

Description

The PI3A27518Q is a 6-channel, 1:2 multiplexer / de-multiplexer. The COMx port can be configured to connect with NOx or NCx ports in 4 different modes (refer to Truth Table for details)

The PI3A27518Q has a wide operating voltage range, very low power consumption and small packaging.

It can be used as an analog switch or as a low-delay bus switch. Specified over a wide operating power supply voltage, 1.65V to 3.6V, the PI3A27518Q has an On-Resistance of 5Ω at +3.3V.

Break-before-make switching prevents both switches being enabled simultaneously. This eliminates signal disruption during switching.

Application(s)

- SD-SDIO and MMC Two-Port MUX
- qSPI Two-Port MUX
- ADAS

Features

- CMOS Technology for Bus and Analog Applications
- Low Propagation Delay
- Low Typical On-Resistance: 5Ω
- Signal Passing Bandwidth: 380MHz
- Wide V_{DD} Range: 1.65V to 3.6V
- Rail-to-Rail Signal Range
- High Off Isolation: -66dB @ 10MHz
- Crosstalk Rejection Reduces Signal Distortion: -60dB @ 10MHz
- Break-Before-Make Switching
- Supports AEC-Q100 Grade 2: -40°C to 105°C
- ESD Protection : 2.5kV (HBM)
- Packaging (Pb-free & Green):
 - 24-pin, 4mm x 4mm, Wettable VQFN (ZDW)
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- The PI3A27518Q is suitable for automotive applications requiring specific change control; this part is AEC-Q100 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.

<https://www.diodes.com/quality/product-definitions/>

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. Automotive products are AEC-Q100 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.

Block Diagram

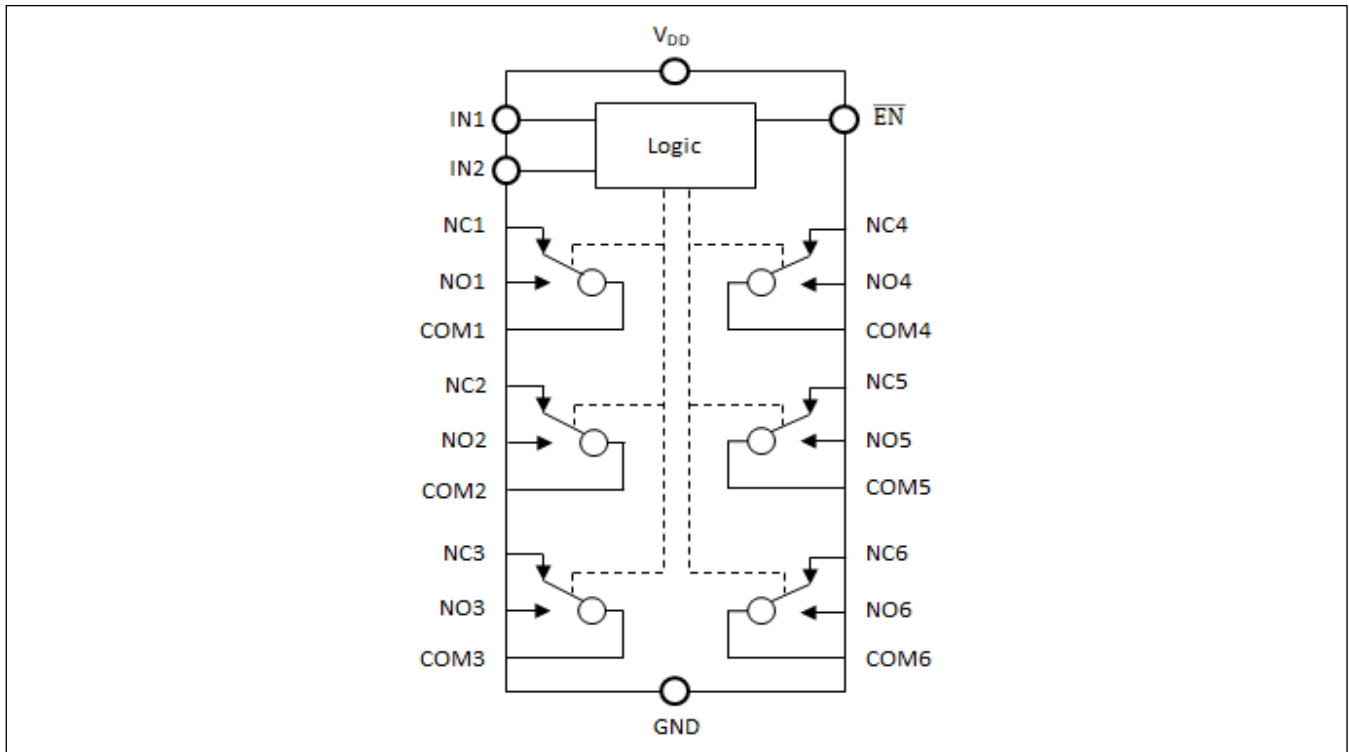
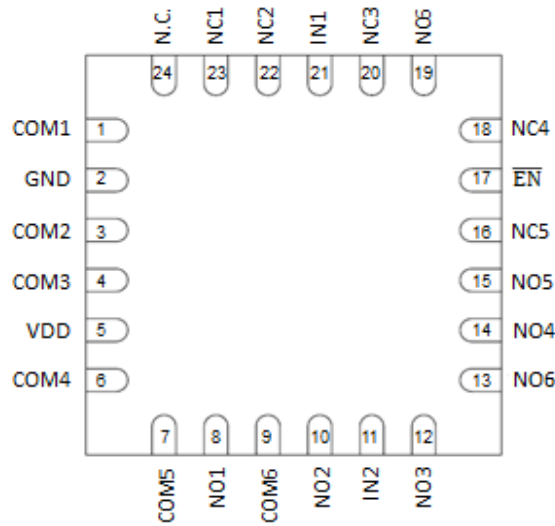


Table 1. Function Table

Select Input			Function
EN	IN1	IN2	
1	X	X	All Channels are OFF
0	0	0	NC _{1,2,3} Connected to COM _{1,2,3} NC _{4,5,6} Connected to COM _{4,5,6}
0	1	0	NO _{1,2,3} Connected to COM _{1,2,3} NC _{4,5,6} Connected to COM _{4,5,6}
0	0	1	NC _{1,2,3} Connected to COM _{1,2,3} NO _{4,5,6} Connected to COM _{4,5,6}
0	1	1	NO _{1,2,3} Connected to COM _{1,2,3} NO _{4,5,6} Connected to COM _{4,5,6}

Pin Configuration

(Top view)



Pin Description

Pin Number	Name	Description
1	COM1	Common Signal Path
2	GND	Ground
3	COM2	Common Signal Path
4	COM3	Common Signal Path
5	VDD	Positive Power Supply
6	COM4	Common Signal Path
7	COM5	Common Signal Path
8	NO1	Signal Path – Normal Open
9	COM6	Common Signal Path
10	NO2	Data Port (Normally open)
11	IN2	Select Input 2
12	NO3	Signal Path – Normal Open
13	NO6	Signal Path – Normal Open
14	NO4	Signal Path – Normal Open
15	NO5	Signal Path – Normal Open
16	NC5	Signal Path – Normal Closed
17	EN	Enable Input, Low Active
18	NC4	Signal Path – Normal Closed
19	NC6	Signal Path – Normal Closed
20	NC3	Signal Path – Normal Closed
21	IN1	Select Input 1
22	NC2	Signal Path – Normal Closed
23	NC1	Signal Path – Normal Closed
24	N.C	No connect

Maximum Ratings

Storage Temperature.....	-65°C to +150°C
Ambient Temperature with Power Applied.....	-40°C to +105°C
Supply Voltage V_{DD}	-0.5V to +4.6V
Control Input Voltage V_{INx}	0V to +4.6V
DC Input Voltage V_{INPUT}	-0.5V to +4.6V
Continuous Current NO_NC_COM.....	±50mA
ESD(HBM)	2.5kV
ESD(CDM)	1.5kV

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.

The input and output negative voltage ratings may be exceeded if the input and output diode current ratings are observed. Control input must be held HIGH or LOW; it must not float.

Recommended Operating Conditions

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{DD}	Operating Voltage	1.65		3.6	V
V_{IN}	Control Input Voltage	0		V_{DD}	V
V_{INPUT}	Switch Input Voltage	-0.3		V_{DD}	V
T_A	Operating Temperature	-40	25	105	°C

DC Electrical Characteristics

+3.3V Supply ($V_{DD} = 3V$ to $3.6V$, $T_A = -40^\circ C$ to $105^\circ C$, unless otherwise noted. Typical values are at $3.3V$ and $+25^\circ C$.)

Symbol	Parameter	Test Conditions	Temperature	Min.	Typ.	Max.	Units
ANALOG SWITCH							
V_{NO} , V_{NC} , V_{COM}	Analog Signal Range		-40°C to 105°C	0		V_{DD}	V
R_{ON}	On-Resistance	$V_{DD} = 3V$, $I_{COM} = -32mA$, $0 \leq V_{NO}$ or $V_{NC} \leq V_{DD}$, Test Circuit 1	+25°C		4.4	5.2	Ω
			-40°C to 105°C			7.6	
ΔR_{ON}	On-Resistance Match Between Channels	$V_{DD} = 3V$, $I_{COM} = -32mA$, V_{NO} or $V_{NC} = 2.1V$, Test Circuit 1	+25°C		0.3	0.7	Ω
			-40°C to 105°C			0.8	
R_{ONF}	On-Resistance Flatness	$V_{DD} = 3.3V$, $I_{COM} = -32mA$, $V_{NO} =$ $0.15V$ or $V_{NC} = 3.15V$, Test Circuit 1	+25°C		0.95	2.1	Ω
			-40°C to 105°C			2.3	
$I_{OFF(NO)}$ or $I_{OFF(NC)}$	NC/NO Channel-Off Leakage Current	$V_{DD} = 3.6V$, V_{NO} or $V_{NC} =$ $3V$ & $V_{COM} = 1V$ or V_{NO} or $V_{NC} = 1V$ & $V_{COM} =$ $3V$	-40°C to 105°C	-2		2	μA
$I_{OFF(COM)}$	COM Channel-Off Leakage Current	$V_{DD} = 3.6V$, V_{NO} or $V_{NC} =$ $3V$ & $V_{COM} = 1V$ or V_{NO} or $V_{NC} = 1V$ & $V_{COM} = 3V$	-40°C to 105°C	-2		2	μA
$I_{OFF(NO)}$ or $I_{OFF(NC)}$	NC/NO POWER-Off Leakage Current	$V_{DD} = 0$, V_{NO} or $V_{NC} =$ $3.6V$ & $V_{COM} = 0$ or V_{NO} or $V_{NC} = 0$ & $V_{COM} =$ $3.6V$	-40°C to 105°C	-12		12	μA
$I_{OFF(COM)}$	COM POWER-Off Leakage Current	$V_{DD} = 0$, V_{NO} or $V_{NC} =$ $3.6V$ & $V_{COM} = 0$ or V_{NO} or $V_{NC} = 0$ & $V_{COM} =$ $3.6V$	-40°C to 105°C	-12		12	μA

Symbol	Parameter	Test Conditions	Temperature	Min.	Typ.	Max.	Units
I_{ON} (NO) or I_{ON} (NC)	Channel-On Leakage Current (NO/NC)	$V_{DD} = 3.6V$, V_{NO} or $V_{NC} = 3V$ & $V_{COM} = \text{open}$ or V_{NO} or $V_{NC} = 1V$ & $V_{COM} = \text{open}$	$-40^{\circ}C$ to $105^{\circ}C$	-7		7	μA
I_{ON} (COM)	Channel-On Leakage Current (COM)	$V_{DD} = 3.6V$, V_{NO} or $V_{NC} = \text{open}$ & $V_{COM} = 3V$ or V_{NO} or $V_{NC} = \text{open}$ & $V_{COM} = 1V$	$-40^{\circ}C$ to $105^{\circ}C$	-7		7	μA
DIGITAL INPUTS							
V_{IH}	Input Logic High		$-40^{\circ}C$ to $105^{\circ}C$	0.8		3.6	V
V_{IL}	Input Logic Low		$-40^{\circ}C$ to $105^{\circ}C$	0		0.2	
I_{IN}	IN Input Leakage Current	$V_{DD} = 3.6V$, $V_{IN} = 0$ or $3.6V$	$-40^{\circ}C$ to $105^{\circ}C$	-2.5		2.5	μA
DYNAMIC CHARACTERISTICS							
t_{ON}	Turn-On Time	$V_{DD} = 3.3V$, $V_{COM} = V_{DD}$, $R_L = 50\Omega$, $C_L = 35pF$ See Test Circuit Figure 2.	$+25^{\circ}C$		11.5	30.0	ns
		$V_{DD} = 3V$ to $3.6V$, $V_{COM} = V_{DD}$, $R_L = 50\Omega$, $C_L = 35pF$ See Test Circuit Figure 2.	$-40^{\circ}C$ to $105^{\circ}C$			30.0	ns
t_{OFF}	Turn-Off Time	$V_{DD} = 3.3V$, $V_{COM} = V_{DD}$, $R_L = 50\Omega$, $C_L = 35pF$ See Test Circuit Figure 2.	$+25^{\circ}C$		7.6	30.0	ns
		$V_{DD} = 3V$ to $3.6V$, $V_{COM} = V_{DD}$, $R_L = 50\Omega$, $C_L = 35pF$ See Test Circuit Figure 2.	$-40^{\circ}C$ to $105^{\circ}C$			30.0	ns
t_D	Break-Before-Make Delay	$V_{DD} = 3.3V$, $V_{NC} = V_{NO} = V_{DD}$, $R_L = 50\Omega$, $C_L = 35pF$ See Test Circuit Figure 3.	$+25^{\circ}C$	4.0	6.5	20.0	ns
		$V_{DD} = 3V$ to $3.6V$, $V_{NC} = V_{NO} = V_{DD}$, $R_L = 50\Omega$, $C_L = 35pF$ See Test Circuit Figure 3.	$-40^{\circ}C$ to $105^{\circ}C$			20.0	ns
f_{3dB}	3dB Bandwidth	$R_L = 50\Omega$. See Test Circuit Figure 6.	$+25^{\circ}C$		380		MHz
O_{ISO}	COM-NC/NO and NC-NO Isolations	$R_L = 50\Omega$, $f = 10MHz$ See Test Circuit Figure 4.	$+25^{\circ}C$		-68		dB
X_{TALKD}	Channel-to-Channel Crosstalk	$R_L = 50\Omega$, $f = 10MHz$ See Test Circuit Figure 5.	$+25^{\circ}C$		-62		dB
$X_{TALK(ADJ)}$	Crosstalk adjacent	$R_L = 50\Omega$, $f = 10MHz$ See Test Circuit Figure 5.	$+25^{\circ}C$		-91		dB
I_{CC}	Power Supply Current	$V_{DD} = 3.6V$, $V_{IN} = 0$ or V_{DD} , Switch ON or OFF	$-40^{\circ}C$ to $105^{\circ}C$			3.0	μA

+2.5V Supply ($V_{DD} = 2.3V$ to $2.7V$, $T_A = -40^{\circ}C$ to $105^{\circ}C$, unless otherwise noted. Typical values are at $2.5V$ and $+25^{\circ}C$.)

Symbol	Parameter	Test Conditions	Temperature	Min.	Typ.	Max.	Units
ANALOG SWITCH							
V_{NO} , V_{NC} , V_{COM}	Analog Signal Range		$-40^{\circ}C$ to $105^{\circ}C$	0		V_{DD}	V

Symbol	Parameter	Test Conditions	Temperature	Min.	Typ.	Max.	Units
R _{ON}	On-Resistance	V _{DD} = 2.3V, I _{COM} = -32mA, 0 ≤ V _{NO} or V _{NC} ≤ V _{DD} , <i>Test Circuit 1</i>	+25°C		5.5	9.6	Ω
			-40°C to 105°C			11.5	
ΔR _{ON}	On-Resistance Match Between Channels	V _{DD} = 2.3V, I _{COM} = -32mA, V _{NO} or V _{NC} = 1.6V, <i>Test Circuit 1</i>	+25°C		0.3	0.8	Ω
			-40°C to 105°C			0.9	
R _{ONF}	On-Resistance Flatness	V _{DD} = 2.3V, I _{COM} = -32mA, V _{NO} = 0.15V or V _{NC} = 2.15V, <i>Test Circuit 1</i>	+25°C		0.91	2.2	Ω
			-40°C to 105°C			2.3	
I _{OFF (NO)} or I _{OFF (NC)}	NO/NC Channel-Off Leakage Current	V _{DD} = 2.7V, V _{NO} or V _{NC} = 2.3V & V _{COM} = 0.5V or V _{NO} or V _{NC} = 0.5V & V _{COM} = 2.3V	-40°C to 105°C	-6		6	μA
I _{OFF (COM)}	COM Channel-Off Leakage Current	V _{DD} = 2.7V, V _{NO} or V _{NC} = 2.3V & V _{COM} = 0.5V or V _{NO} or V _{NC} = 0.5V & V _{COM} = 2.3V	-40°C to 105°C	-1		1	μA
I _{OFF (NO)} or I _{OFF (NC)}	NC/NO POWER-Off Leakage Current	V _{DD} = 0, V _{NO} or V _{NC} = 2.7V & V _{COM} = 0 or V _{NO} or V _{NC} = 0 & V _{COM} = 2.7V	-40°C to 105°C	-10		10	μA
I _{OFF (COM)}	COM POWER-Off Leakage Current	V _{DD} = 0, V _{NO} or V _{NC} = 2.7V & V _{COM} = 0 or V _{NO} or V _{NC} = 0 & V _{COM} = 2.7V	-40°C to 105°C	-7.2		7.2	μA
I _{ON (NO)} or I _{ON (NC)}	Channel-On Leakage Current (NO/NC)	V _{DD} = 2.7V, V _{NO} or V _{NC} = 2.3V & V _{COM} = open or V _{NO} or V _{NC} = 0.5V & V _{COM} = open	-40°C to 105°C	-6		6	μA
I _{ON (COM)}	Channel-On Leakage Current (COM)	V _{DD} = 2.7V, V _{NO} or V _{NC} = open & V _{COM} = 2.3V or V _{NO} or V _{NC} = open & V _{COM} = 0.5V	-40°C to 105°C	-5.7		5.7	μA
DIGITAL INPUTS							
V _{IH}	Input Logic High		-40°C to 105°C	0.8		3.6	V
V _{IL}	Input Logic Low		-40°C to 105°C	0		0.2	
I _{IN}	IN Input Leakage Current	V _{DD} = 2.7V, V _{IN} = 0 or 2.7V	-40°C to 105°C	-2.5		2.5	μA
DYNAMIC CHARACTERISTICS							
t _{ON}	Turn-On Time	V _{DD} = 2.3V to 2.7V, V _{COM} = V _{DD} , R _L = 50Ω, C _L = 35pF, <i>See Test Circuit Figure 2.</i>	+25°C		17.2	36.8	ns
			-40°C to 105°C			42.5	
t _{OFF}	Turn-Off Time	V _{DD} = 2.3V to 2.7V, V _{COM} = V _{DD} , R _L = 50Ω, C _L = 35pF, <i>See Test Circuit Figure 2.</i>	+25°C		17.1	29.8	ns
			-40°C to 105°C			38.4	

Symbol	Parameter	Test Conditions	Temperature	Min.	Typ.	Max.	Units
t_D	Break-Before-Make Delay	$V_{DD} = 2.3V$ to $2.7V$, $V_{COM} = V_{DD}$, $R_L = 50\Omega$, $C_L = 35pF$ <i>See Test Circuit Figure 3.</i>	$+25^\circ C$	4.5	13	30	ns
			$-40^\circ C$ to $105^\circ C$			33.3	
Q_C	Charge Injection	$V_{GEN} = 0$, $R_{GEN} = 0$, $C_L = 0.1nF$, <i>See Test Circuit Figure 9</i>	$+25^\circ C$		0.47		pC
f_{3dB}	3dB Bandwidth	$R_L = 50\Omega$. <i>See Test Circuit Figure 6.</i>	$+25^\circ C$		380		MHz
O_{ISO}	COM-NC/NO and NC-NO Isolations	$R_L = 50\Omega$, $f = 10MHz$ <i>See Test Circuit Figure 4.</i>	$+25^\circ C$		-66		dB
X_{TALKD}	Channel-to-Channel Crosstalk	$R_L = 50\Omega$, $f = 10MHz$ <i>See Test Circuit Figure 5.</i>	$+25^\circ C$		-60		dB
$X_{TALK(ADJ)}$	Crosstalk adjacent	$R_L = 50\Omega$, $f = 10MHz$ <i>See Test Circuit Figure 5.</i>	$+25^\circ C$		-71		dB
I_{CC}	Power Supply Current	$V_{DD} = 2.7V$, $V_{IN} = 0$ or V_{DD} , Switch ON or OFF	$-40^\circ C$ to $105^\circ C$			3.0	μA

+1.8V Supply ($V_{DD} = 1.65V$ to $1.95V$, $T_A = -40^\circ C$ to $105^\circ C$, unless otherwise noted. Typical values are at $1.8V$ and $+25^\circ C$.)

Symbol	Parameter	Test Conditions	Temperature	Min.	Typ.	Max.	Units
ANALOG SWITCH							
V_{NO} , V_{NC} , V_{COM}	Analog Signal Range		$-40^\circ C$ to $105^\circ C$	0		V_{DD}	V
R_{ON}	On-Resistance	$V_{DD} = 1.65V$, $I_{COM} = -32mA$, $0 \leq V_{NO}$ or $V_{NC} \leq V_{DD}$, <i>Test Circuit 1</i>	$+25^\circ C$		7.1	14.4	Ω
			$-40^\circ C$ to $105^\circ C$			16.3	
ΔR_{ON}	On-Resistance Match Between Channels	$V_{DD} = 1.65V$, $I_{COM} = -32mA$, V_{NO} or $V_{NC} = 1.5V$, <i>Test Circuit 1</i>	$+25^\circ C$		0.3	1	Ω
			$-40^\circ C$ to $105^\circ C$			1.2	
R_{ONF}	On-Resistance Flatness	$V_{DD} = 1.65V$, $I_{COM} = -32mA$, $V_{NO} = 0.15V$ or $V_{NC} = 1.5V$, <i>Test Circuit 1</i>	$+25^\circ C$		2.7	5.5	Ω
			$-40^\circ C$ to $105^\circ C$			7.3	
$I_{OFF(NO)}$ or $I_{OFF(NC)}$	NO/NC Channel-Off Leakage Current	$V_{DD} = 1.95V$, V_{NO} or $V_{NC} = 1.65V$ & $V_{COM} = 0.3V$ or V_{NO} or $V_{NC} = 0.3V$ & $V_{COM} = 1.65V$	$-40^\circ C$ to $105^\circ C$	-0.9		0.9	μA
$I_{OFF(COM)}$	COM Channel-Off Leakage Current	$V_{DD} = 1.95V$, V_{NO} or $V_{NC} = 1.65V$ & $V_{COM} = 0.3V$ or V_{NO} or $V_{NC} = 0.3V$ & $V_{COM} = 1.65V$	$-40^\circ C$ to $105^\circ C$	-0.9		0.9	μA
$I_{OFF(NO)}$ or $I_{OFF(NC)}$	NC/NO POWER-Off Leakage Current	$V_{DD} = 0$, V_{NO} or $V_{NC} = 1.95V$ & $V_{COM} = 0$ or V_{NO} or $V_{NC} = 0$ & $V_{COM} = 1.95V$	$-40^\circ C$ to $105^\circ C$	-5		5	μA
$I_{OFF(COM)}$	COM POWER-Off Leakage Current	$V_{DD} = 0$, V_{NO} or $V_{NC} = 1.95V$ & $V_{COM} = 0$ or V_{NO} or $V_{NC} = 0$ & $V_{COM} = 1.95V$	$-40^\circ C$ to $105^\circ C$	-5		5	μA
$I_{ON(NO)}$	Channel-On Leakage	$V_{DD} = 1.95V$, V_{NO} or V_{NC}	$-40^\circ C$ to $105^\circ C$	-5.2		5.2	μA

Symbol	Parameter	Test Conditions	Temperature	Min.	Typ.	Max.	Units
or I _{ON} (NC)	Current (NO/NC)	= 1.65V &V _{COM} = open or V _{NO} or V _{NC} = 0.3V & V _{COM} = open					
I _{ON} (COM)	Channel-On Leakage Current (COM)	V _{DD} = 1.95V, V _{NO} or V _{NC} = open & V _{COM} = 1.65V or V _{NO} or V _{NC} = open & V _{COM} = 0.3V	-40°C to 105°C	-5.2		5.2	μA
DIGITAL INPUTS							
V _{IH}	Input Logic High		-40°C to 105°C	0.8		1.95	V
V _{IL}	Input Logic Low		-40°C to 105°C	0		0.2	
I _{IN}	IN Input Leakage Current	V _{DD} = 1.95V, V _{IN} = 0 or 1.95V	-40°C to 105°C	-2.1		2.1	μA
DYNAMIC CHARACTERISTICS							
T _{ON}	Turn-On Time	V _{DD} = 1.65V to 1.95V, V _{COM} = V _{DD} , R _L = 50Ω, C _L = 35pF <i>See Test Circuit Figure 2.</i>	+25°C		18.9	45	ns
			-40°C to 105°C			45	
T _{OFF}	Turn-Off Time	V _{DD} = 1.65V to 1.95V, V _{COM} = V _{DD} , R _L = 50Ω, C _L = 35pF <i>See Test Circuit Figure 2.</i>	+25°C		14.0	26	ns
			-40°C to 105°C			26	
T _D	Break-Before-Make Delay	V _{DD} = 1.65V to 1.95V, V _{COM} = V _{DD} , R _L = 50Ω, C _L = 35pF <i>See Test Circuit Figure 3.</i>	+25°C	5.3	11.8	40	ns
			-40°C to 105°C			40	
f _{3dB}	3dB Bandwidth	R _L = 50Ω. <i>See Test Circuit Figure 6.</i>	+25°C		380		MHz
O _{ISO}	COM-NC/NO and NC-NO Isolations	R _L = 50Ω, f = 10MHz <i>See Test Circuit Figure 4.</i>	+25°C		-66.0		dB
X _{TALKD}	Channel-to-Channel Crosstalk	R _L = 50Ω, f = 10MHz <i>See Test Circuit Figure 5.</i>	+25°C		-60.0		dB
X _{TALK(ADJ)}	Crosstalk adjacent	R _L = 50Ω, f = 10MHz <i>See Test Circuit Figure 5.</i>	+25°C		-91.0		dB
I _{CC}	Power Supply Current	V _{DD} = 1.95V, V _{IN} = 0 or V _{DD} , Switch ON or OFF	-40°C to 105°C			1.5	μA

Capacitance

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$C_{NC(OFF)}$ $C_{NO(OFF)}$	NC/NO Off Capacitance	V_{NC} or $V_{NO} = V_{DD}$ or GND, Switch OFF, $f = 1MHz$, <i>See Test Circuit</i> <i>Figure 7.</i>		10		pF
$C_{COM(OFF)}$	COM Off Capacitance	$V_{COM} = V_{DD}$ or GND, Switch OFF $f = 1MHz$, <i>See Test Circuit Figure 7.</i>		16		
$C_{NC(ON)}$ $C_{NO(ON)}$	NC/NO On Capacitance	V_{NC} or $V_{NO} = V_{DD}$ or GND, Switch ON, $f = 1MHz$, <i>See Test Circuit</i> <i>Figure 8.</i>		21.5		
$C_{COM(ON)}$	COM On Capacitance	$V_{COM} = V_{DD}$ or GND, Switch ON $f = 1MHz$, <i>See Test Circuit Figure 8.</i>		21.5		

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
C _{IN}	Digital Input Capacitance	f = 1MHz		3		pF

Test Circuits and Timing Diagrams

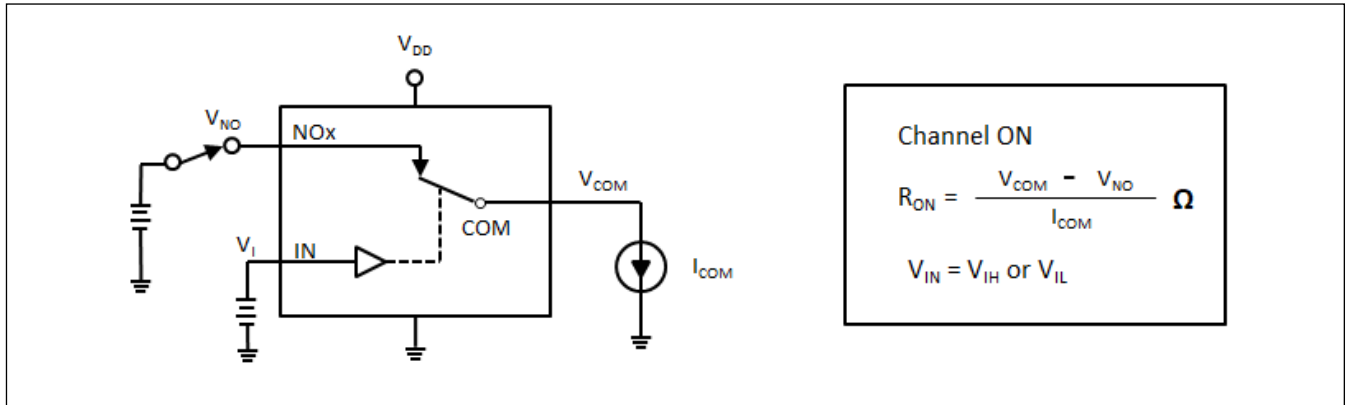


Figure 1. ON Resistance

Notes:

1. Unused input (NC or NO) must be grounded.

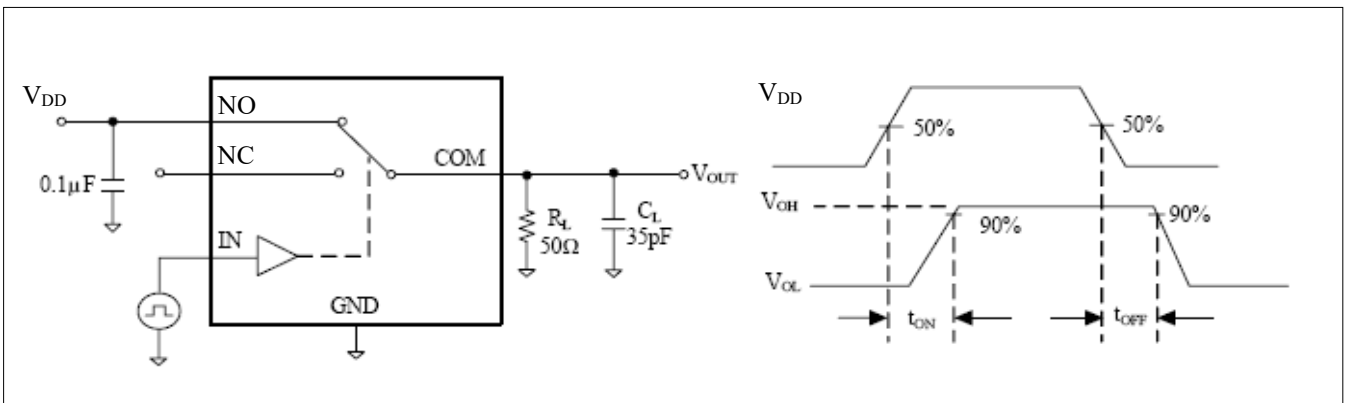


Figure 2. Switching Times

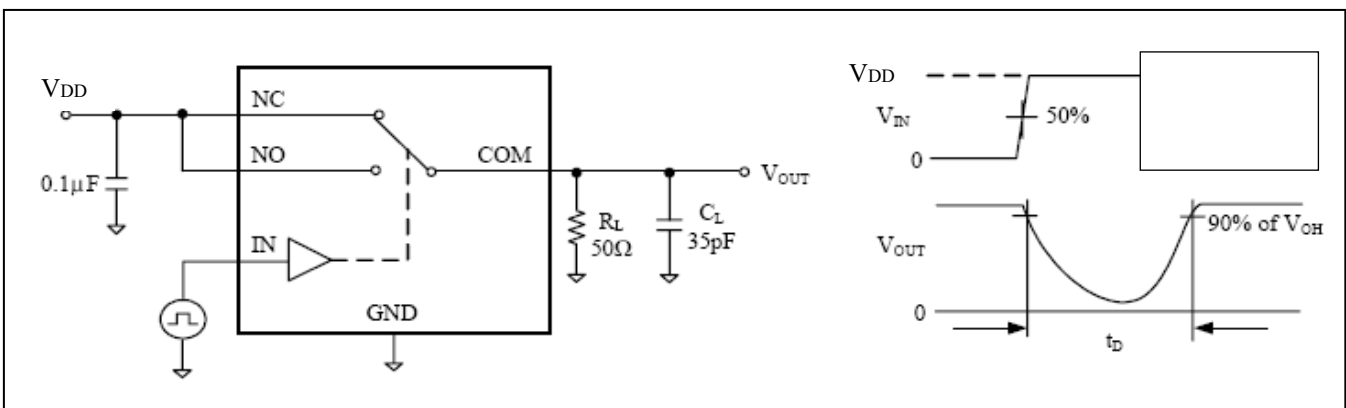


Figure 3. Break Before Make Interval Timing

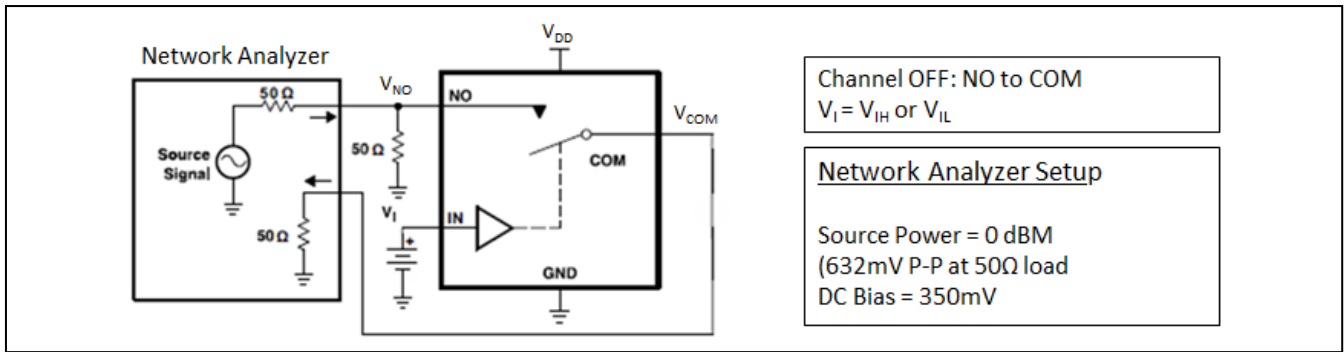


Figure 4. OFF Isolation (O_{Iso})

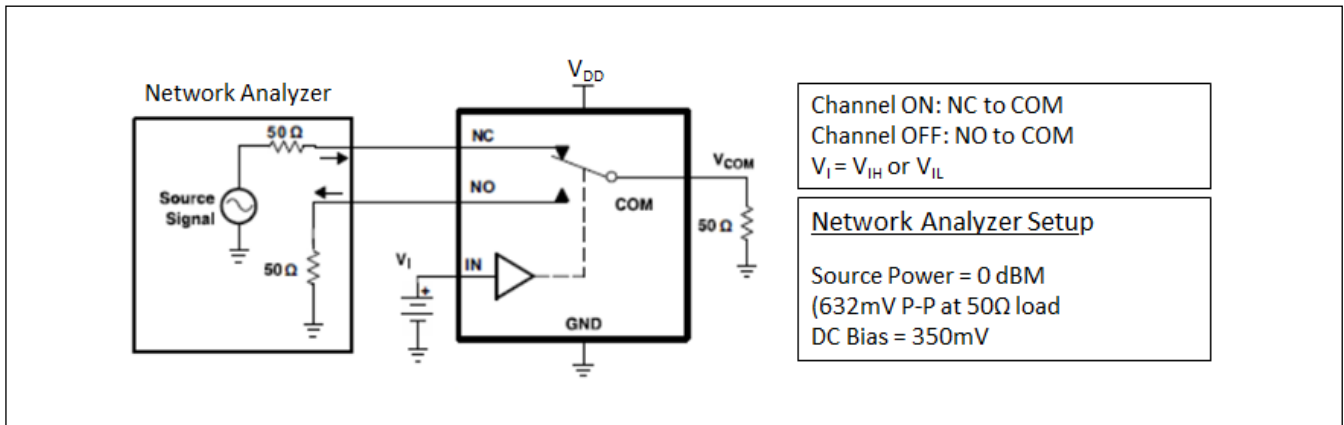


Figure 5. Channel-to-Channel Crosstalk

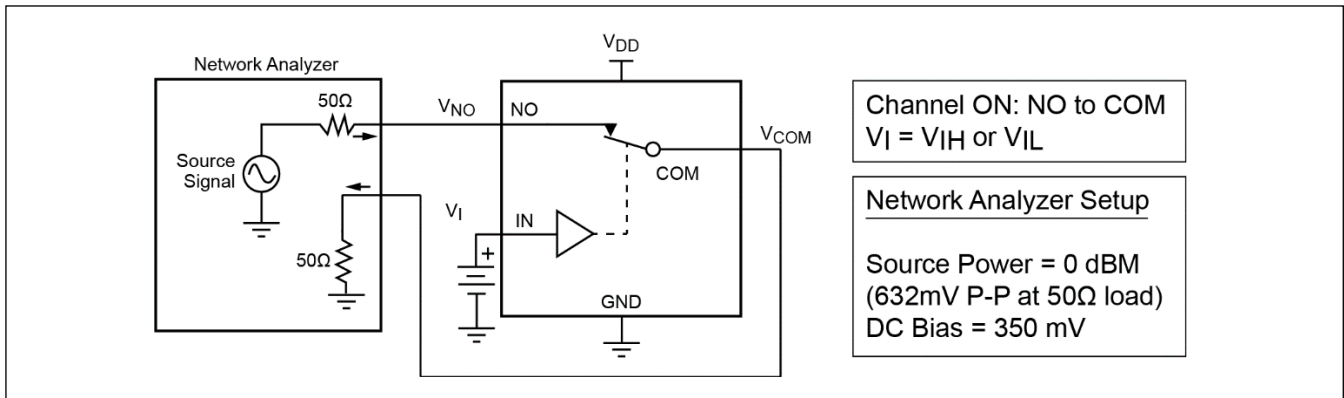


Figure 6. Bandwidth

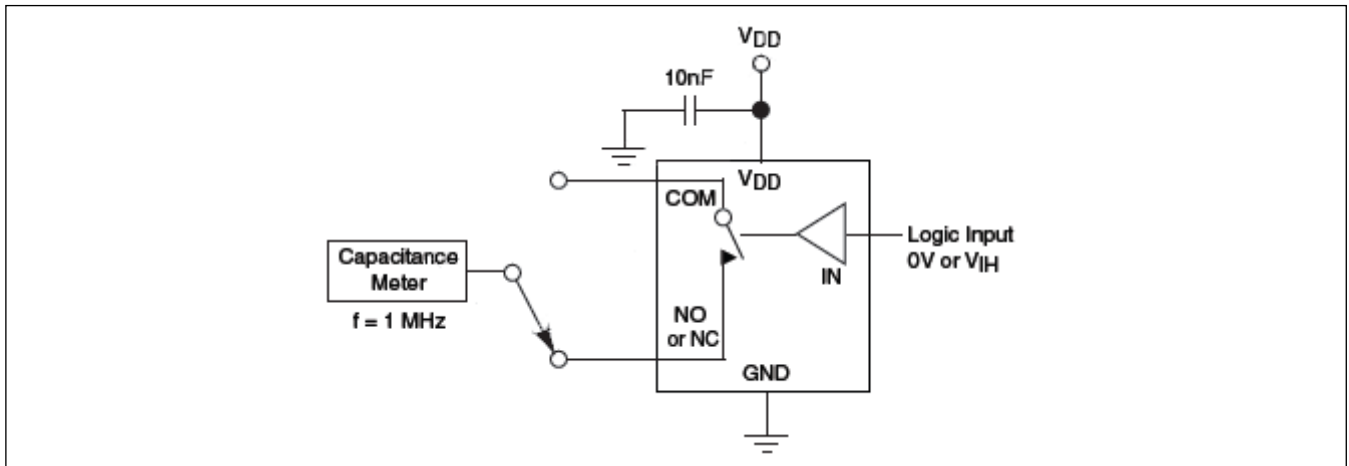


Figure 7. Channel Off Capacitance

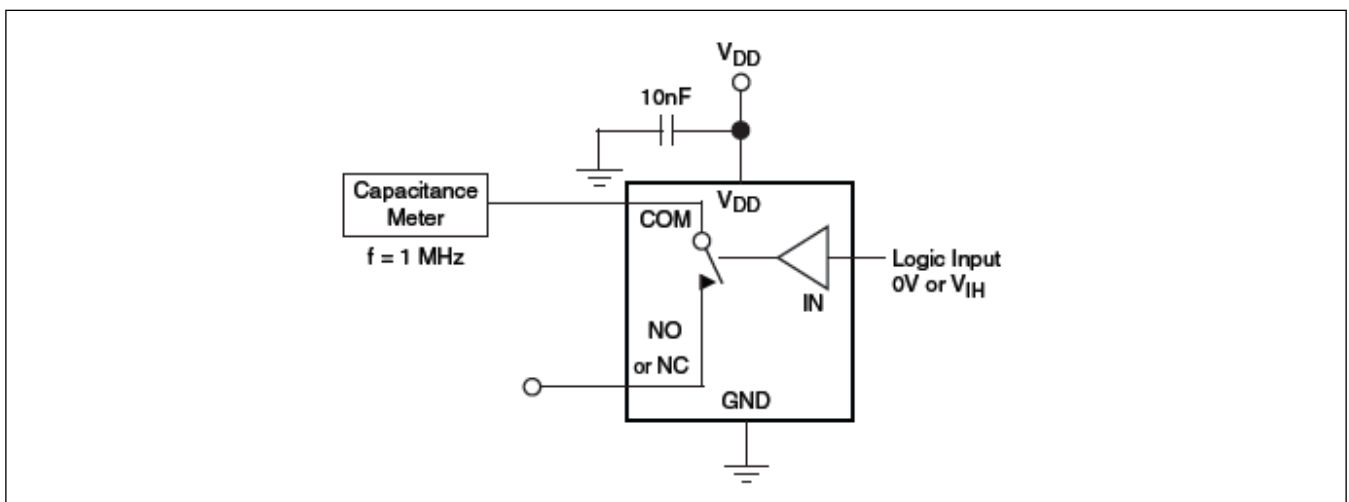


Figure 8. Channel On Capacitance

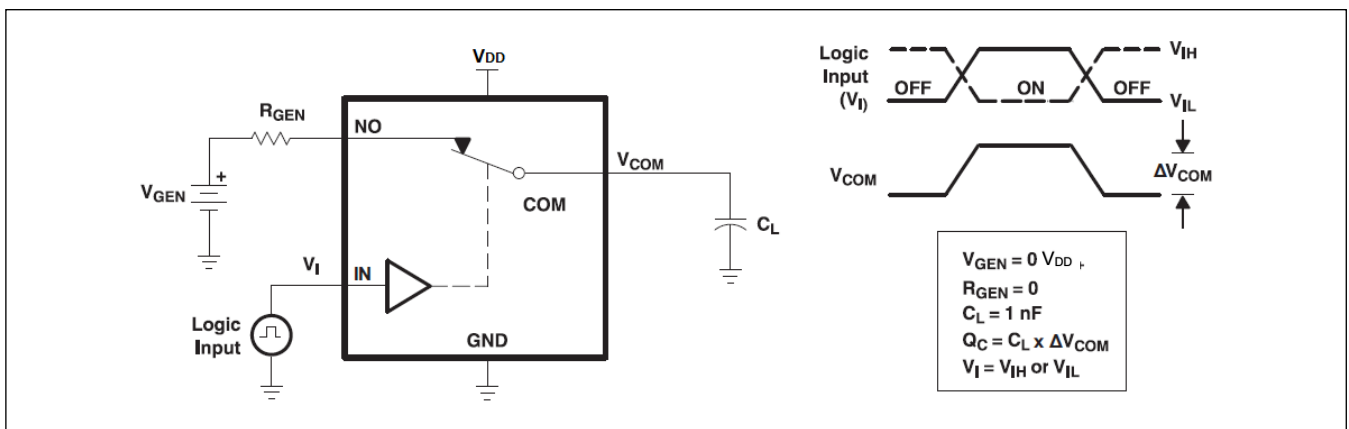


Figure 9. Charge Injection (Q_C)

PI3A27518Q

Part Marking

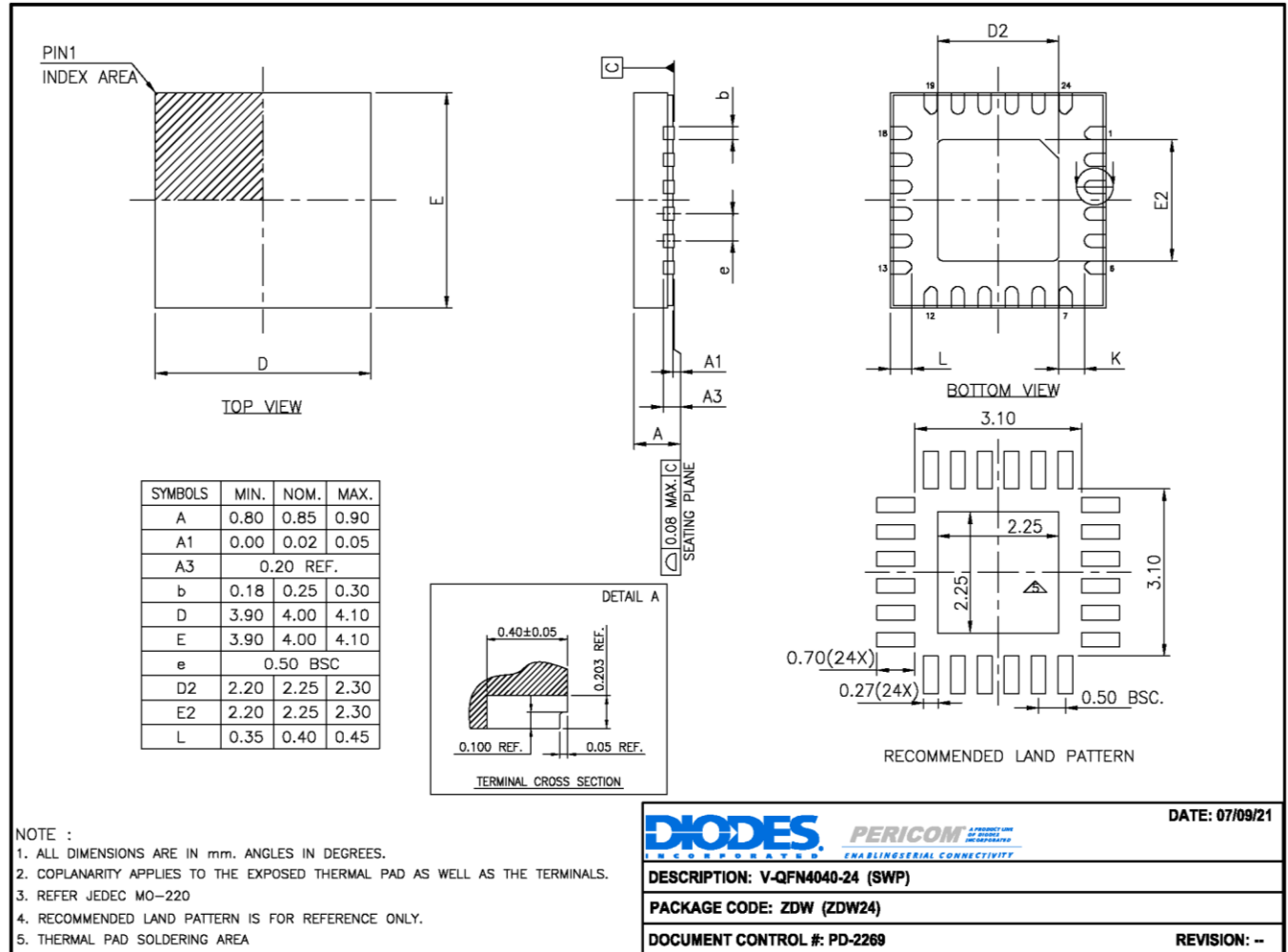
PI3A2751
8Q2ZDWE
YYWWXX

○

YYWW: Year & Workweek
1st X: Assembly Site Code
2nd X: Fab Site Code
Date Code per MA-1251

Packaging Mechanical

24-VQFN (ZDW)



For latest package info.

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

Mechanical Data

- Surface Mount Package
- Moisture Sensitivity: Level 1 per J-STD-020
- Case Material: Molded Plastic, UL Flammability Rating 94V-0
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.041 grams (Approximate)

Ordering Information

Orderable Part Number	Package Code	Package Description
PI3A27518Q2ZDWEX	ZDW	24-Contact, V-QFN4040-24 (SWP)

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. Q = Automotive Compliant
5. 2 = AEC-Q100 Grade Level
6. E = Pb-free and Green
7. X suffix = Tape/Reel

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