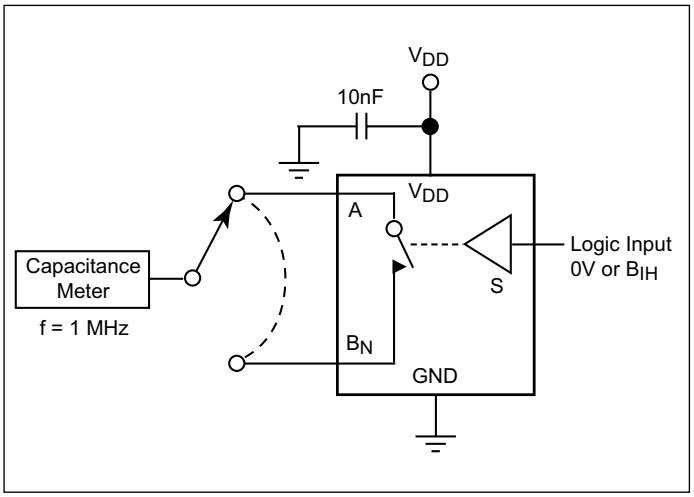


Figure 7. Channel Off Capacitance

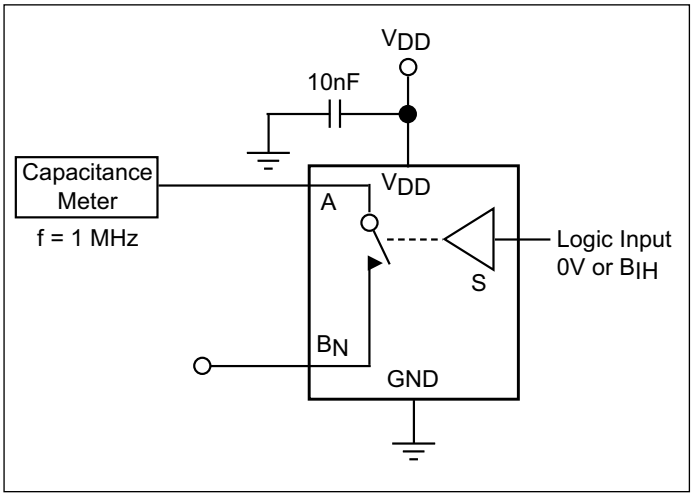


Figure 8. Channel On Capacitance

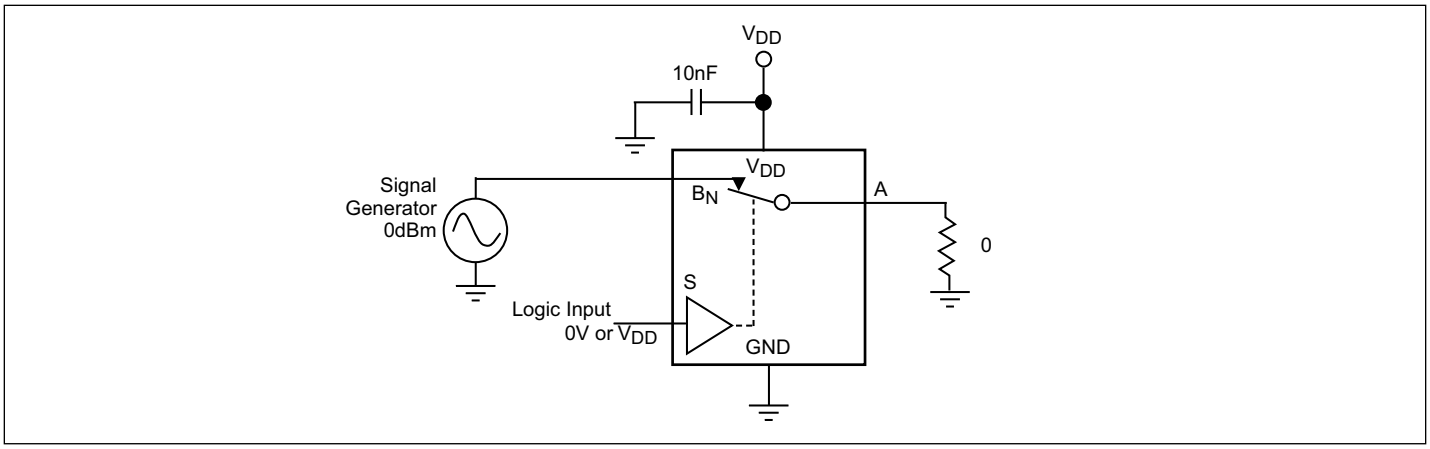


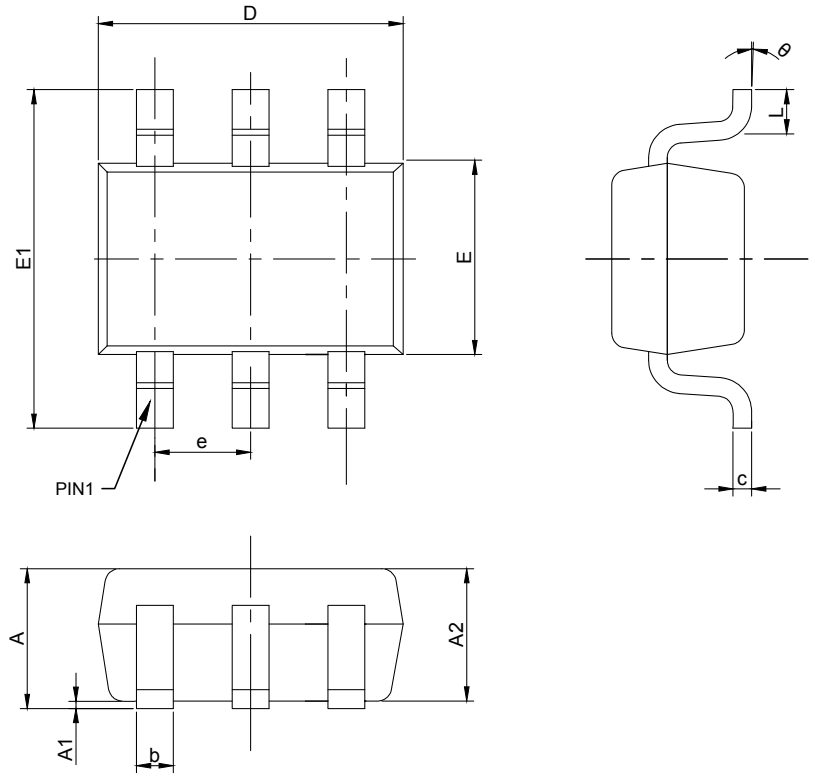
Figure 9. Bandwidth

Part Marking

C Package

kD: PI5A3157BC6E
XX: Date Code (Year & Workweek)
The Bar of "D" means Fab3 of Magnachip

Packaging Mechanical: 6-SC70 (C)



PKG. DIMENSIONS(MM)		
SYMBOL	Min	Max
A	-	1.10
A1	0.00	0.10
A2	0.70	1.00
b	0.15	0.40
c	0.08	0.22
D	1.80	2.20
E	1.10	1.40
E1	1.80	2.40
e	0.65 BSC	
L	0.26	0.46
θ	0°	8°

Notes:

1. Comply with MO-203C/AB,except b Max,D Min and D Max.
2. PACKAGE OUTLINE DIMENSIONS DO NOT INCLUDE MOLD FLASH AND METAL BURR

PERICOM Enabling Serial Connectivity — **DATE: 03/29/16**

DESCRIPTION: 6-Pin, SOT363 (SC70)

PACKAGE CODE: C (C6)

DOCUMENT CONTROL#: PD-1902 **REVISION:B**

16-0078

For latest package info.

please check: http://www.diodes.com/design/support/packaging/pericom-packaging/packaging-mechanicals-and-thermal-characteristics/

Ordering Information

Ordering Code	Packaging Code	Package Description	Top Mark
PI5A3157CEX	C	6-pin, SOT363 (SC70)	ZM

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. E = Pb-free and Green
5. X suffix = Tape/Reel

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel.

Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes Incorporated.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or

2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

www.diodes.com