

Maximum Ratings

Storage Temperature.....	-65°C to +150°C
Ambient Temperature with Power Applied.....	-40°C to +85°C
Supply Voltage V_{CC}	-0.5V to +7.0V
DC Switch Voltage V_S	-0.5V to $V_{CC}+0.5V$
DC Input Voltage V_{IN}	-0.5V to +7.0V
DC Output Current V_{OUT}	128mA
DC V_{CC} or Ground Current I_{CC}/I_{GND}	$\pm 100mA$
Junction Temperature under Bias (T_J)	150 °C
Junction Lead Temperature (T_L) (Soldering, 10 seconds)	260 °C
ESD (HBM)	5KV
Power Dissipation (PD) @ +85 °C	SOT23 250mW SC70 200mW UDFN1x1 150mW

Note:

Stresses greater than those listed under MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

Recommended Operating Conditions

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{CC}	Operating Voltage	-	1.65	-	5.5	V
V_{IN}	Control Input Voltage	-	0	-	V_{CC}	V
V_S	Switch Input Voltage	-	0	-	V_{CC}	V
V_{OUT}	Output Voltage	-	0	-	V_{CC}	V
T_A	Operating Temperature	-	-40	25	85	°C
t_r, t_f	Input Rise and Fall Time	Control Input $V_{CC} = 2.7V$ to 3.6V	0	-	10	ns/V
		Control Input $V_{CC} = 4.5V$ to 5.5V	0	-	5	ns/V

Note: Control input must be held HIGH or LOW; it must not float.

DC Electrical Characteristics

(T_A = -40 °C to 85 °C, unless otherwise noted.)

Parameter	Description	Test Conditions	Supply Voltage	Min	Typ	Max	Units
V _{IAR}	Analog Input Signal Range	-	V _{CC}	0	-	V _{CC}	V
R _{ON}	ON Resistance ⁽¹⁾	I _O = 100mA, V _{IN} = 0V	4.5V	-	0.7	1.1	Ω
		I _O = 100mA, V _{IN} = 2.4V		-	0.6	1.0	
		I _O = 100mA, V _{IN} = 4.5V		-	0.8	1.2	
		I _O = 100mA, V _{IN} = 0V	3.0V	-	0.8	1.3	
		I _O = 100mA, V _{IN} = 3.0V		-	0.9	1.9	
		I _O = 100mA, V _{IN} = 0V	2.3V	-	1.0	1.5	
		I _O = 100mA, V _{IN} = 2.3V		-	1.2	1.8	
		I _O = 100mA, V _{IN} = 0V	1.65V	-	1.3	1.9	
		I _O = 100mA, V _{IN} = 1.65V		-	2.0	2.8	
ΔR _{ON}	ON Resistance Match Between Channels ^(1,2,3)	I _A = 100mA, V _{Bn} = 3.15V	4.5V	-	0.01	0.03	Ω
		I _A = 100mA, V _{Bn} = 2.1V	3.0V	-	0.02	0.04	
		I _A = 100mA, V _{Bn} = 1.6V	2.3V	-	0.03	0.06	
		I _A = 100mA, V _{Bn} = 1.15V	1.65V	-	0.03	0.06	
R _{ONF}	ON Resistance Flatness ^(1,2,4)	I _A = 100mA, V _{Bn} = 0V, 2.4V, 4.5V	4.5V	-	0.2	0.4	Ω
		I _A = 100mA, V _{Bn} = 0V, 1.5V, 3.3V	3.3V	-	0.2		
		I _A = 100mA, V _{Bn} = 0V, 1.1V, 2.5V	2.5V	-	0.4	0.6	
		I _A = 100mA, V _{Bn} = 0V, 0.7V, 1.8V	1.8V	-	1.0	1.4	
V _{IH}	Input High Voltage	Logic High Level	V _{CC} = 1.65V	0.9	-	-	V
			V _{CC} = 2.3V	1.0	-	-	
			V _{CC} = 3V	1.1	-	-	
			V _{CC} = 4.2V	1.2	-	-	
			V _{CC} = 5.5V	1.3	-	-	
V _{IL}	Input Low Voltage	Logic Low Level	V _{CC} = 1.65V	-	-	0.6	V
			V _{CC} = 2.3V	-	-	0.6	
			V _{CC} = 3V	-	-	0.6	
			V _{CC} = 4.2V	-	-	0.8	
			V _{CC} = 5.5V	-	-	0.8	
I _{OFF} (NO) or I _{OFF} (NC)	Source Off Leakage Current	V _{CC} = 5.5V, V _A = 1V, 4.5V V _{Bn} = 1V, 4.5V	V _{CC} = 3V	-20	-	+20	nA
I _{INC(ON)} , I _{INO(ON)} , I _{ICOM(ON)}	Channel On Leakage Current	-	V _{CC} = 1.65 to 5.5V	-40	-	+40	
I _{CC}	Quiescent Supply Current	All channels ON or OFF, V _{IN} = V _{CC} or GND, I _{OUT} = 0	V _{CC} = 3.6V	-	0.002	0.1	μA
			V _{CC} = 5.5V	-	0.002	0.1	
I _{CCT}	Increase in I _{CC} per Input	Input at 2.7V	V _{CC} = 4.3V	-	0.2	10.0	μA

Notes:

1. 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).
2. Parameter is characterized but not tested in production.
3. ΔR_{ON} = R_{ON} max - R_{ON} min. measured at identical V_{CC}, temperature and voltage levels.
4. Flatness is defined as difference between maximum and minimum value of ON resistance over the specified range of conditions.

Capacitance ⁽¹⁾

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
C_{IN}	Control Input	$V_{CC} = 5.0V, f = 1 \text{ MHz}, T_A = 25^\circ C$	-	3.5	-	pF
C_{IO-B}	For B Port, Switch OFF		-	15.0	-	
C_{IOA-ON}	For A Port, Switch ON		-	34.0	-	

Notes:

1. Capacitance is characterized but not tested in production

Switch and AC Characteristics ⁽¹⁾

Parameter	Description	Test Conditions	Supply Voltage	Min	Typ	Max	Units
t_{BBM}	Break Before Make Time	See Figure 2	$V_{CC} = 2.7V \text{ to } 3.6V$	-	10	20	ns
			$V_{CC} = 4.5V \text{ to } 5.5V$	-	6	12	
t_{ON}	Turn on Time	See Figure 1	$V_{CC} = 2.7V \text{ to } 3.6V$	-	12	25	
			$V_{CC} = 4.5V \text{ to } 5.5V$	-	9	18	
t_{OFF}	Turn off Time	See Figure 1	$V_{CC} = 2.7V \text{ to } 3.6V$	-	17	35	
			$V_{CC} = 4.5V \text{ to } 5.5V$	-	10	20	
Q	Charge Injection	$C_L = 1nF, V_{GEN} = 0V, R_{GEN} = 0\Omega$. See Figure 3	$V_{CC} = 5.0V$	-	35	-	pC
			$V_{CC} = 3.3V$	-	25	-	
OIRR	Off Isolation	$R_L = 50\Omega, V_{GEN} = 0V, R_{GEN} = 0\Omega, f = 1MHz$. See Figure 4 ⁽²⁾	$V_{CC} = 1.65V \text{ to } 5.5V$	-	-70	-	dB
X_{TALK}	Crosstalk Isolation	$f = 1MHz$, See Figure 5	$V_{CC} = 1.65V \text{ to } 5.5V$	-	-70	-	
f_{3dB}	-3dB Bandwidth	See Figure 8	$V_{CC} = 1.65V \text{ to } 5.5V$	-	150	-	MHz
T_{HD}	Total Harmonic Distortion	$R_L = 600\Omega, V_{IN} = 0.5V_{pp}, f = 20Hz \text{ to } 20kHz$ See Figure 9	$V_{CC} = 2.7V \text{ to } 4.2V$	-	0.015	-	%

Notes:

1. Guaranteed by design.

2. Off Isolation = $20 \log_{10} [V_{BN}/V_A]$ and is measured in dB.

Test Circuits and Timing Diagrams

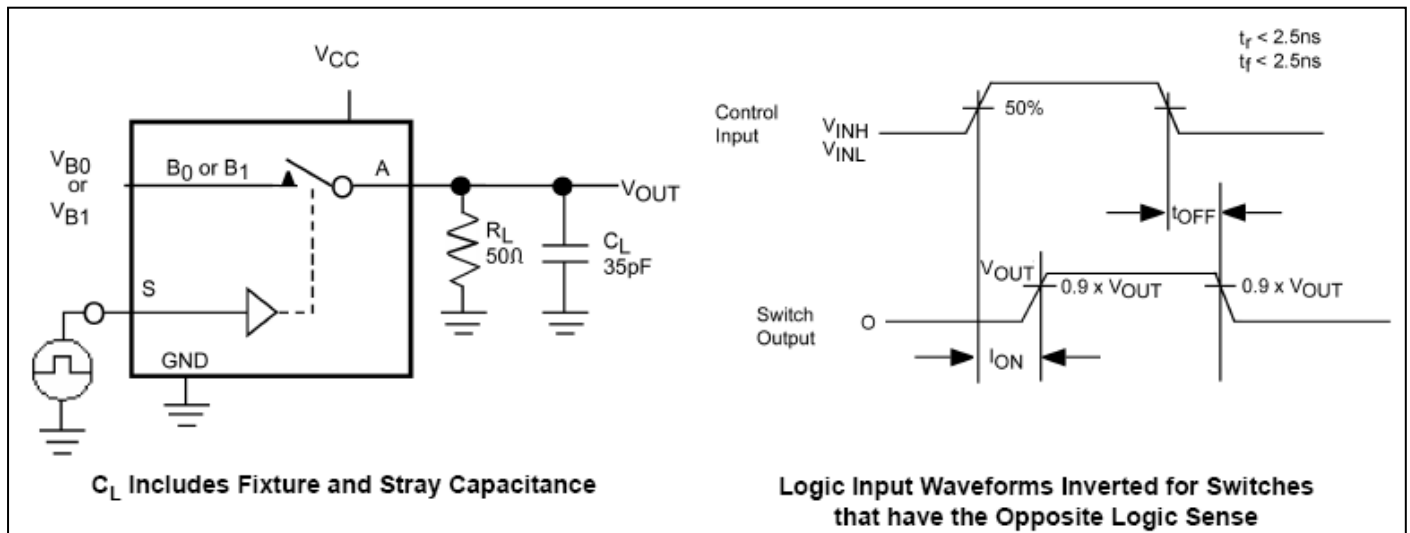


Figure 1. Turn ON/OFF Timing

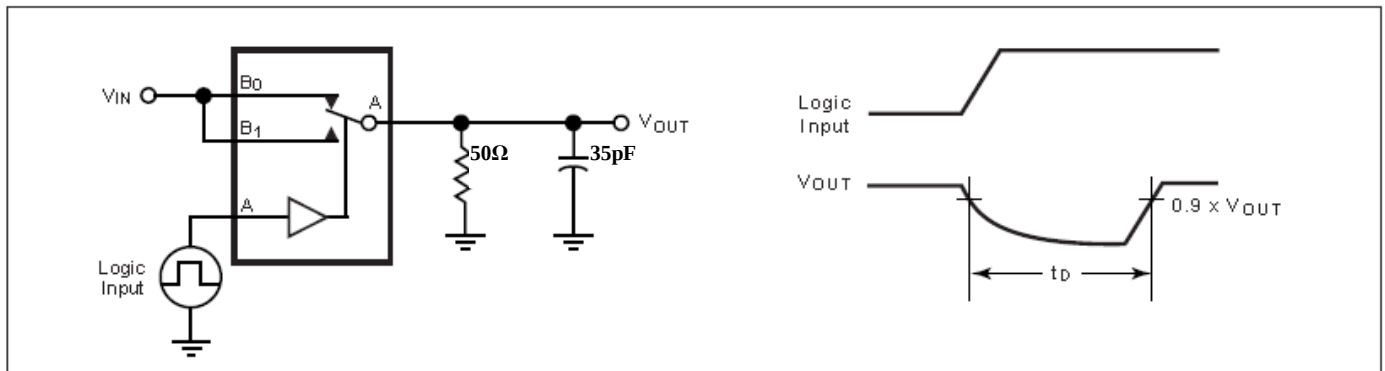


Figure 2. Break Before Make Interval Timing

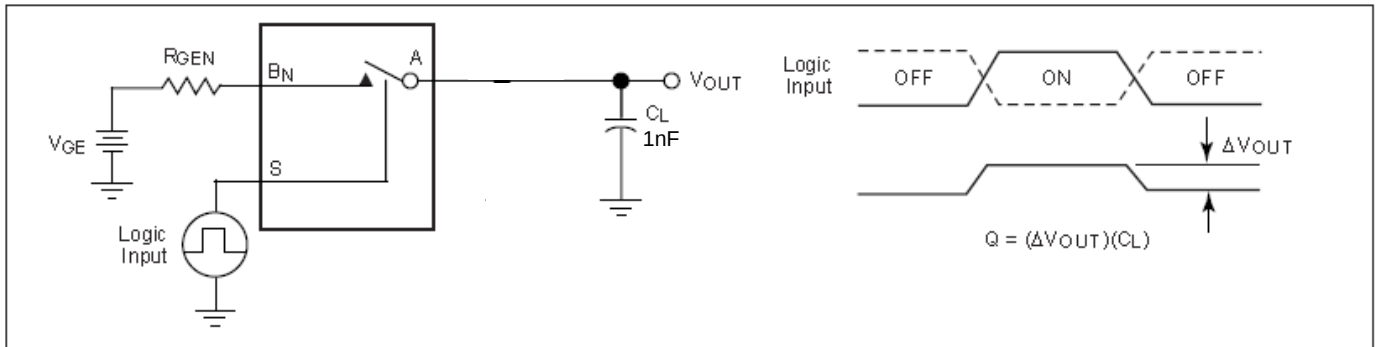


Figure 3. Charge Injection Test

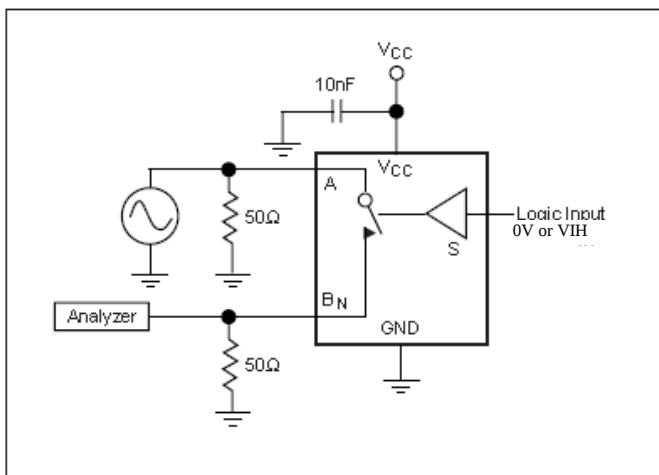


Figure 4. Off Isolation

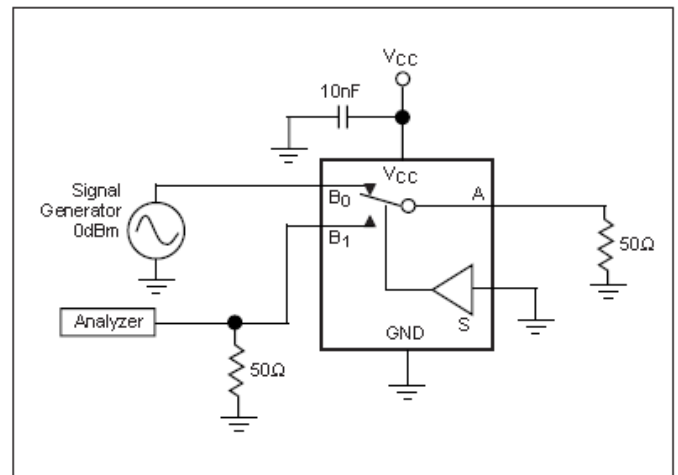


Figure 5. Crosstalk

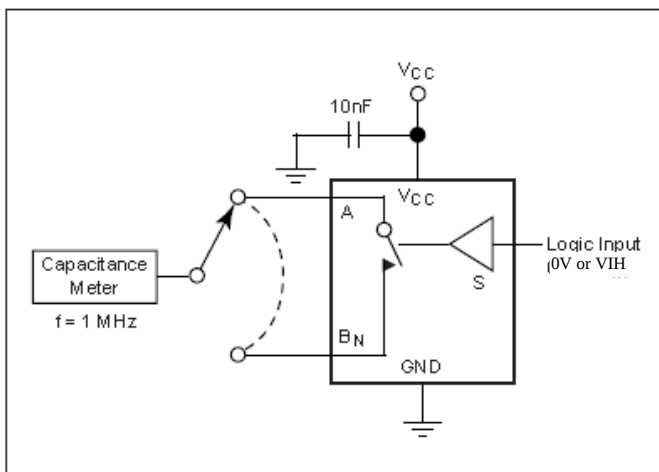


Figure 6. Channel Off Capacitance

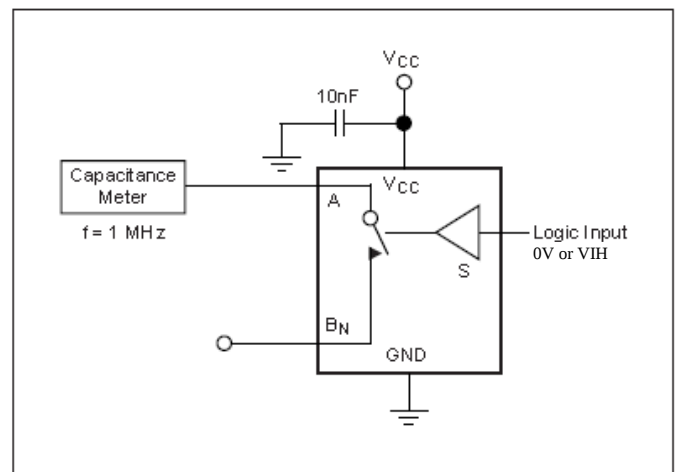


Figure 7. Channel On Capacitance

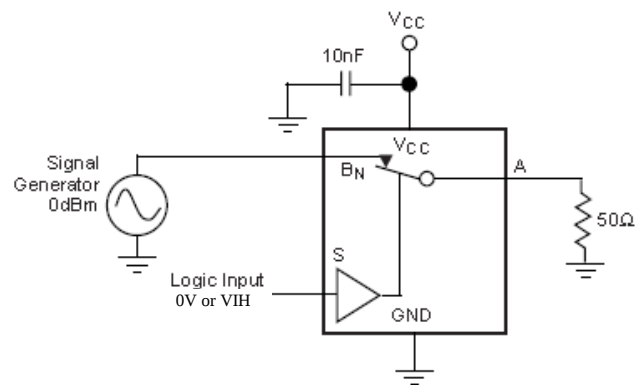


Figure 8. Bandwidth

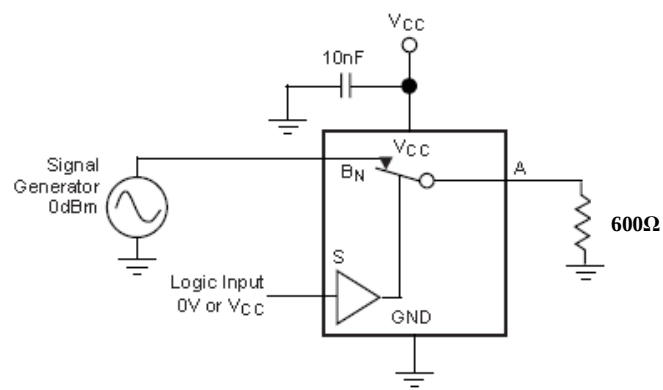
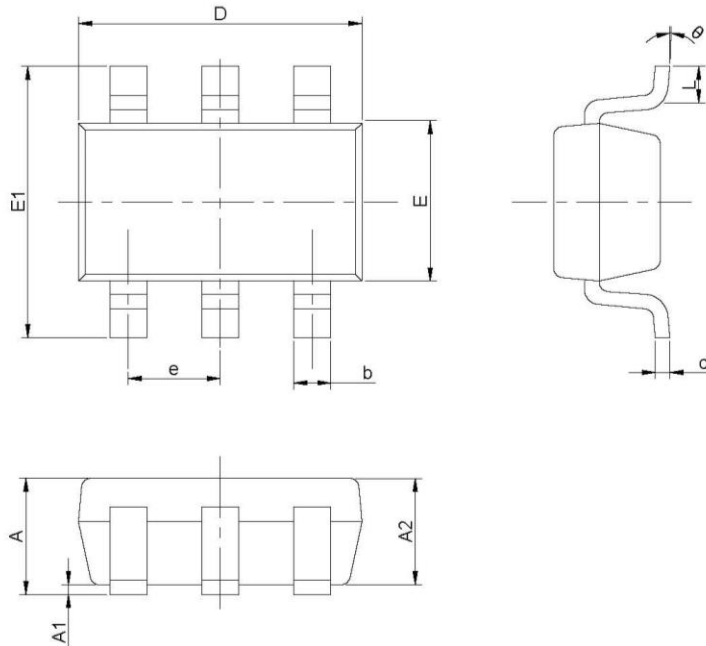


Figure 9. Harmonic Distortion

Mechanical Information

TA (6-pin SOT23)



PKG. DIMENSIONS(MM)		
SYMBOL	Min	Max
A	-	1.45
A1	0.00	0.15
A2	0.90	1.30
b	0.30	0.50
c	0.08	0.22
D	2.75	3.05
E	1.45	1.75
E1	2.60	3.00
e	0.95 BSC	
L	0.30	0.60
θ	0°	8°

Note:

1. Ref. JEDEC MO-178C/AB
2. PACKAGE OUTLINE DIMENSIONS DO NOT INCLUDE MOLD FLASH AND METAL BURR



DATE: 03/29/16

DESCRIPTION: 6-Pin, Small Outline Transistor Plastic Package (SOT23)

PACKAGE CODE: TA (TA6)

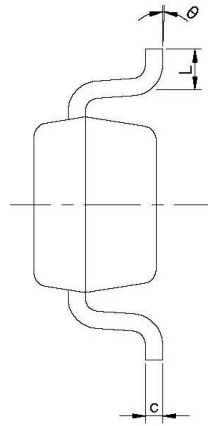
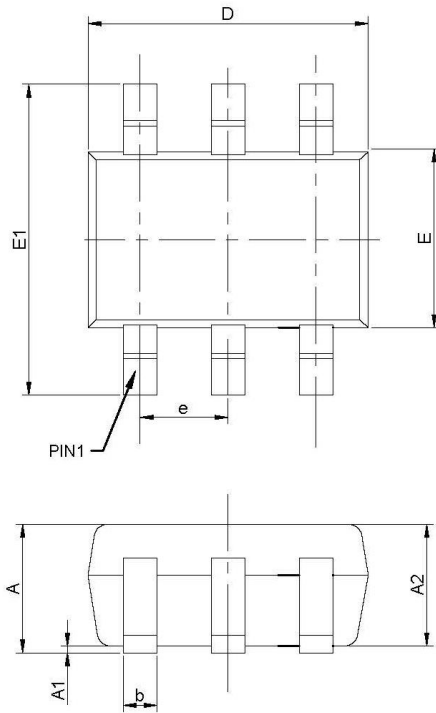
DOCUMENT CONTROL #: PD-2145

REVISION:A

16-0082

PI5A4157

C (6-pin SC70)



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



DATE: 03/29/16

DESCRIPTION: 6-Pin, SOT363 (SC70)

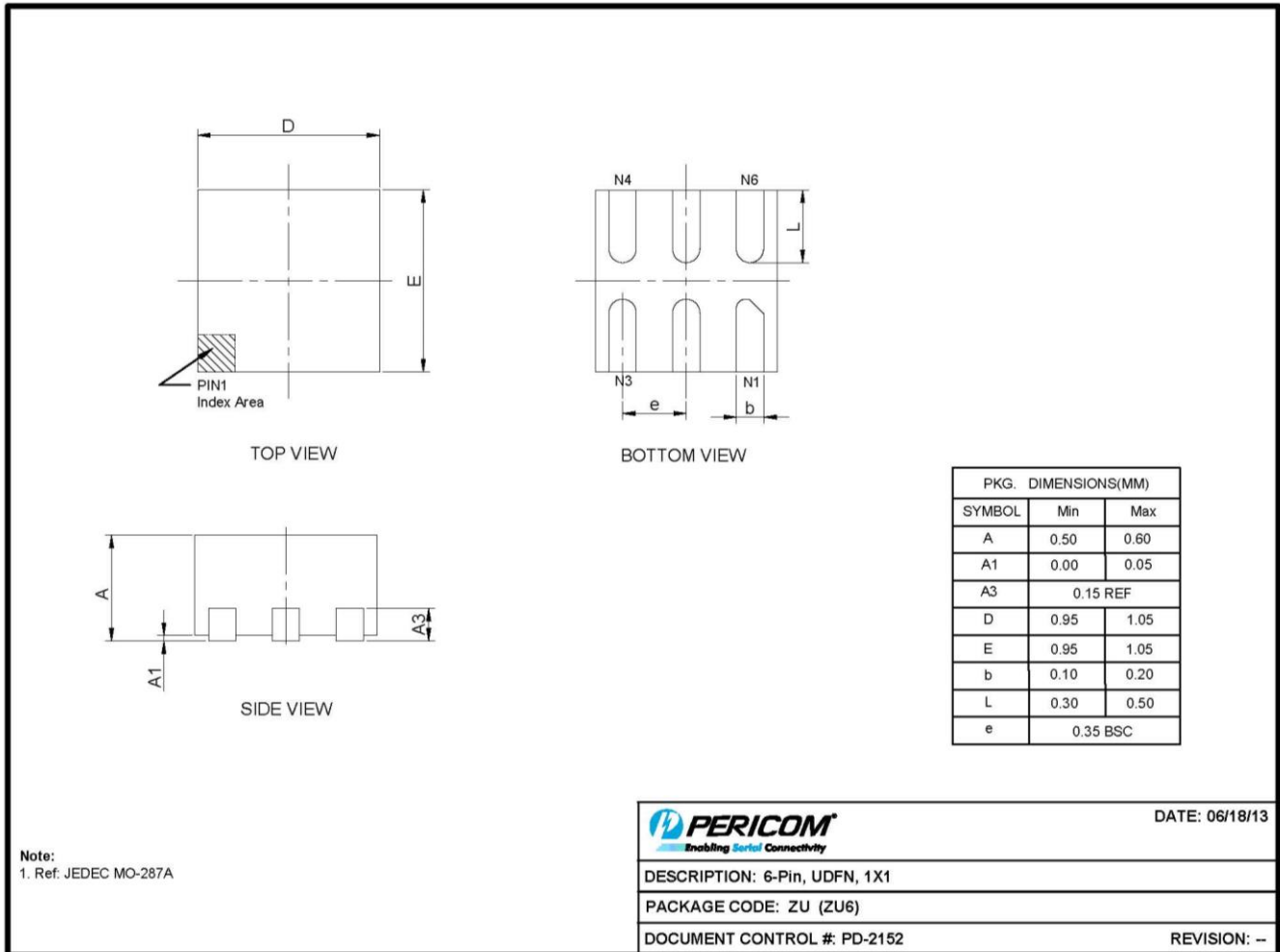
PACKAGE CODE: C (C6)

DOCUMENT CONTROL#: PD-1902

REVISION: B

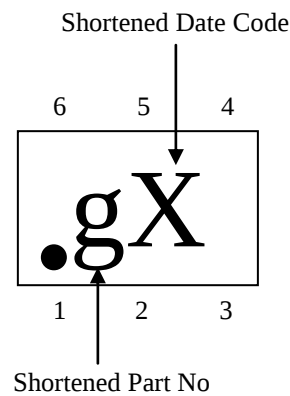
16-0078

ZU (6-pin UDFN 1x1)



13-0191

Marking Description



Note: For latest package info, please check: <http://www.pericom.com/products/packaging/mechanicals.php>

Ordering Information

Part Number	Package Code	Package	Top Marking
PI5A4157CEX	C	6-Pin, SOT363 (SC70), Tape & Reel	mA
PI5A4157TAEX	TA	6-Pin, Small Outline Transistor Plastic Package (SOT23), Tape & reel	mA
PI5A4157ZUEX	ZU	6-Pin, 1x1 (UDFN), Tape & reel	g

Notes:

- Thermal characteristics can be found on the company web site at www.pericom.com/packaging/
- E = Pb-free and Green
- X suffix = Tape/Reel

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