SN74CB3Q3251 1-of-8 FET Multiplexer/Demultiplexer 2.5V-3.3V Low-voltage High-bandwidth BUS Switch

1 Features

- High-bandwidth data path (up to 500MHz)
- Equivalent to IDTQS3VH251 device
- 5V tolerant I/Os with device powered up or powered down
- Low and flat ON-state resistance (r_{on}) characteristics over operating range (r_{on} = 4Ω Typ)
- Rail-to-rail switching on data I/O ports
  - 0 to 5V switching with 3.3V V_{CC}
  - 0 to 3.3V switching with 2.5V V_{CC}
- Bidirectional data flow with near-zero propagation delay
- Low input/output capacitance minimizes loading and signal distortion ($C_{io(OFF)}$ = 3.5 pF Typ)
- Fast switching frequency ($f_{\overline{OE}}$ or f_S = 20 MHz Max). For additional information regarding the performance characteristics of the CB3Q family, refer to the TI application note, *CBT-C, CB3T, and CB3Q Signal-Switch Families*.
- Data and controlinputs provide undershoot clamp diodes
- Low power consumption (I_{CC} = 1mA Typ)
- V_{CC} operating range from 2.3V to 3.6V
- Data I/Os support 0 to 5V signaling levels (0.8V, 1.2V, 1.5V, 1.8V, 2.5V, 3.3V, 5V)
- Control inputs can be driven by TTL or 5V/3.3V CMOS outputs
- I_{off} supports partial-power-down mode operation
- Latch-Up performance exceeds 100mA per JESD 78, class II
- ESD performance tested per JESD 22
  - 2000V human-body model (A114B, Class II)
  - 1000V charged-device model (C101)
- Supports both digital and analog applications: PCI interface, differential signal interface, memory interleaving, bus isolation, low-distortion signal gating

2 Description

The SN74CB3Q3251 is a high-bandwidth FET bus switch utilizing a charge pump to elevate the gate voltage of the pass transistor, providing a low and flat ON-state resistance (r_{on}). The low and flat ON-state resistance allows for minimal propagation delay and supports rail-to-rail switching on the data input/output (I/O) ports. The device also features low data I/O capacitance to minimize capacitive loading and signal distortion on the data bus. Specifically designed to support high-bandwidth applications, the SN74CB3Q3251 provides an optimized interface solution ideally suited for broadband communications, networking, and data-intensive computing systems.

The SN74CB3Q3251 is a 1-of-8 multiplexer/demultiplexer with a single output-enable ($\overline{OE}$) input. The select (S0, S1, S2) inputs control the data path of the multiplexer/demultiplexer. When $\overline{OE}$ is low, the multiplexer/demultiplexer is enabled, and the A port is connected to the B port, allowing bidirectional data flow between ports. When $\overline{OE}$ is high, the multiplexer/demultiplexer is disabled, and a high-impedance state exists between the A and B ports.

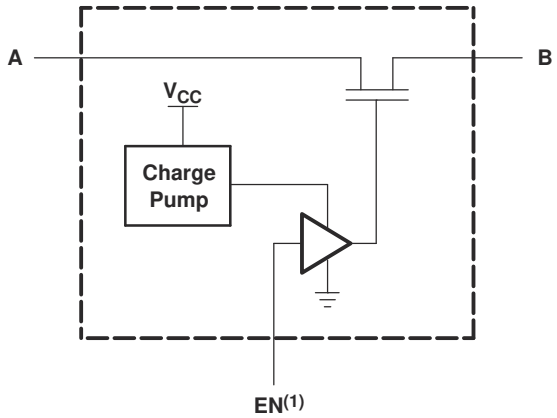
This device is fully specified for partial-power-down applications using I_{off}. The I_{off} circuitry prevents damaging current backflow through the device when it is powered down. The device has isolation during power off.

To ensure the high-impedance state during power up or power down, $\overline{OE}$ must be tied to V_{CC} through a pullup resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver.

Pacakge Information

PART NUMBER	PACKAGE(1)	PACKAGE SIZE(2)
SN74CB3Q3251	DBQ (SSOP) (16)	4.9mm × 6mm
	DGV (TVSOP) (16)	3.6mm × 6.40mm
	PW (TSSOP) (16)	5mm × 6.40mm
	RGY (VQFN) (16)	4mm × 3.50mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.
(2) The package size (length × width) is a nominal value and includes pins, where applicable.



(1) EN is the internal enable signal applied to the switch.

Figure 2-1. SIMPLIFIED SCHEMATIC, EACH FET SWITCH (SW)

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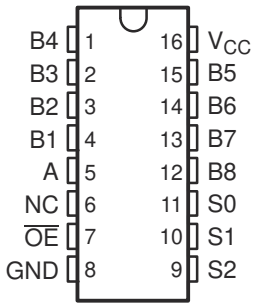
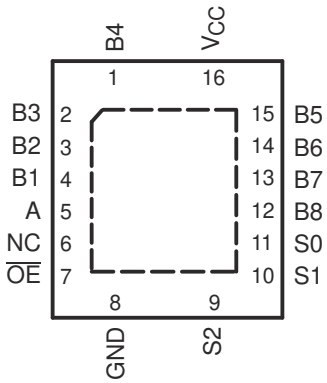
3 Pin Configuration and Functions

DBQ, DGV, OR PW PACKAGE
(TOP VIEW)



NC - No internal connection

RGY PACKAGE
(TOP VIEW)



NC - No internal connection

Table 3-1. Pin Functions

INPUTS				INPUT/OUTPUT A	FUNCTION
$\overline{OE}$	S2	S1	S0		
L	L	L	L	B1	A port = B1 port
L	L	L	H	B2	A port = B2 port
L	L	H	L	B3	A port = B3 port
L	L	H	H	B4	A port = B4 port
L	H	L	L	B5	A port = B5 port
L	H	L	H	B6	A port = B6 port
L	H	H	L	B7	A port = B7 port
L	H	H	H	B8	A port = B8 port
H	X	X	X	Z	Disconnect

4 Specifications

4.1 Absolute Maximum Ratings

over operating free-air temperature range (unless otherwise noted) (1)

			MIN	MAX	UNIT
V_{CC}	Supply voltage range		–0.5	4.6	V
V_{IN}	Control input voltage range(2) (3)		–0.5	7	V
$V_{I/O}$	Switch I/O voltage range(2) (3) (4)		–0.5	7	V
I_{IK}	Control input clamp current	V_{IN} < 0		–50	mA
$I_{I/OK}$	I/O port clamp current	$V_{I/O}$ < 0		–50	mA
$I_{I/O}$	ON-state switch current(5)			±64	mA
	Continuous current through V_{CC} or GND			±100	mA
θ_{JA}	Package thermal impedance	DBQ package(6)		90	°C/W
		DGV package(6)		120	
		PW package(6)		108	
		RGY package(7)		39	
T_{stg}	Storage temperature range		–65	150	°C

(1) Operation outside the *Absolute Maximum Ratings* may cause permanent device damage. *Absolute Maximum Ratings* do not imply functional operation of the device at these or any other conditions beyond those listed under *Recommended Operating Conditions*. If used outside the *Recommended Operating Conditions* but within the *Absolute Maximum Ratings*, the device may not be fully functional, and this may affect device reliability, functionality, performance, and shorten the device lifetime.
(2) All voltages are with respect to ground unless otherwise specified.
(3) The input and output voltage ratings may be exceeded if the input and output clamp-current ratings are observed.
(4) V_I and V_O are used to denote specific conditions for $V_{I/O}$.
(5) I_I and I_O are used to denote specific conditions for $I_{I/O}$.
(6) The package thermal impedance is calculated in accordance with JESD 51-7.
(7) The package thermal impedance is calculated in accordance with JESD 51-5.

4.2 ESD Ratings

			VALUE	UNIT
$V_{(ESD)}$	Electrostatic discharge	Human body model (HBM), per ANSI/ESDA/JEDEC JS-001(1)	±2000	V
		Charged-device model (CDM), per JEDEC specification JESD22C101(2)	±1000	

(1) JEDEC document JEP155 states that 500V HBM allows safe manufacturing with a standard ESD control process.
(2) JEDEC document JEP157 states that 250V CDM allows safe manufacturing with a standard ESD control process.

4.3 Recommended Operating Conditions (1)

			MIN	MAX	UNIT
V_{CC}	Supply voltage		2.3	3.6	V
V_{IH}	High-level control input voltage	V_{CC} = 2.3V to 2.7V	1.7	5.5	V
		V_{CC} = 2.7V to 3.6V	2	5.5	
V_{IL}	Low-level control input voltage	V_{CC} = 2.3V to 2.7V	0	0.7	V
		V_{CC} = 2.7V to 3.6V	0	0.8	
$V_{I/O}$	Data input/output voltage		0	5.5	V
T_A	Operating free-air temperature		–40	85	°C

(1) All unused control inputs of the device must be held at V_{CC} or GND to ensure proper device operation. Refer to the TI application note, *Implications of Slow or Floating CMOS Inputs*.

4.4 Thermal Information

THERMAL METRIC[1]		SN74CB3Q3251				UNIT
		DBQ (SSOP)	DGV (TVSOP)	PW(TSSOP)	RGY(VQFN)	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	106.4	120	114.3	72.3	°C/W

(1) For more information about traditional and new thermal metrics, see the *Semiconductor and IC package thermal metrics* application note.

4.4.1 Electrical Characteristics

over recommended operating free-air temperature range (unless otherwise noted)(1)

PARAMETER		TEST CONDITIONS			MIN	TYP(2)	MAX	UNIT
V_{IK}		V_{CC} = 3.6V,	I_I = –18mA				–1.8	V
I_{IN}	Control inputs	V_{CC} = 3.6V,	V_{IN} = 0 to 5.5V				±1	µA
I_{OZ} (3)		V_{CC} = 3.6V,	V_O = 0 to 5.5V, V_I = 0,	Switch OFF, V_{IN} = V_{CC} or GND			±1	µA
I_{off}		V_{CC} = 0,	V_O = 0 to 5.5V,	V_I = 0			1	µA
I_{CC}		V_{CC} = 3.6V,	$I_{I/O}$ = 0, Switch ON or OFF,	V_{IN} = V_{CC} or GND		1	4	mA
ΔI_{CC} (4)	Control inputs	V_{CC} = 3.6V,	One input at 3V,	Other inputs at V_{CC} or GND			30	µA
I_{CCD} (5)	Per control input	V_{CC} = 3.6V,	A and B ports open,	Control input switching at 50% duty cycle		0.3	0.45	mA/ MHz
C_{in}	Control inputs	V_{CC} = 3.3V,	V_{IN} = 5.5V, 3.3V, or 0			2.5	4.5	pF
$C_{io(OFF)}$	A port	V_{CC} = 3.3V,	Switch OFF, V_{IN} = V_{CC} or GND,	$V_{I/O}$ = 5.5V, 3.3V, or 0		19.5	25	pF
	B port	V_{CC} = 3.3V,	Switch OFF, V_{IN} = V_{CC} or GND,	$V_{I/O}$ = 5.5V, 3.3V, or 0		3.5	4.5	
$C_{io(ON)}$		V_{CC} = 3.3V,	Switch ON, V_{IN} = V_{CC} or GND,	$V_{I/O}$ = 5.5V, 3.3V, or 0		15	19	pF
r_{on} (6)		V_{CC} = 2.3V, TYP at V_{CC} = 2.5V	V_I = 0,	I_O = 30mA		4	10	Ω
			V_I = 1.7V,	I_O = –15mA		4.5	11	
		V_{CC} = 3V	V_I = 0,	I_O = 30mA		3.5	8	
			V_I = 2.4V,	I_O = –15mA		4	10	

(1) V_{IN} and I_{IN} refer to control inputs. V_I, V_O, I_I, and I_O refer to data pins.
(2) All typical values are at V_{CC} = 3.3V (unless otherwise noted), T_A = 25°C.
(3) For I/O ports, the parameter I_{OZ} includes the input leakage current.
(4) This is the increase in supply current for each input that is at the specified TTL voltage level, rather than V_{CC} or GND.
(5) This parameter specifies the dynamic power-supply current associated with the operating frequency of a single control input (see Figure 4-2).
(6) Measured by the voltage drop between the A and B terminals at the indicated current through the switch. ON-state resistance is determined by the lower of the voltages of the two (A or B) terminals.

4.5 Switching Characteristics

over recommended operating free-air temperature range (unless otherwise noted) (see Test Circuit and Voltage Waveforms)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC} = 2.5V ± 0.2V		V_{CC} = 3.3V ± 0.3V		UNIT
			MIN	MAX	MIN	MAX	
$f_{\overline{OE}}$ or f_S	$\overline{OE}$ or S	A or B		10		20	MHz
t_{pd} (1)	A or B	B or A		0.12		0.18	ns
$t_{pd(s)}$ (2)	S	A	1.5	8.7	1.5	6.8	ns
t_{en}	S	B	1.5	10.2	1.5	7.6	ns
	$\overline{OE}$	A or B	1.5	10.4	1.5	8	
t_{dis}	S	B	0.5	11	0.5	7.4	ns
	$\overline{OE}$	A or B	0.5	10.8	0.5	8.7	

(1) Maximum switching frequency for control input (V_O > V_{CC}, V_I = 5V, R_L ≥ 1MΩ, C_L = 0).
(2) The propagation delay is the calculated RC time constant of the typical ON-state resistance of the switch and the specified load capacitance, when driven by an ideal voltage source (zero output impedance).

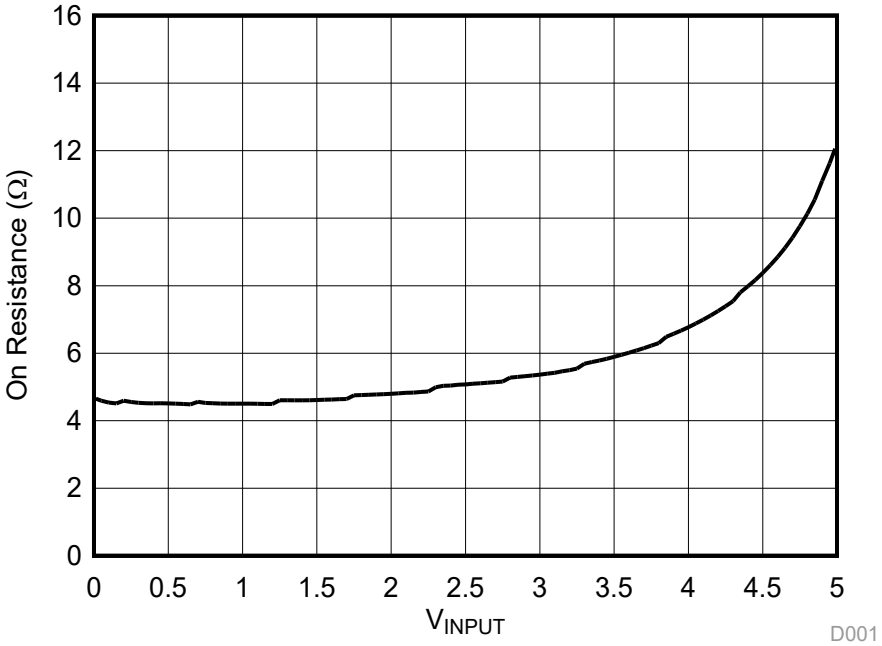


Figure 4-1. Typical r_{on} vs V_I, V_{CC} = 3.3V and I_O = –15mA

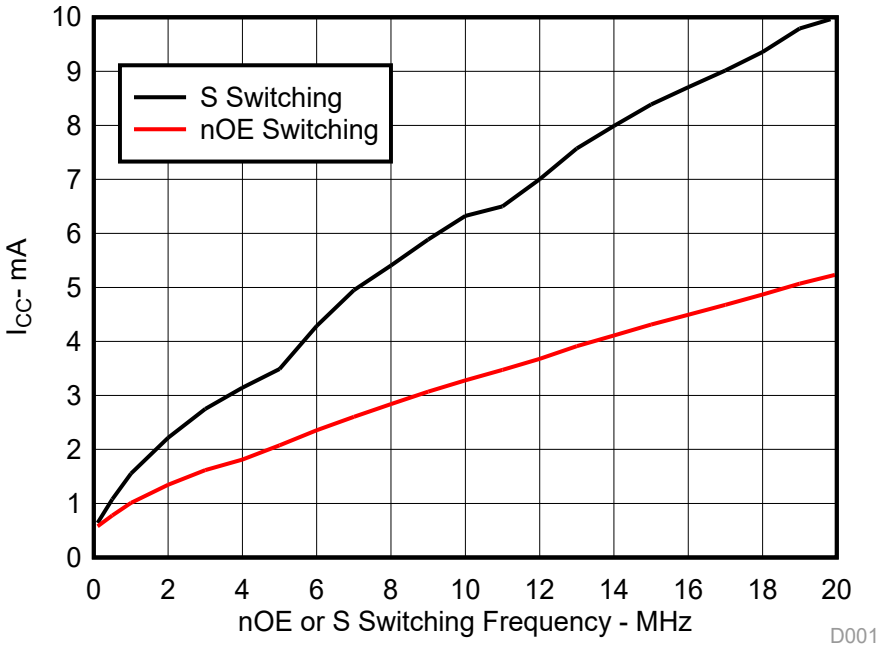


Figure 4-2. Typical I_{CC} vs $\overline{OE}$ or S Switching Frequency, V_{CC} = 3.3V

4.6 Typical Characteristics

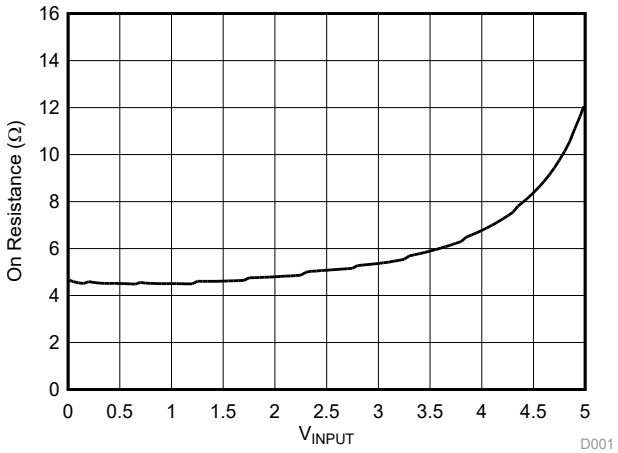


Figure 4-3. Typical R_{on} (On Resistance) vs V_{INPUT} , V_{CC} = 3.3V, T_A = 25°C, I_O = 15mA

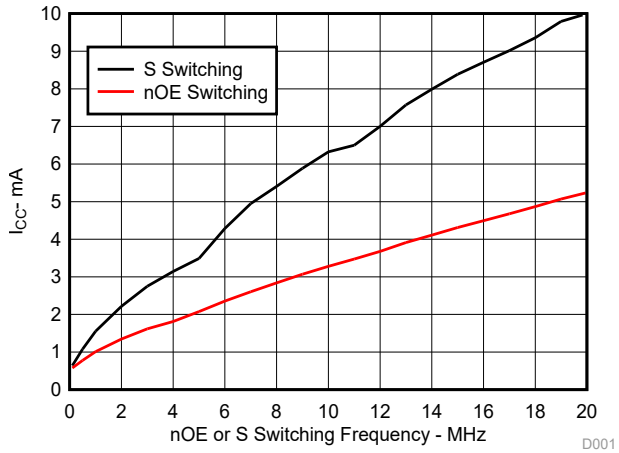
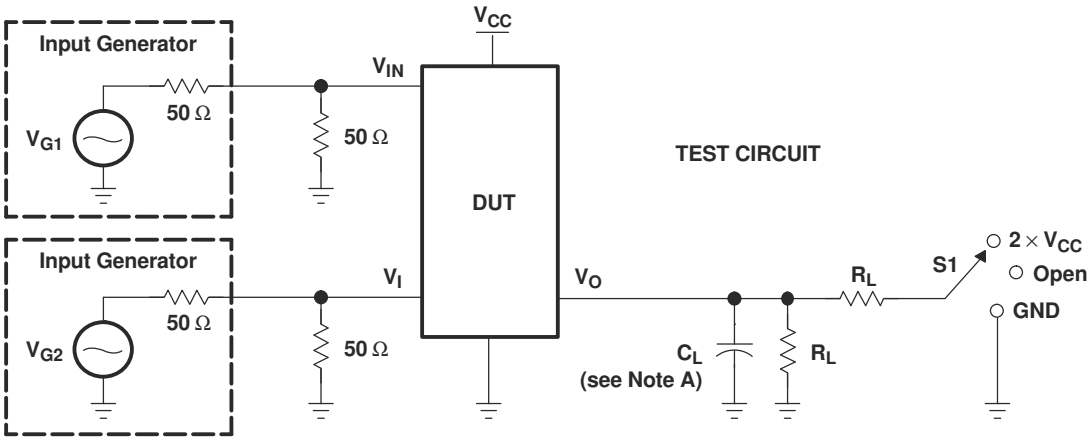
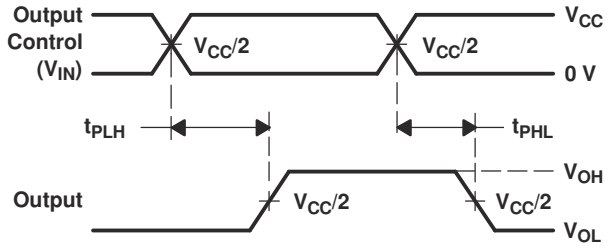


Figure 4-4. Typical I_{CC} vs $\overline{OE}$ or S Switching Frequency , V_{CC} = 3.3V, T_A = 25C, A and B Ports Open

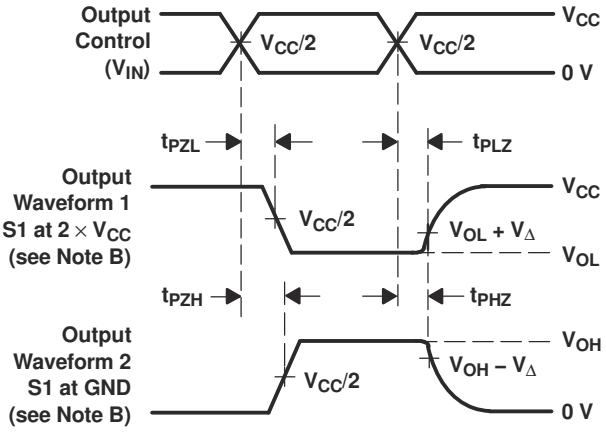
5 Parameter Measurement Information



TEST	V_{CC}	S1	R_L	V_I	C_L	V_Δ
$t_{pd(s)}$	2.5 V ± 0.2 V 3.3 V ± 0.3 V	Open Open	500 Ω 500 Ω	V_{CC} or GND V_{CC} or GND	30 pF 50 pF	
t_{PLZ}/t_{PZL}	2.5 V ± 0.2 V 3.3 V ± 0.3 V	2 × V_{CC} 2 × V_{CC}	500 Ω 500 Ω	GND GND	30 pF 50 pF	0.15 V 0.3 V
t_{PHZ}/t_{PZH}	2.5 V ± 0.2 V 3.3 V ± 0.3 V	GND GND	500 Ω 500 Ω	V_{CC} V_{CC}	30 pF 50 pF	0.15 V 0.3 V



VOLTAGE WAVEFORMS
PROPAGATION DELAY TIMES ($t_{pd(s)}$)



VOLTAGE WAVEFORMS
ENABLE AND DISABLE TIMES

NOTES: A. C_L includes probe and jig capacitance.
B. Waveform 1 is for an output with internal conditions such that the output is low, except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high, except when disabled by the output control.
C. All input pulses are supplied by generators having the following characteristics: PRR ≤ 10 MHz, Z_O = 50 Ω, t_r ≤ 2.5 ns, t_f ≤ 2.5 ns.
D. The outputs are measured one at a time, with one transition per measurement.
E. t_{PLZ} and t_{PHZ} are the same as t_{dis}.
F. t_{PZL} and t_{PZH} are the same as t_{en}.
G. t_{PLH} and t_{PHL} are the same as $t_{pd(s)}$. The tpd propagation delay is the calculated RC time constant of the typical ON-state resistance of the switch and the specified load capacitance, when driven by an ideal voltage source (zero output impedance).
H. All parameters and waveforms are not applicable to all devices.

Figure 5-1. Test Circuit and Voltage Waveforms

6 Device and Documentation Support

TI offers an extensive line of development tools. Tools and software to evaluate the performance of the device, generate code, and develop solutions are listed below.

6.1 Documentation Support

6.2 Receiving Notification of Documentation Updates

To receive notification of documentation updates, navigate to the device product folder on ti.com. Click on *Notifications* to register and receive a weekly digest of any product information that has changed. For change details, review the revision history included in any revised document.

6.3 Support Resources

TI E2E™ support forums are an engineer's go-to source for fast, verified answers and design help — straight from the experts. Search existing answers or ask your own question to get the quick design help you need.

Linked content is provided "AS IS" by the respective contributors. They do not constitute TI specifications and do not necessarily reflect TI's views; see TI's Terms of Use.

6.4 Trademarks

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6.5 Electrostatic Discharge Caution

This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

6.6 Glossary

TI Glossary	This glossary lists and explains terms, acronyms, and definitions.

7 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from Revision A (March 2005) to Revision B (August 2026)	Page
• Updated the numbering format for tables, figures, and cross-references throughout the document	1
• Removed Oredering Information table	4
• Added the *ESD Ratings* table	5
• Added the *Thermal Information* table	6
• Updated I_{CCD} values in the *Electrical Characteristics* table.	7
• Updated the t_{pd}, t_{en}, and t_{dis} values in the *Switching Characteristics* table	7
• Added the latest typical curve data to the *Typical Characteristics* section	9

8 Mechanical, Packaging, and Orderable Information

The following pages include mechanical, packaging, and orderable information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document. For browser-based versions of this data sheet, refer to the left-hand navigation.

PACKAGING INFORMATION

Orderable part number	Status (1)	Material type (2)	Package | Pins	Package qty | Carrier	RoHS (3)	Lead finish/ Ball material (4)	MSL rating/ Peak reflow (5)	Op temp (°C)	Part marking (6)
SN74CB3Q3251DBQR	Active	Production	SSOP (DBQ) | 16	2500 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	BU251
SN74CB3Q3251DBQR.A	Active	Production	SSOP (DBQ) | 16	2500 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	BU251
SN74CB3Q3251DBQR.B	Active	Production	SSOP (DBQ) | 16	2500 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	BU251
SN74CB3Q3251DGVR	Active	Production	TVSOP (DGV) | 16	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	BU251
SN74CB3Q3251DGVR.B	Active	Production	TVSOP (DGV) | 16	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	BU251
SN74CB3Q3251PW	Obsolete	Production	TSSOP (PW) | 16	-	-	Call TI	Call TI	-40 to 85	BU251
SN74CB3Q3251PWR	Active	Production	TSSOP (PW) | 16	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	BU251
SN74CB3Q3251PWR.A	Active	Production	TSSOP (PW) | 16	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	BU251
SN74CB3Q3251PWR.B	Active	Production	TSSOP (PW) | 16	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	BU251
SN74CB3Q3251PWRG4	Active	Production	TSSOP (PW) | 16	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	BU251
SN74CB3Q3251PWRG4.A	Active	Production	TSSOP (PW) | 16	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	BU251
SN74CB3Q3251PWRG4.B	Active	Production	TSSOP (PW) | 16	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	BU251
SN74CB3Q3251RGYR	Active	Production	VQFN (RGY) | 16	3000 | LARGE T&R	Yes	NIPDAU | SN	Level-2-260C-1 YEAR	-40 to 85	BZ51
SN74CB3Q3251RGYR.A	Active	Production	VQFN (RGY) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	BZ51
SN74CB3Q3251RGYR.B	Active	Production	VQFN (RGY) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	BZ51
SN74CB3Q3251RGYRG4	Active	Production	VQFN (RGY) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	BZ51
SN74CB3Q3251RGYRG4.A	Active	Production	VQFN (RGY) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	BZ51
SN74CB3Q3251RGYRG4.B	Active	Production	VQFN (RGY) | 16	3000 | LARGE T&R	Yes	NIPDAU	Level-2-260C-1 YEAR	-40 to 85	BZ51

(1) **Status:** For more details on status, see our product life cycle.

(2) **Material type:** When designated, preproduction parts are prototypes/experimental devices, and are not yet approved or released for full production. Testing and final process, including without limitation quality assurance, reliability performance testing, and/or process qualification, may not yet be complete, and this item is subject to further changes or possible discontinuation. If available for ordering, purchases will be subject to an additional waiver at checkout, and are intended for early internal evaluation purposes only. These items are sold without warranties of any kind.

(3) **RoHS values:** Yes, No, RoHS Exempt. See the TI RoHS Statement for additional information and value definition.

(4) **Lead finish/Ball material:** Parts may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

(5) MSL rating/Peak reflow: The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will be used to mount the part to the printed circuit board.

(6) Part marking: There may be an additional marking, which relates to the logo, the lot trace code information, or the environmental category of the part.

Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

Important Information and Disclaimer: The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

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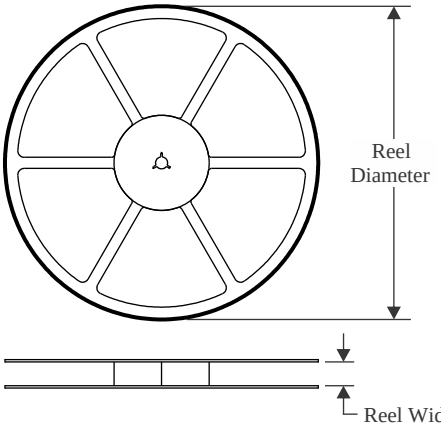
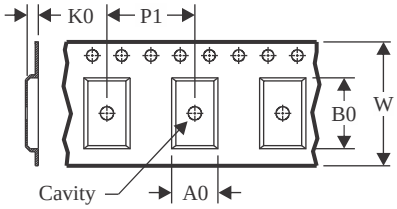
TAPE AND REEL INFORMATION

REEL DIMENSIONS

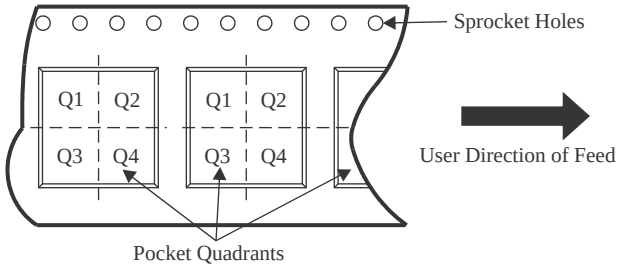


TAPE DIMENSIONS



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

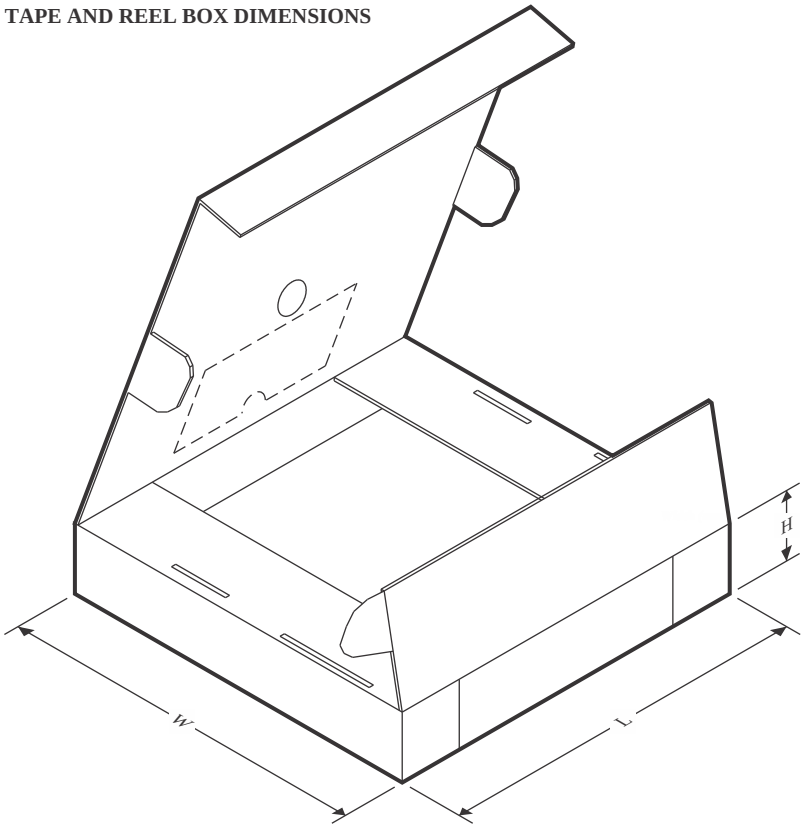
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74CB3Q3251DBQR	SSOP	DBQ	16	2500	330.0	12.5	6.4	5.2	2.1	8.0	12.0	Q1
SN74CB3Q3251DGVR	TVSOP	DGV	16	2000	330.0	12.4	6.8	4.0	1.6	8.0	12.0	Q1
SN74CB3Q3251PWR	TSSOP	PW	16	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74CB3Q3251PWRG4	TSSOP	PW	16	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74CB3Q3251RGYR	VQFN	RGY	16	3000	330.0	12.4	3.8	4.3	1.5	8.0	12.0	Q1
SN74CB3Q3251RGYR	VQFN	RGY	16	3000	330.0	12.4	3.8	4.3	1.5	8.0	12.0	Q1
SN74CB3Q3251RGYRG4	VQFN	RGY	16	3000	330.0	12.4	3.8	4.3	1.5	8.0	12.0	Q1

TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

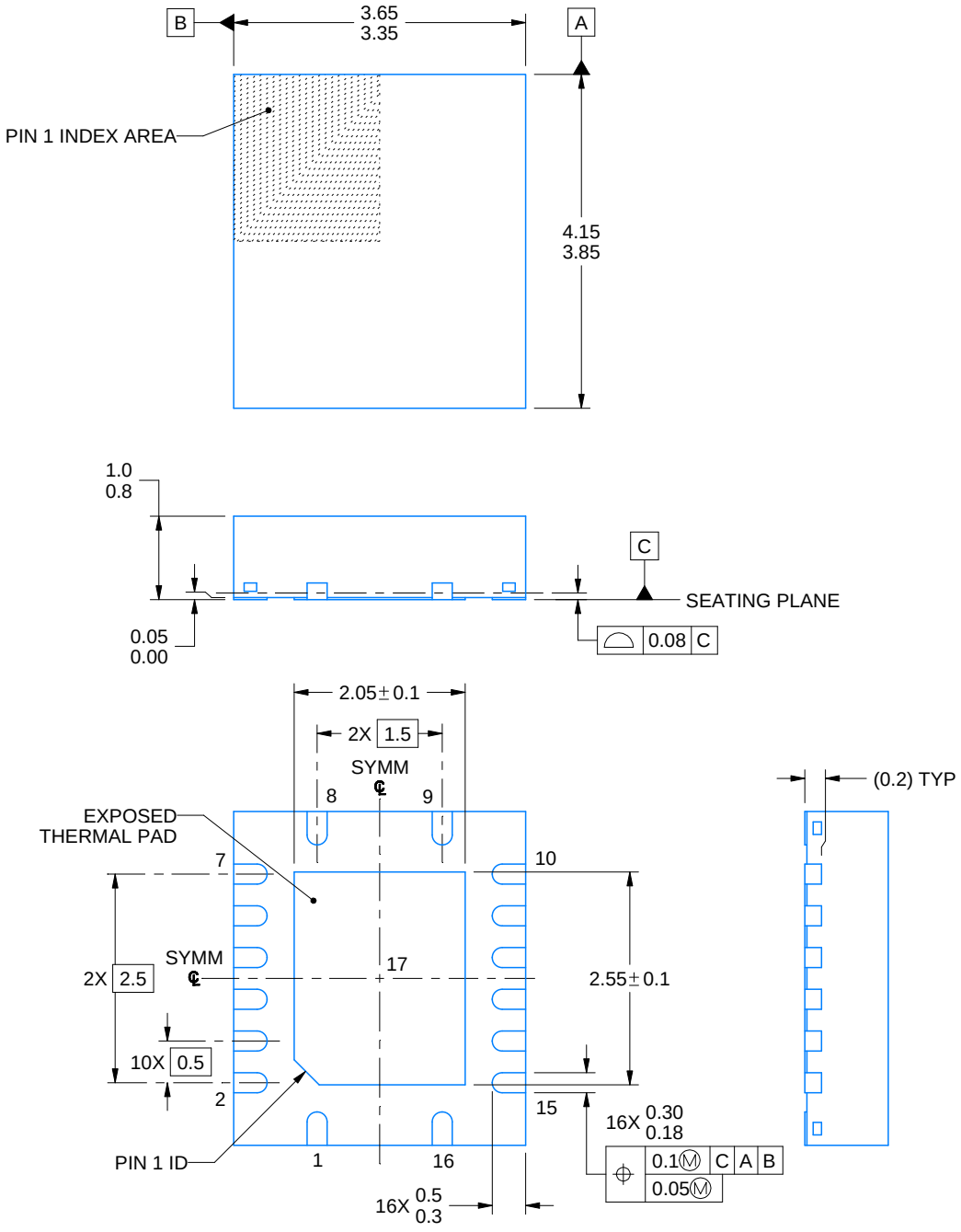
Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74CB3Q3251DBQR	SSOP	DBQ	16	2500	353.0	353.0	32.0
SN74CB3Q3251DGVR	TVSOP	DGV	16	2000	353.0	353.0	32.0
SN74CB3Q3251PWR	TSSOP	PW	16	2000	353.0	353.0	32.0
SN74CB3Q3251PWRG4	TSSOP	PW	16	2000	353.0	353.0	32.0
SN74CB3Q3251RGYR	VQFN	RGY	16	3000	367.0	367.0	35.0
SN74CB3Q3251RGYR	VQFN	RGY	16	3000	353.0	353.0	32.0
SN74CB3Q3251RGYRG4	VQFN	RGY	16	3000	353.0	353.0	32.0

RGY0016A

PACKAGE OUTLINE

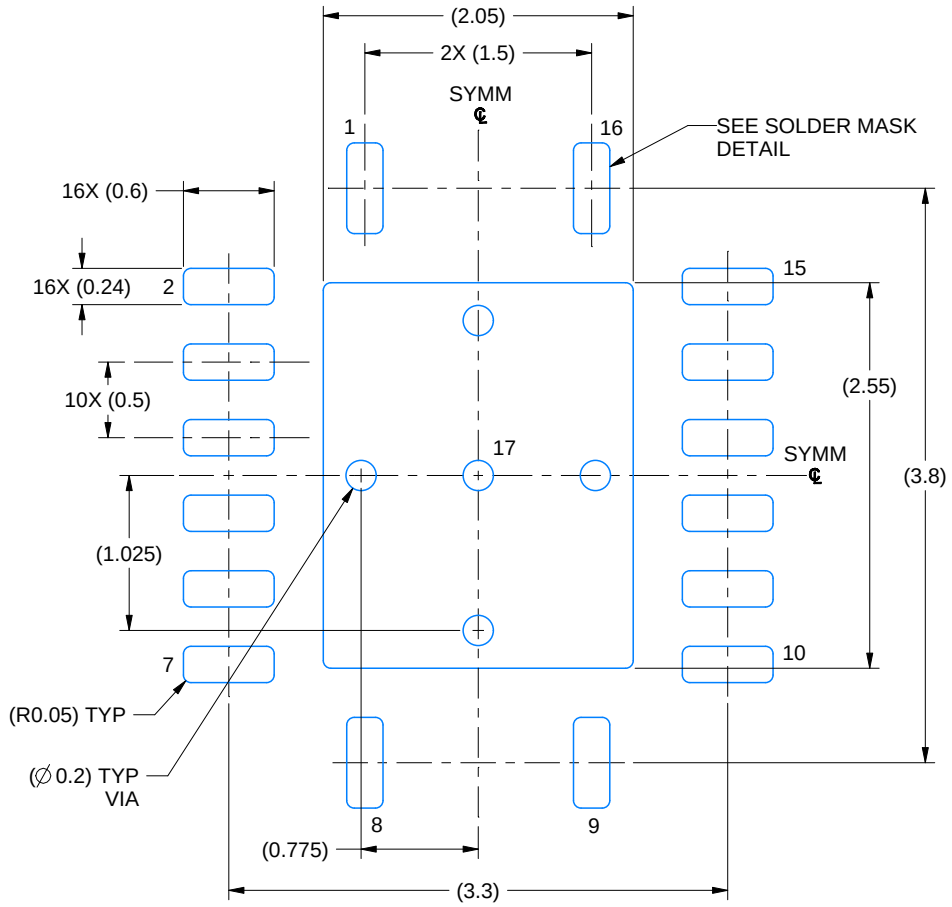
VQFN - 1 mm max height

PLASTIC QUAD FLATPACK - NO LEAD

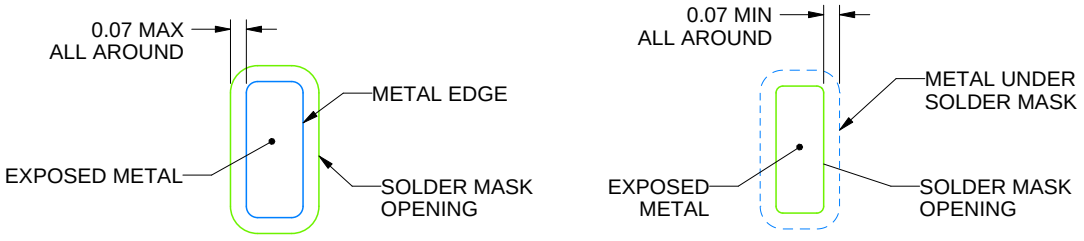


NOTES:

1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. The package thermal pad must be soldered to the printed circuit board for thermal and mechanical performance.



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 20X

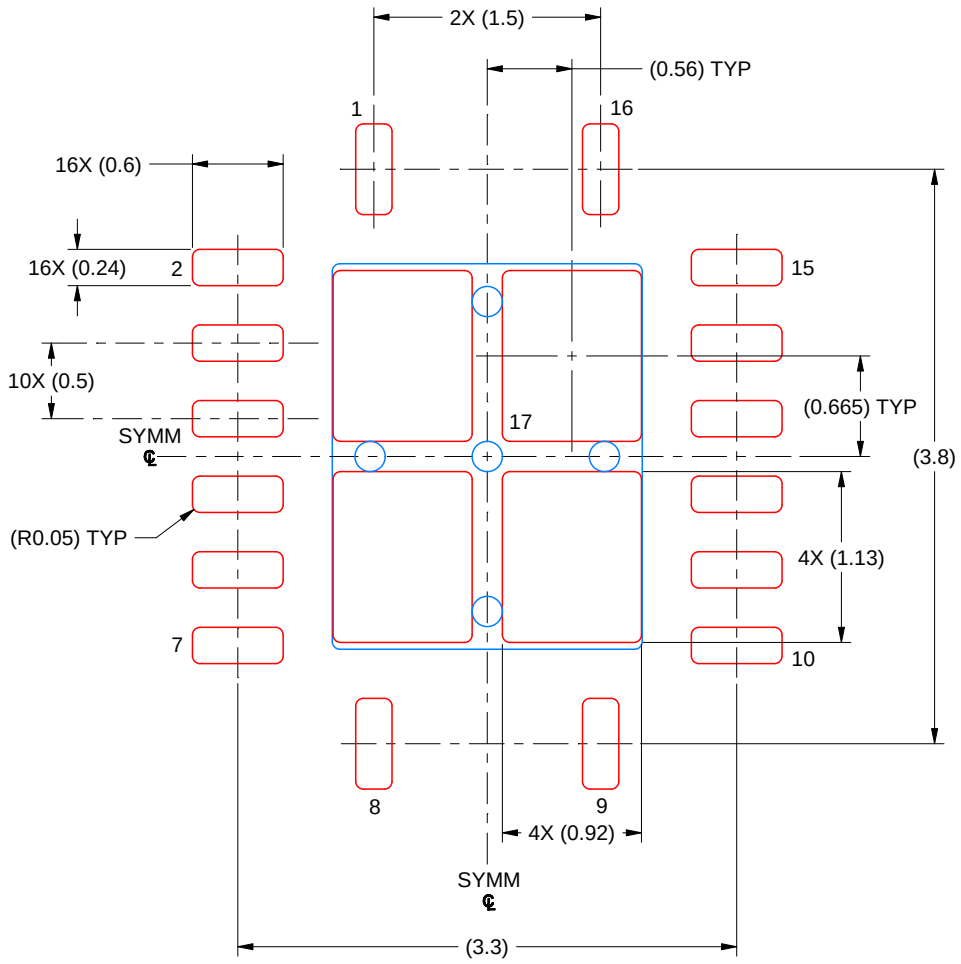


SOLDER MASK DETAILS

4225140/A 07/2019

NOTES: (continued)

4. This package is designed to be soldered to a thermal pad on the board. For more information, see Texas Instruments literature number SLUA271 (www.ti.com/lit/slua271).
5. Vias are optional depending on application, refer to device data sheet. If any vias are implemented, refer to their locations shown on this view. It is recommended that vias under paste be filled, plugged or tented.



SOLDER PASTE EXAMPLE
BASED ON 0.125 MM THICK STENCIL
SCALE: 20X

EXPOSED PAD 17
80% PRINTED SOLDER COVERAGE BY AREA UNDER PACKAGE

4225140/A 07/2019

NOTES: (continued)

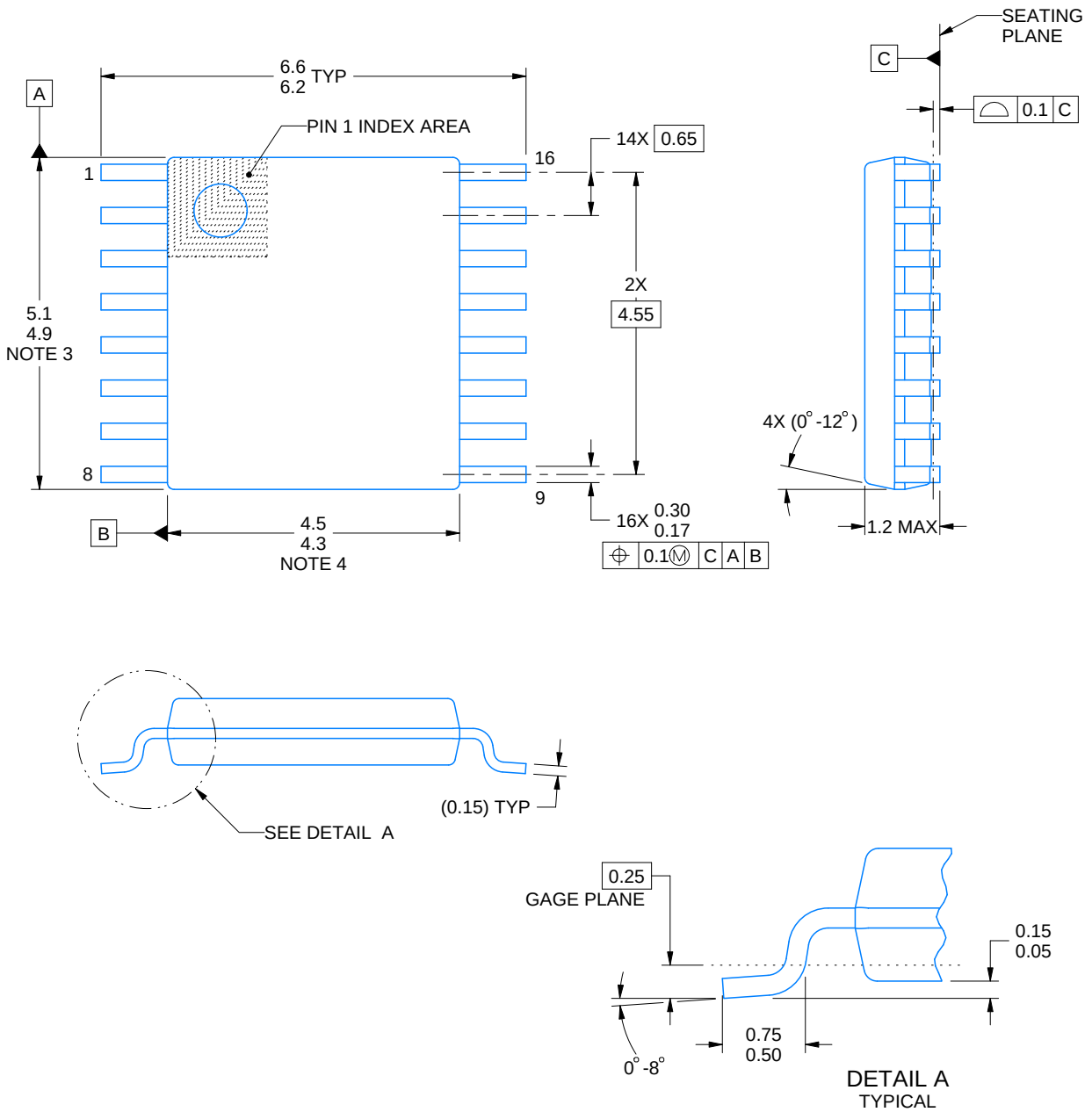
6. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.

PACKAGE OUTLINE

PW0016A

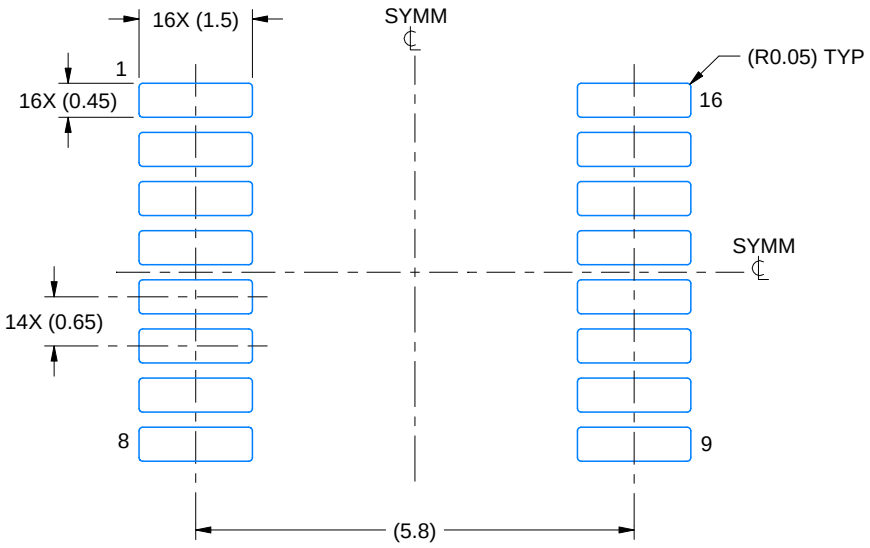
TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



NOTES:

1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm per side.
5. Reference JEDEC registration MO-153.



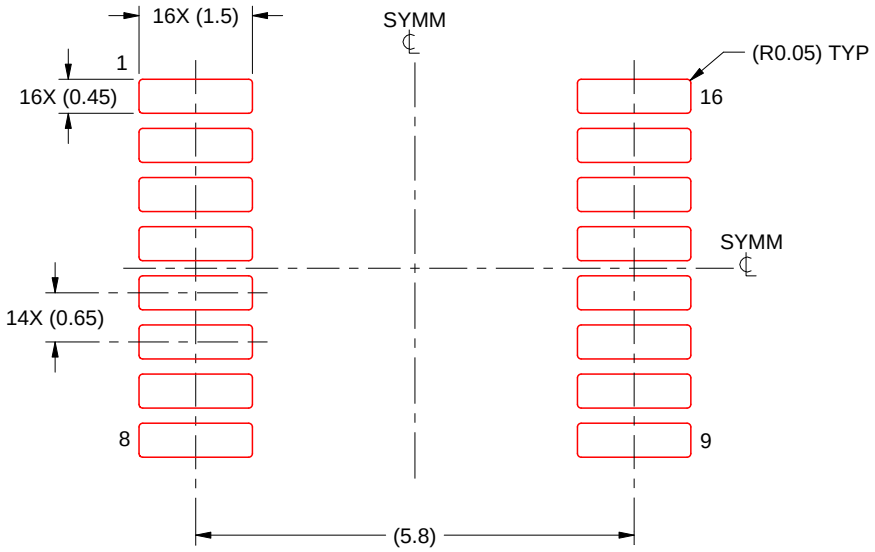
LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X

SOLDER MASK DETAILS

4220204/B 12/2023

NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

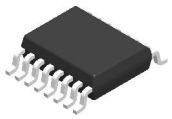


SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE: 10X

4220204/B 12/2023

NOTES: (continued)

8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

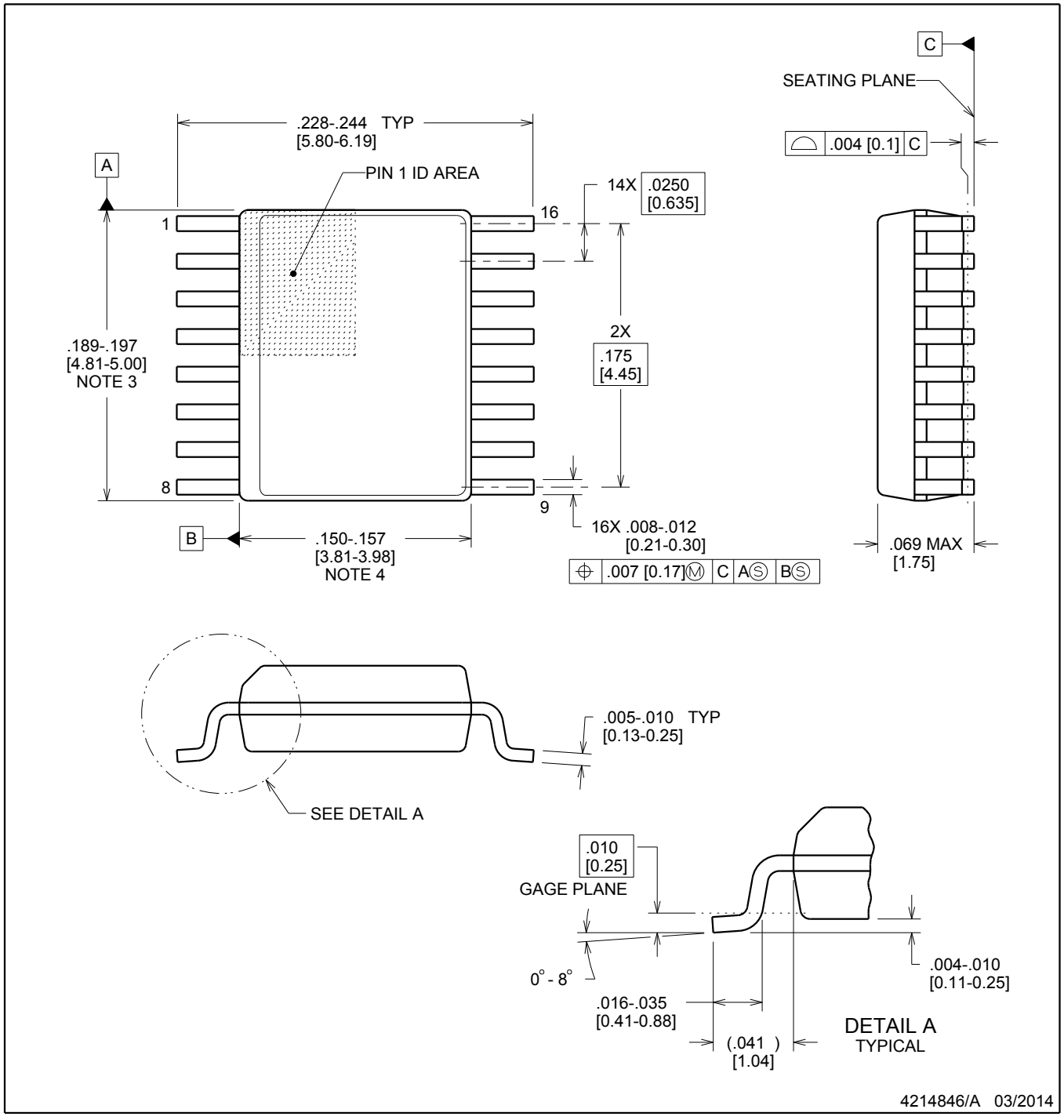


PACKAGE OUTLINE

DBQ0016A

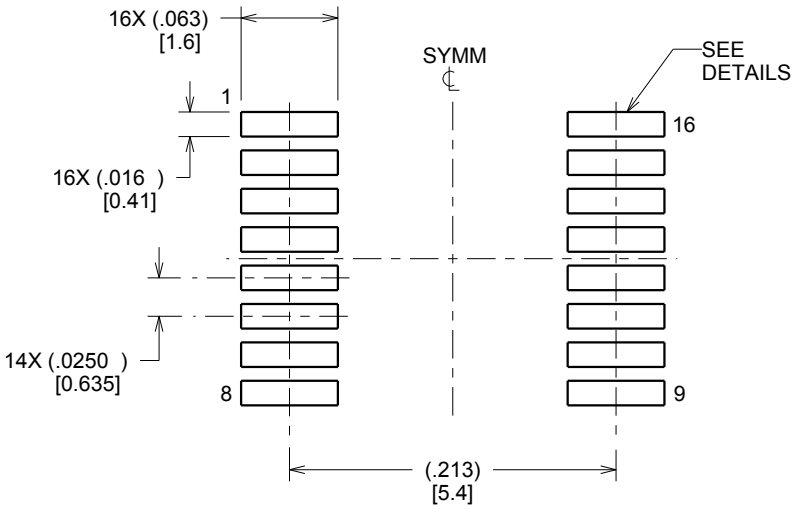
SSOP - 1.75 mm max height

SHRINK SMALL-OUTLINE PACKAGE

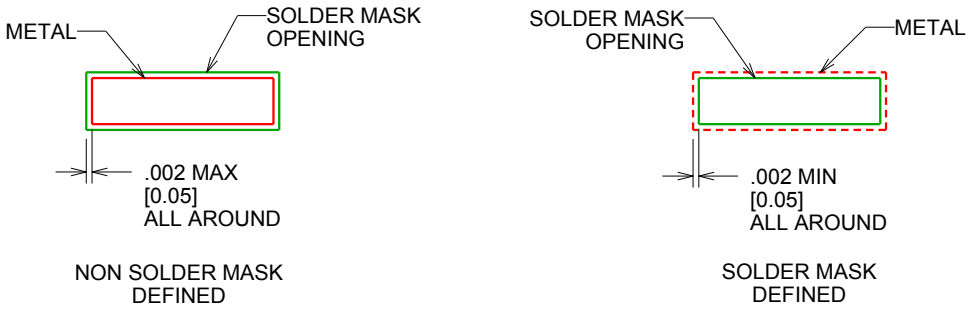


NOTES:

1. Linear dimensions are in inches [millimeters]. Dimensions in parenthesis are for reference only. Controlling dimensions are in inches. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed .006 inch, per side.
4. This dimension does not include interlead flash.
5. Reference JEDEC registration MO-137, variation AB.



LAND PATTERN EXAMPLE
SCALE:8X



SOLDER MASK DETAILS

4214846/A 03/2014

NOTES: (continued)

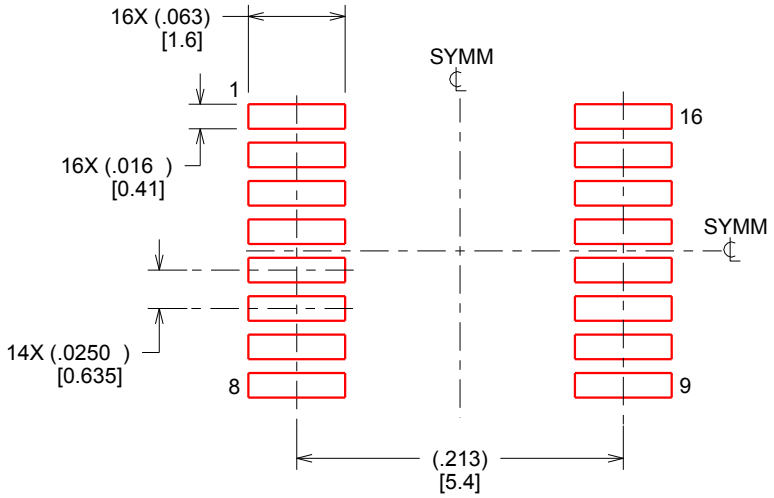
6. Publication IPC-7351 may have alternate designs.
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

EXAMPLE STENCIL DESIGN

DBQ0016A

SSOP - 1.75 mm max height

SHRINK SMALL-OUTLINE PACKAGE



SOLDER PASTE EXAMPLE
BASED ON .005 INCH [0.127 MM] THICK STENCIL
SCALE:8X

4214846/A 03/2014

NOTES: (continued)

8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

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