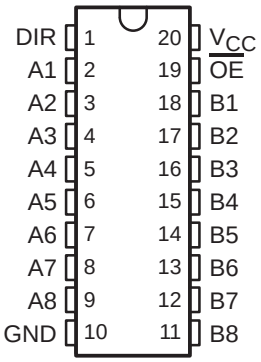
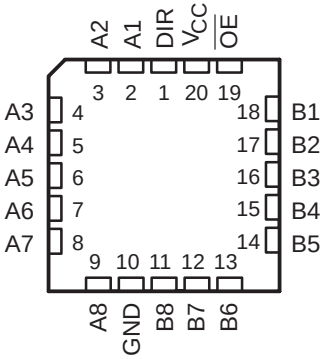
- **Support Mixed-Mode Signal Operation (5-V Input and Output Voltages With 3.3-V V_{CC})**
- **Support Unregulated Battery Operation Down to 2.7 V**
- **Typical V_{OLP} (Output Ground Bounce) <0.8 V at V_{CC} = 3.3 V, T_A = 25°C**
- **B-Port Outputs Have Equivalent 22-Ω Series Resistors, So No External Resistors Are Required**
- **I_{off} and Power-Up 3-State Support Hot Insertion**
- **Bus Hold on Data Inputs Eliminates the Need for External Pullup/Pulldown Resistors**
- **Latch-Up Performance Exceeds 500 mA Per JESD 17**
- **ESD Protection Exceeds JESD 22**
  - **2000-V Human-Body Model (A114-A)**
  - **200-V Machine Model (A115-A)**

SN54LVTH2245 . . . J OR W PACKAGE
SN74LVTH2245 . . . DB, DGV, DW, NS, OR PW PACKAGE
(TOP VIEW)



SN54LVTH2245 . . . FK PACKAGE
(TOP VIEW)



description/ordering information

These octal bus transceivers are designed specifically for low-voltage (3.3-V) V_{CC} operation, but with the capability to provide a TTL interface to a 5-V system environment.

These devices are designed for asynchronous communication between data buses. They transmit data from the A bus to the B bus or from the B bus to the A bus, depending on the logic level at the direction-control (DIR) input. The output-enable ($\overline{OE}$) input can be used to disable the devices so the buses are effectively isolated.

ORDERING INFORMATION

T_A	PACKAGE†		ORDERABLE PART NUMBER	TOP-SIDE MARKING
−40°C to 85°C	SOIC − DW	Tube	SN74LVTH2245DW	LVTH2245
		Tape and reel	SN74LVTH2245DWR	
	SOP − NS	Tape and reel	SN74LVTH2245NSR	LVTH2245
	SSOP − DB	Tape and reel	SN74LVTH2245DBR	LK245
	TSSOP − PW	Tube	SN74LVTH2245PW	LK245
		Tape and reel	SN74LVTH2245PWR	
	TVSOP − DGV	Tape and reel	SN74LVTH2245DGVR	LK245
−55°C to 125°C	CDIP − J	Tube	SNJ54LVTH2245J	SNJ54LVTH2245J
	CFP − W	Tube	SNJ54LVTH2245W	SNJ54LVTH2245W
	LCCC − FK	Tube	SNJ54LVTH2245FK	SNJ54LVTH2245FK

† Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.

Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

description/ordering information (continued)

Active bus-hold circuitry is provided to hold unused or floating data inputs at a valid logic level. Use of pullup or pulldown resistors with the bus-hold circuitry is not recommended.

The B-port outputs, which are designed to source or sink up to 12 mA, include equivalent 22-Ω series resistors to reduce overshoot and undershoot.

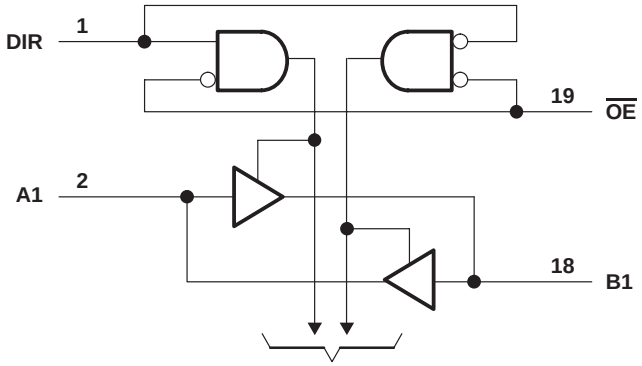
When V_{CC} is between 0 and 1.5 V, the devices are in the high-impedance state during power up or power down. However, to ensure the high-impedance state above 1.5 V, $\overline{OE}$ should be tied to V_{CC} through a pullup resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver.

These devices are fully specified for hot-insertion applications using I_{off} and power-up 3-state. The I_{off} circuitry disables the outputs, preventing damaging current backflow through the devices when they are powered down. The power-up 3-state circuitry places the outputs in the high-impedance state during power up and power down, which prevents driver conflict.

FUNCTION TABLE

INPUTS		OPERATION
$\overline{OE}$	DIR	
L	L	B data to A bus
L	H	A data to B bus
H	X	Isolation

logic diagram (positive logic)



absolute maximum ratings over operating free-air temperature range (unless otherwise noted)†

Supply voltage range, V_{CC} . . . . . −0.5 V to 4.6 V
Input voltage range, V_I (see Note 1) . . . . . −0.5 V to 7 V
Voltage range applied to any output in the high-impedance or power-off state, V_O (see Note 1) . . . . . −0.5 V to 7 V
Voltage range applied to any output in the high state, V_O (see Note 1) . . . . . −0.5 V to V_{CC} + 0.5 V
Current into any output in the low state, I_O: SN54LVTH2245 (A port) . . . . . 96 mA
SN74LVTH2245 (A port) . . . . . 128 mA
B port . . . . . 30 mA
Current into any output in the high state, I_O (see Note 2): SN54LVTH2245 (A port) . . . . . 48 mA
SN74LVTH2245 (A port) . . . . . 64 mA
B port . . . . . 30 mA
Input clamp current, I_{IK} (V_I < 0) . . . . . −50 mA
Output clamp current, I_{OK} (V_O < 0) . . . . . −50 mA
Package thermal impedance, θ_{JA} (see Note 3): DB package . . . . . 70°C/W
DGV package . . . . . 92°C/W
DW package . . . . . 58°C/W
NS package . . . . . 60°C/W
PW package . . . . . 83°C/W
Storage temperature range, T_{stg} . . . . . −65°C to 150°C

† 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 under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTES: 1. The input and output negative-voltage ratings may be exceeded if the input and output clamp-current ratings are observed.
2. This current flows only when the output is in the high state and $V_O > V_{CC}$.
3. The package thermal impedance is calculated in accordance with JESD 51-7.

recommended operating conditions (see Note 4)

			SN54LVTH2245		SN74LVTH2245		UNIT
			MIN	MAX	MIN	MAX	
V_{CC}	Supply voltage		2.7	3.6	2.7	3.6	V
V_{IH}	High-level input voltage		2		2		V
V_{IL}	Low-level input voltage			0.8		0.8	V
V_I	Input voltage			5.5		5.5	V
I_{OH}	High-level output current	A port		−24		−32	mA
		B port		−12		−12	
I_{OL}	Low-level output current	A port		48		64	mA
		B port		12		12	
$\Delta t/\Delta v$	Input transition rise or fall rate	Outputs enabled		10		10	ns/V
$\Delta t/\Delta V_{CC}$	Power-up ramp rate		200		200		μs/V
T_A	Operating free-air temperature		−55	125	−40	85	°C

NOTE 4: 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 report, *Implications of Slow or Floating CMOS Inputs*, literature number SCBA004.

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

PARAMETER		TEST CONDITIONS		SN54LVTH2245			SN74LVTH2245			UNIT
				MIN	TYP†	MAX	MIN	TYP†	MAX	
V_{IK}		V_{CC} = 2.7 V,	I_I = −18 mA			−1.2			−1.2	V
V_{OH}	A port	V_{CC} = 2.7 V to 3.6 V,	I_{OH} = −100 µA	V_{CC}−0.2			V_{CC}−0.2			V
		V_{CC} = 2.7 V,	I_{OH} = −8 mA	2.4			2.4			
		V_{CC} = 3 V	I_{OH} = −24 mA	2						
			I_{OH} = −32 mA				2			
	B port	V_{CC} = 2.7 V to 3.6 V,	I_{OH} = −100 µA	V_{CC}−0.2			V_{CC}−0.2			
		V_{CC} = 3 V,	I_{OH} = −12 mA	2			2			
V_{OL}	A port	V_{CC} = 2.7 V	I_{OL} = 100 µA			0.2			0.2	V
			I_{OL} = 24 mA			0.5			0.5	
		V_{CC} = 3 V	I_{OL} = 16 mA			0.4			0.4	
			I_{OL} = 32 mA			0.5			0.5	
			I_{OL} = 48 mA			0.55				
			I_{OL} = 64 mA						0.55	
	B port	V_{CC} = 2.7 V to 3.6 V,	I_{OL} = 100 µA			0.2			0.2	
		V_{CC} = 3 V,	I_{OL} = 12 mA			0.8			0.8	
I_I	Control inputs	V_{CC} = 3.6 V,	V_I = V_{CC} or GND			±1			±1	µA
		V_{CC} = 0 or 3.6 V,	V_I = 5.5 V			10			10	
	A or B ports‡	V_{CC} = 3.6 V	V_I = 5.5 V			20			20	
			V_I = V_{CC}			1			1	
			V_I = 0			−5			−5	
I_{off}		V_{CC} = 0,	V_I or V_O = 0 to 4.5 V						±100	µA
$I_{I(hold)}$	A or B ports	V_{CC} = 3 V	V_I = 0.8 V	75			75			µA
			V_I = 2 V	−75			−75			
		V_{CC} = 3.6 V§,	V_I = 0 to 3.6 V						500 −750	
I_{OZPU}		V_{CC} = 0 to 1.5 V, V_O = 0.5 V to 3 V, $\overline{OE}$ = don't care				±100*			±100	µA
I_{OZPD}		V_{CC} = 1.5 V to 0, V_O = 0.5 V to 3 V, $\overline{OE}$ = don't care				±100*			±100	µA
I_{CC}		V_{CC} = 3.6 V, I_O = 0, V_I = V_{CC} or GND	Outputs high			0.19		0.1	0.19	mA
			Outputs low			5		3	5	
			Outputs disabled			0.19		0.1	0.19	
ΔI_{CC}¶		V_{CC} = 3 V to 3.6 V, One input at V_{CC} − 0.6 V, Other inputs at V_{CC} or GND				0.2			0.2	mA
C_i		V_I = 3 V or 0			4			4		pF
C_{io}		V_O = 3 V or 0			9			9		pF

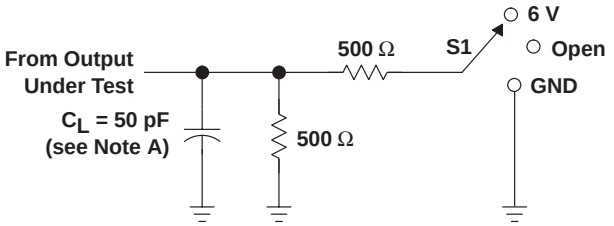
* On products compliant to MIL-PRF-38535, this parameter is not production tested.
† All typical values are at V_{CC} = 3.3 V, T_A = 25°C.
‡ Unused terminals are at V_{CC} or GND.
§ This is the bus-hold maximum dynamic current. It is the minimum overdrive current required to switch the input from one state to another.
¶ This is the increase in supply current for each input that is at the specified TTL voltage level, rather than V_{CC} or GND.

switching characteristics over recommended operating free-air temperature range, C_L = 50 pF (unless otherwise noted) (see Figure 1)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	SN54LVTH2245				SN74LVTH2245				UNIT
			V_{CC} = 3.3 V ± 0.3 V		V_{CC} = 2.7 V		V_{CC} = 3.3 V ± 0.3 V			V_{CC} = 2.7 V	
			MIN	MAX	MIN	MAX	MIN	TYP†	MAX	MIN MAX	
t_{PLH}	A	B	1	4.6		5.3	1.1	2.9	4.4	5.1	ns
t_{PHL}			1	4.6		5.3	1.1	2.6	4.4	5.1	
t_{PLH}	B	A	1	3.7		4.2	1.1	2.2	3.5	4	ns
t_{PHL}			1	3.7		4.2	1.1	2	3.5	4	
t_{PZH}	$\overline{OE}$	A	1.2	5.7		7.4	1.3	3.1	5.5	7.1	ns
t_{PZL}			1.6	5.7		6.8	1.7	3.2	5.5	6.5	
t_{PHZ}	$\overline{OE}$	A	2	6.2		6.8	2.2	3.6	5.9	6.5	ns
t_{PLZ}			2	5.3		5.5	2.2	3.4	5	5.1	
t_{PZH}	$\overline{OE}$	B	1.2	6.4		7.6	1.3	3.5	6.2	7.3	ns
t_{PZL}			1.6	6.4		7.5	1.7	3.7	6.2	7.3	
t_{PHZ}	$\overline{OE}$	B	2	6.1		6.8	2.2	3.9	5.9	6.5	ns
t_{PLZ}			2	5.7		5.9	2.2	3.7	5.4	5.7	

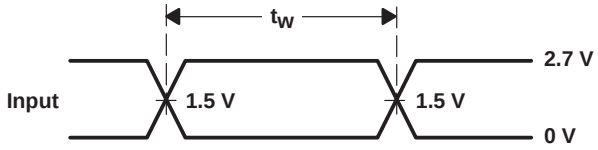
† All typical values are at V_{CC} = 3.3 V, T_A = 25°C.

PARAMETER MEASUREMENT INFORMATION

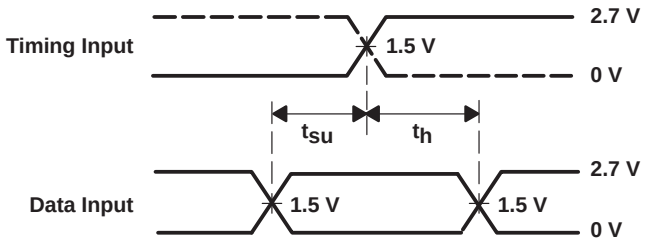


LOAD CIRCUIT

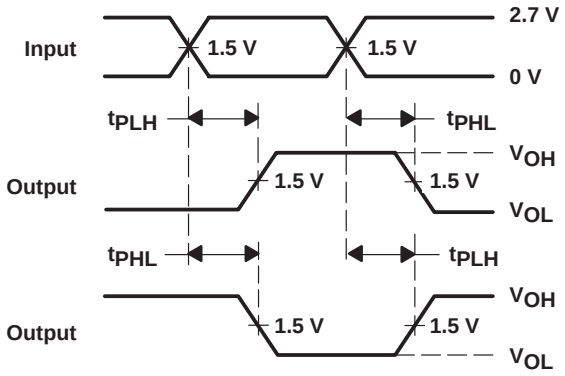
TEST	S1
t_{PLH}/t_{PHL}	Open
t_{PLZ}/t_{PZL}	6 V
t_{PHZ}/t_{PZH}	GND



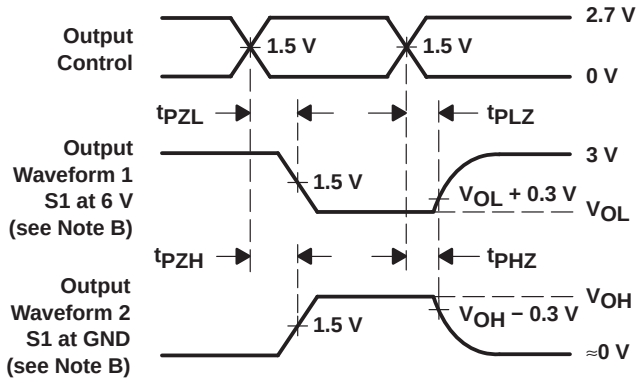
VOLTAGE WAVEFORMS
PULSE DURATION



VOLTAGE WAVEFORMS
SETUP AND HOLD TIMES



VOLTAGE WAVEFORMS
PROPAGATION DELAY TIMES
INVERTING AND NONINVERTING OUTPUTS



VOLTAGE WAVEFORMS
ENABLE AND DISABLE TIMES
LOW- AND HIGH-LEVEL ENABLING

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. All parameters and waveforms are not applicable to all devices.

Figure 1. Load Circuit and Voltage Waveforms

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)
SN74LVTH2245DBR	Active	Production	SSOP (DB) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LK245
SN74LVTH2245DBR.B	Active	Production	SSOP (DB) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LK245
SN74LVTH2245DGVR	Active	Production	TVSOP (DGV) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LK245
SN74LVTH2245DGVR.B	Active	Production	TVSOP (DGV) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LK245
SN74LVTH2245DW	Active	Production	SOIC (DW) | 20	25 | TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LVTH2245
SN74LVTH2245DW.B	Active	Production	SOIC (DW) | 20	25 | TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LVTH2245
SN74LVTH2245DWR	Active	Production	SOIC (DW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LVTH2245
SN74LVTH2245DWR.B	Active	Production	SOIC (DW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LVTH2245
SN74LVTH2245PW	Active	Production	TSSOP (PW) | 20	70 | TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LK245
SN74LVTH2245PW.B	Active	Production	TSSOP (PW) | 20	70 | TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LK245
SN74LVTH2245PWR	Active	Production	TSSOP (PW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LK245
SN74LVTH2245PWR.B	Active	Production	TSSOP (PW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LK245
SN74LVTH2245PWRG4	Active	Production	TSSOP (PW) | 20	2000 | LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	LK245

(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.

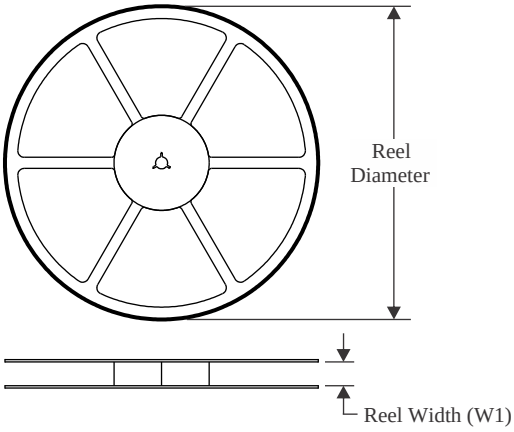
(5) **MSL rating/Peak reflow:** The moisture sensitivity level ratings and peak solder (reflow) temperatures. In the event that a part has multiple moisture sensitivity ratings, only the lowest level per JEDEC standards is shown. Refer to the shipping label for the actual reflow temperature that will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

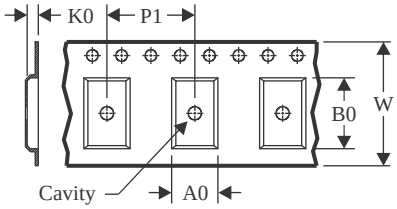
Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

TAPE AND REEL INFORMATION

REEL DIMENSIONS

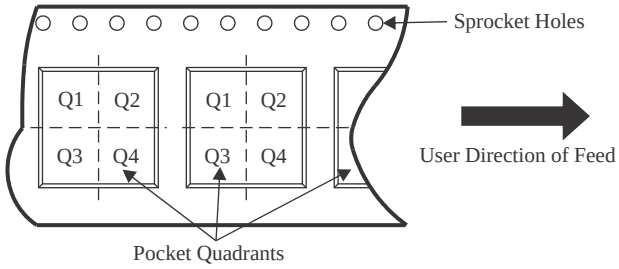


TAPE DIMENSIONS



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

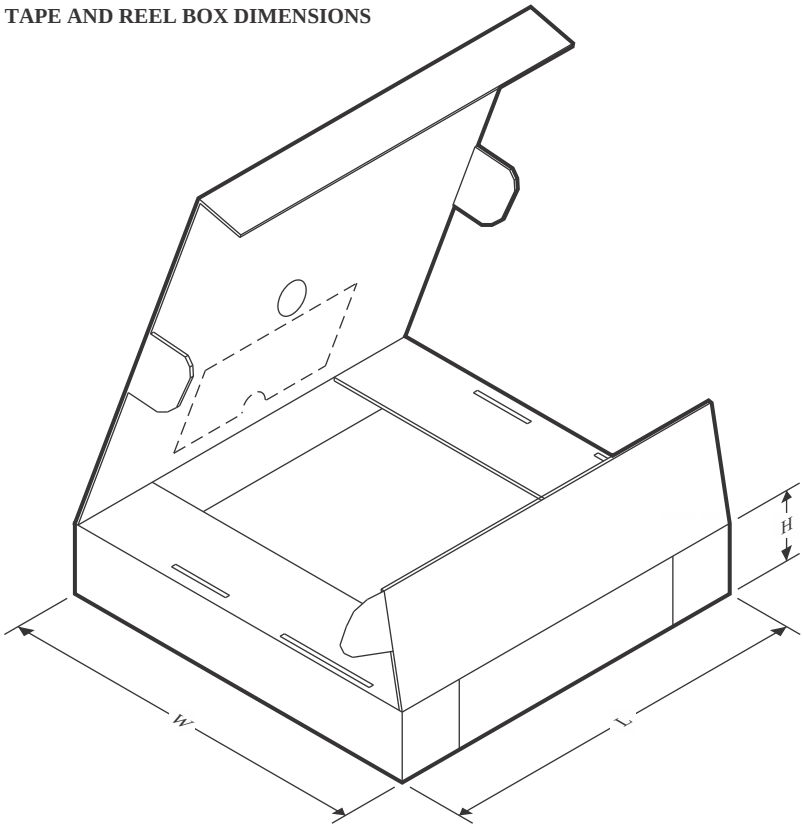
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*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
SN74LVTH2245DBR	SSOP	DB	20	2000	330.0	16.4	8.2	7.5	2.5	12.0	16.0	Q1
SN74LVTH2245DGVR	TVSOP	DGV	20	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74LVTH2245DWR	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1
SN74LVTH2245PWR	TSSOP	PW	20	2000	330.0	16.4	6.95	7.0	1.4	8.0	16.0	Q1

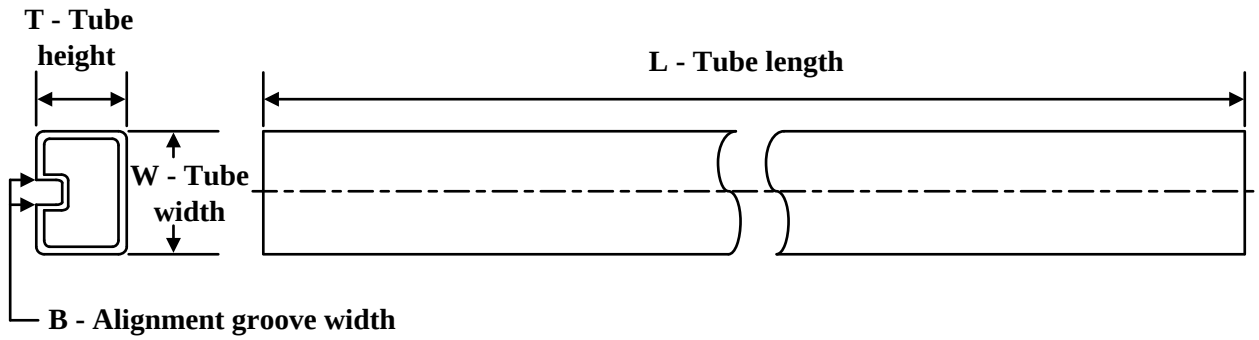
TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74LVTH2245DBR	SSOP	DB	20	2000	353.0	353.0	32.0
SN74LVTH2245DGVR	TVSOP	DGV	20	2000	353.0	353.0	32.0
SN74LVTH2245DWR	SOIC	DW	20	2000	356.0	356.0	45.0
SN74LVTH2245PWR	TSSOP	PW	20	2000	353.0	353.0	32.0

TUBE



*All dimensions are nominal

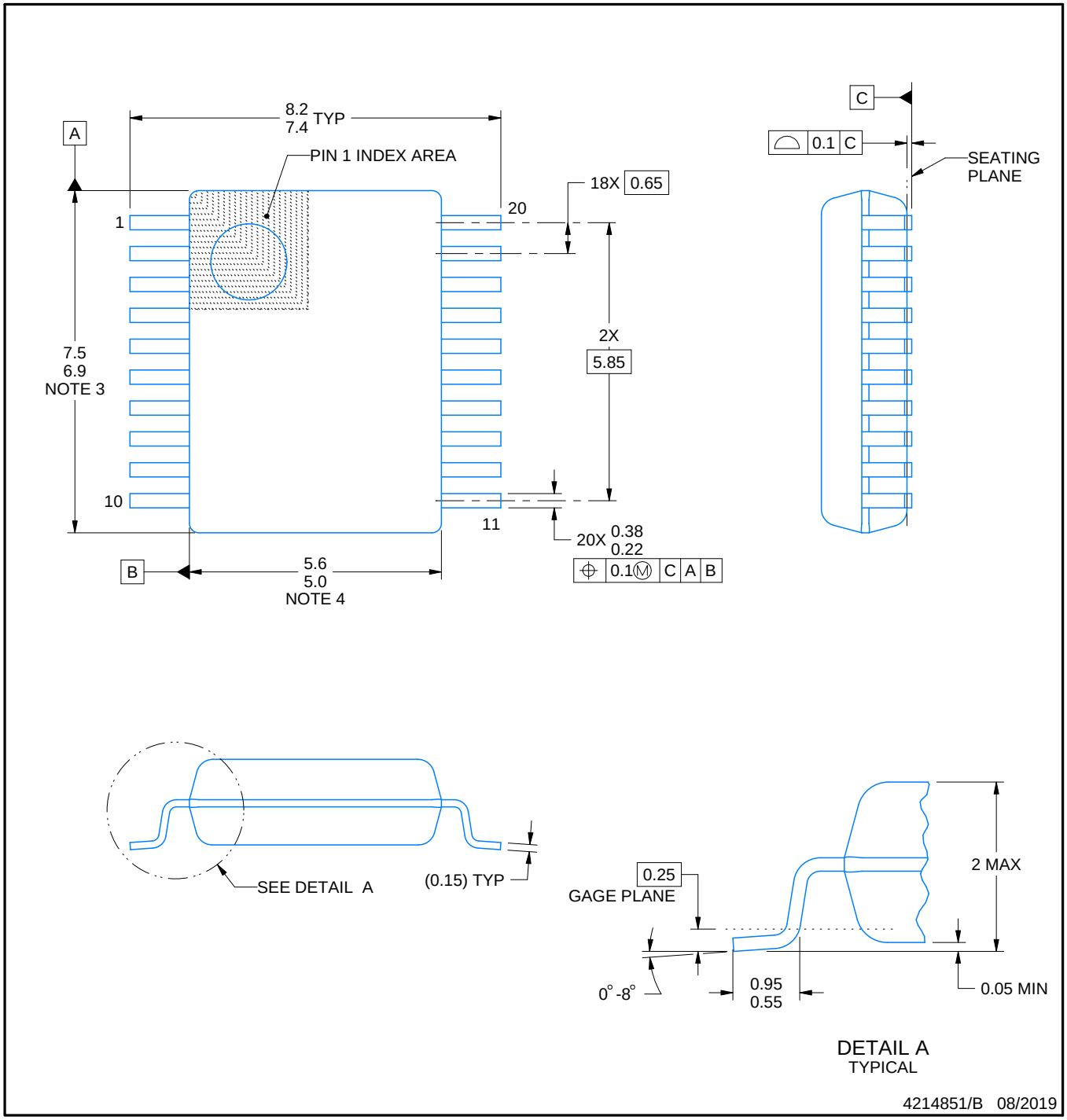
Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (µm)	B (mm)
SN74LVTH2245DW	DW	SOIC	20	25	507	12.83	5080	6.6
SN74LVTH2245DW.B	DW	SOIC	20	25	507	12.83	5080	6.6
SN74LVTH2245PW	PW	TSSOP	20	70	530	10.2	3600	3.5
SN74LVTH2245PW.B	PW	TSSOP	20	70	530	10.2	3600	3.5

PACKAGE OUTLINE

DB0020A

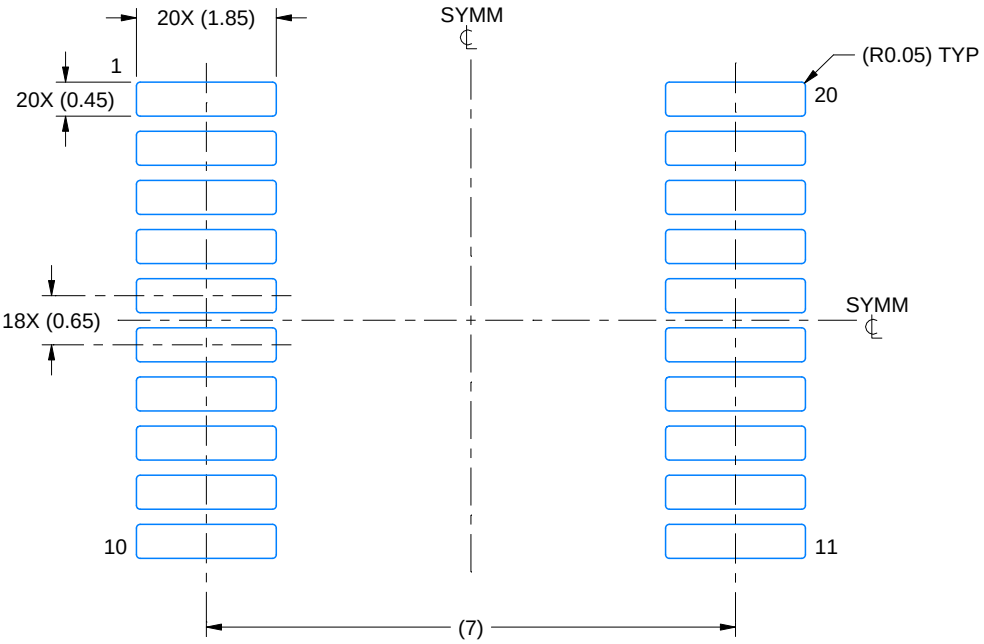
SSOP - 2 mm max height

SMALL OUTLINE PACKAGE

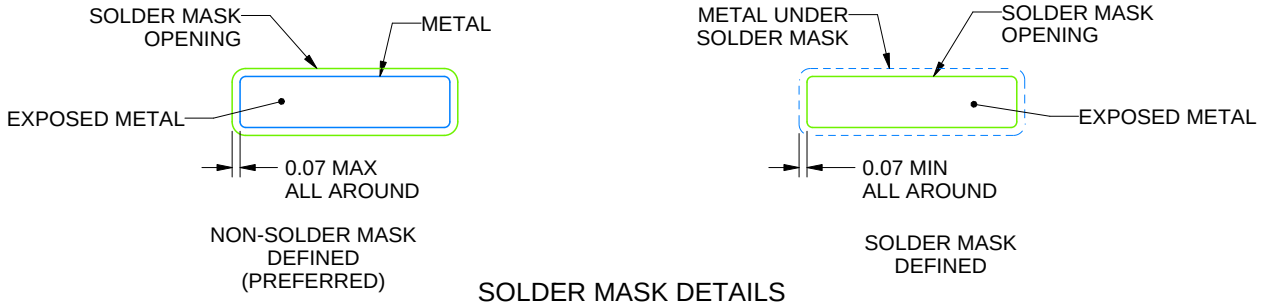


NOTES:

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-150.



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X



SOLDER MASK DETAILS

4214851/B 08/2019

NOTES: (continued)

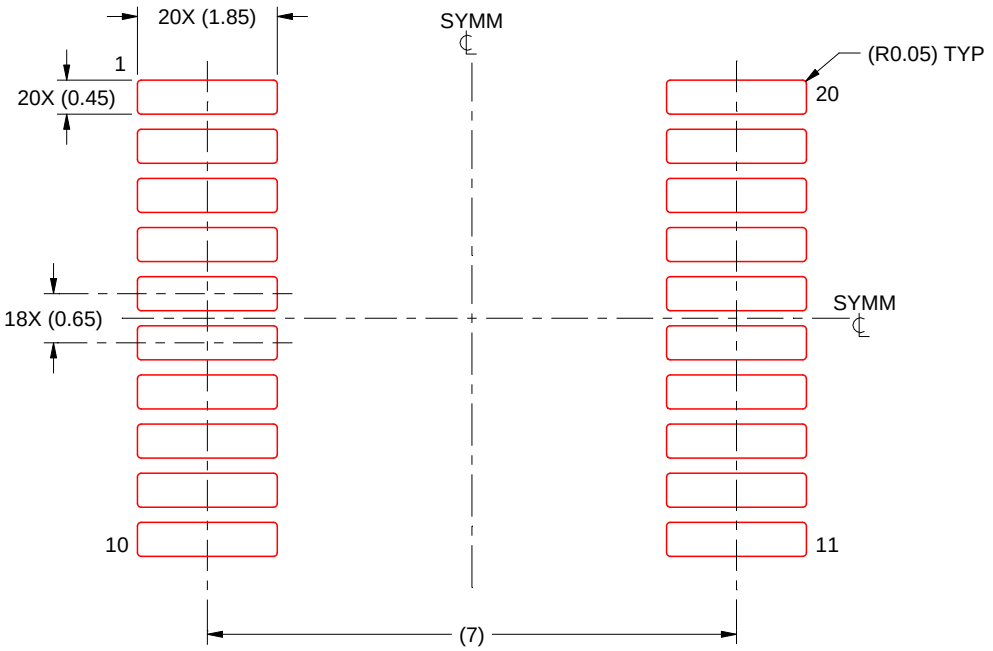
6. Publication IPC-7351 may have alternate designs.
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

EXAMPLE STENCIL DESIGN

DB0020A

SSOP - 2 mm max height

SMALL OUTLINE PACKAGE



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

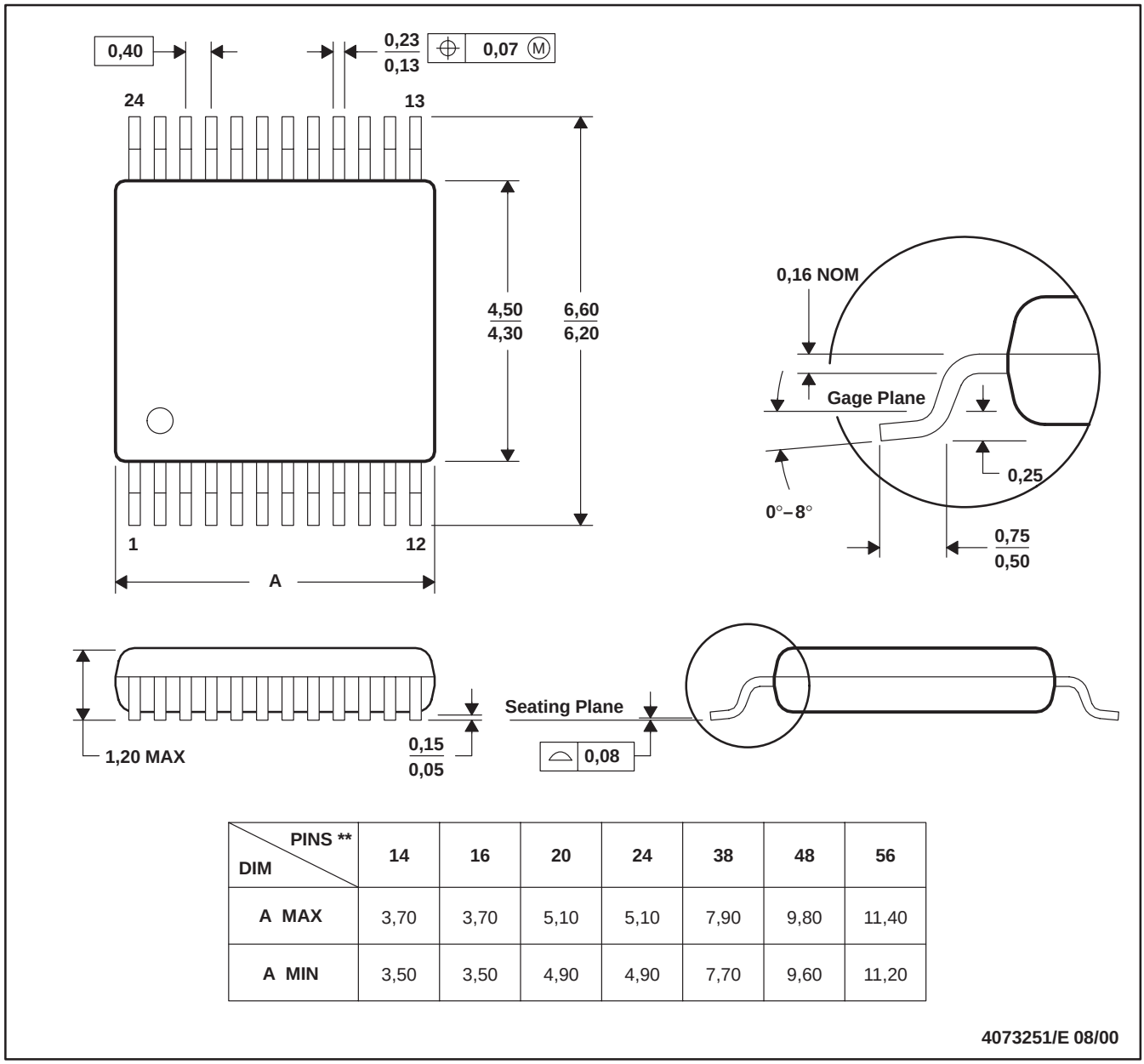
4214851/B 08/2019

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.

DGV (R-PDSO-G)** **PLASTIC SMALL-OUTLINE**

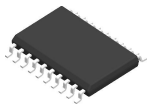
24 PINS SHOWN



DIM \ PINS **	14	16	20	24	38	48	56
A MAX	3,70	3,70	5,10	5,10	7,90	9,80	11,40
A MIN	3,50	3,50	4,90	4,90	7,70	9,60	11,20

4073251/E 08/00

NOTES: A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15 per side.
D. Falls within JEDEC: 24/48 Pins – MO-153
14/16/20/56 Pins – MO-194

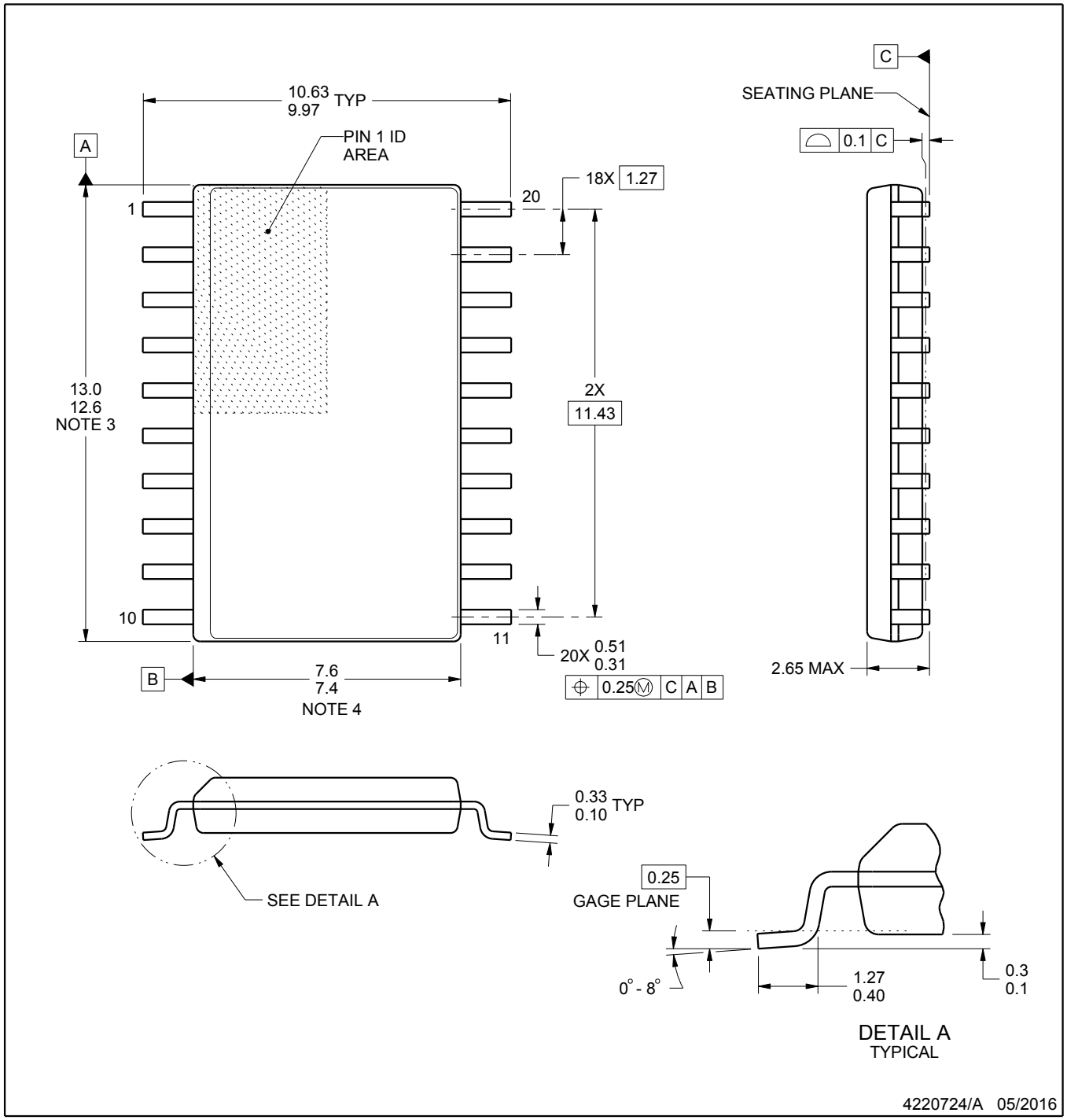


PACKAGE OUTLINE

DW0020A

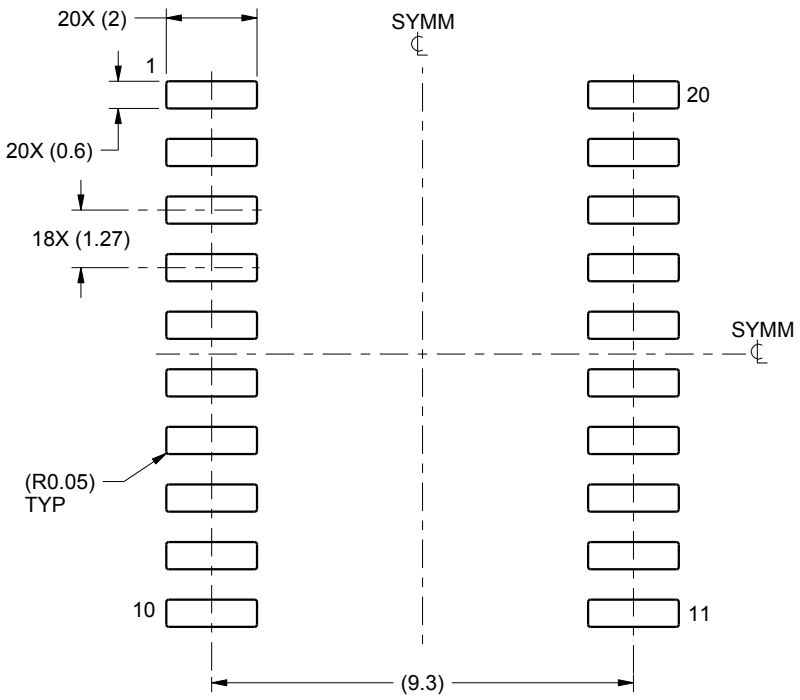
SOIC - 2.65 mm max height

SOIC

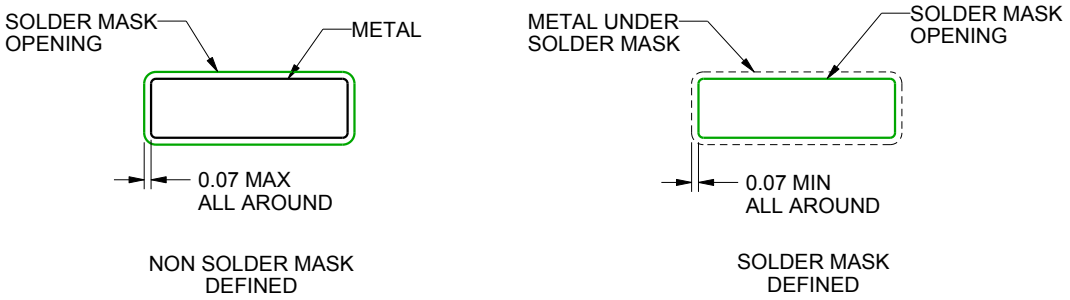


NOTES:

1. All linear dimensions are in millimeters. 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 0.43 mm per side.
5. Reference JEDEC registration MS-013.



LAND PATTERN EXAMPLE
SCALE:6X

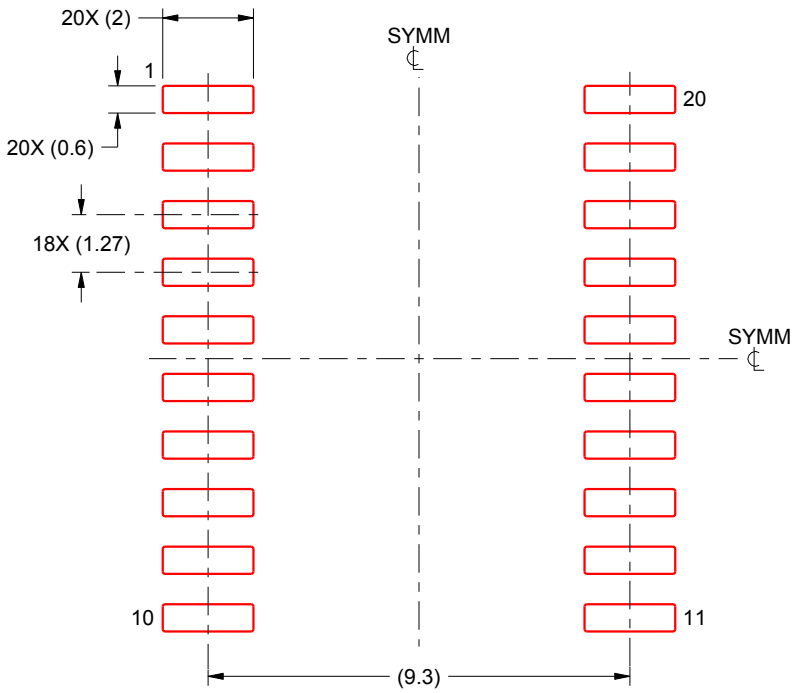


SOLDER MASK DETAILS

4220724/A 05/2016

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:6X

4220724/A 05/2016

NOTES: (continued)

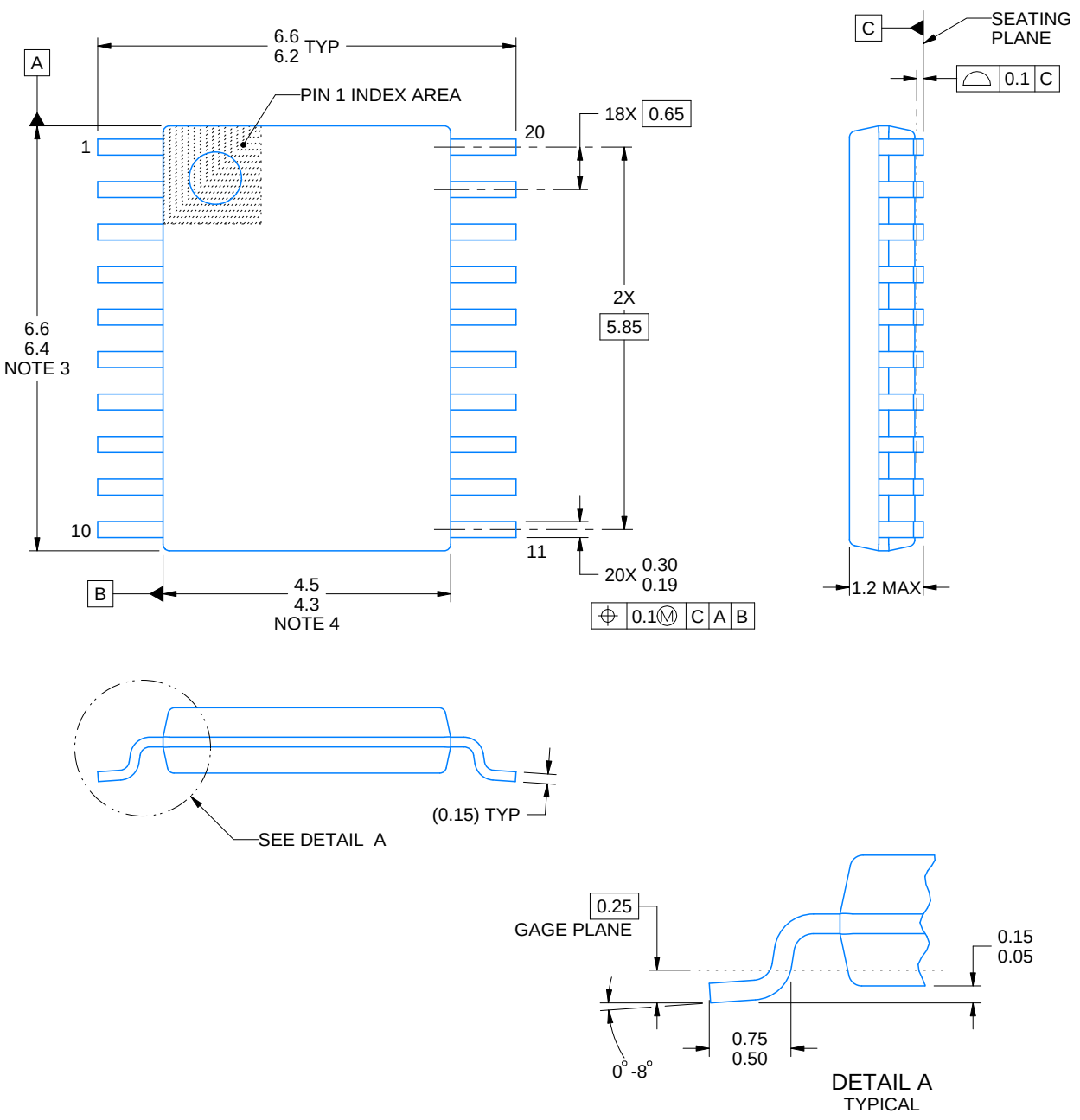
8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

PACKAGE OUTLINE

PW0020A

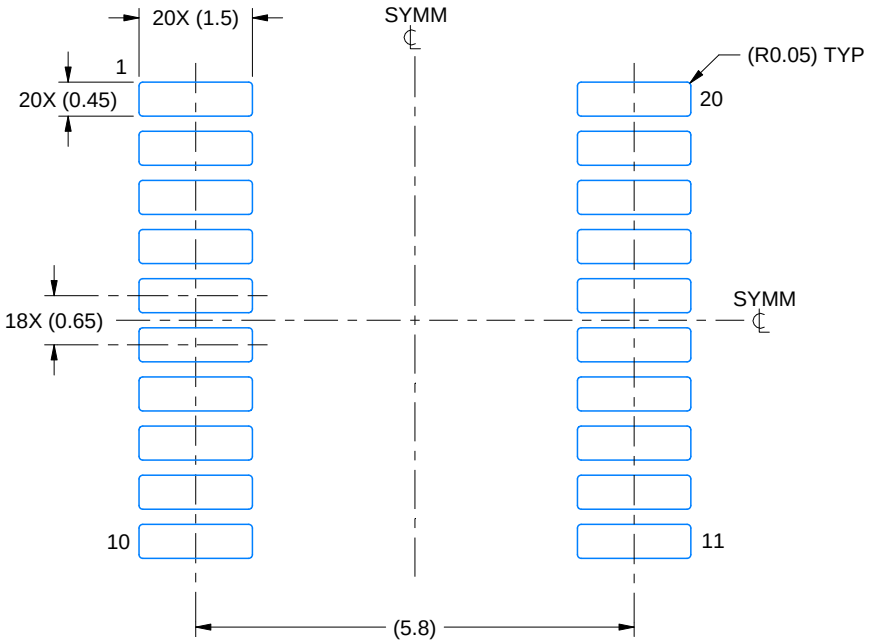
TSSOP - 1.2 mm max height

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.



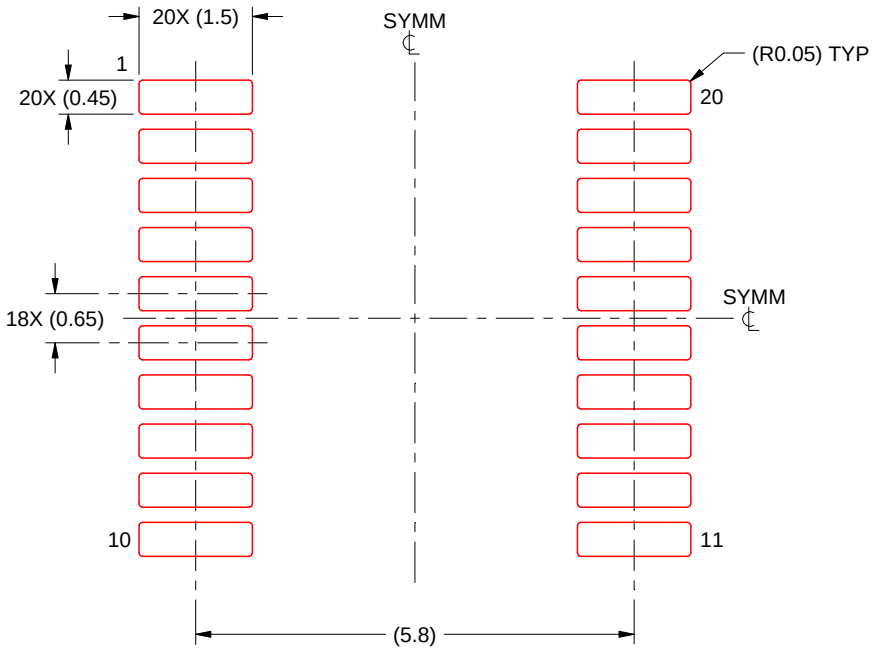
LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X

SOLDER MASK DETAILS

4220206/A 02/2017

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

4220206/A 02/2017

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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