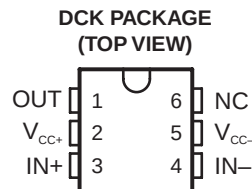
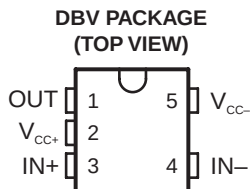
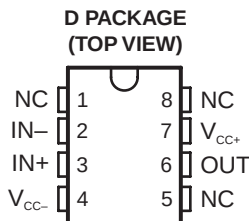


FEATURES

- Parameters Specified at 2.7-V, 5-V, and 15-V Supplies
- Supply Current 7 μ A (Typ) at 5 V
- Response Time 4 μ s (Typ) at 5 V
- Push-Pull Output
- Input Common-Mode Range Beyond V_{CC-} and V_{CC+}
- Low Input Current

APPLICATIONS

- Battery-Powered Products
- Notebooks and PDAs
- Mobile Communications
- Alarm and Security Circuits
- Direct Sensor Interface
- Replaces Amplifiers Used as Comparators With Better Performance and Lower Current



NC – No internal connection

DESCRIPTION/ORDERING INFORMATION

The TLV7211 and TLV7211A are micropower CMOS comparators available in the space-saving SOT-23-5 package. This makes the comparators ideal for space- and weight-critical designs. The TLV7211A features an input offset voltage of 5 mV, and the TLV7211 features an input offset voltage of 15 mV.

The main benefits of the SOT-23-5 package are most apparent in small portable electronic devices, such as mobile phones, pagers, notebook computers, personal digital assistants, and PCMCIA cards. The rail-to-rail input voltage makes the TLV7211 or TLV7211A a good choice for sensor interfacing, such as light detector circuits, optical and magnetic sensors, and alarm and status circuits.

The SOT-23-5 package's small size allows it to fit into tight spaces on PC boards.

ORDERING INFORMATION

T_A	V_{OS} (MAX)	PACKAGE ⁽¹⁾		ORDERABLE PART NUMBER	TOP-SIDE MARKING ⁽²⁾
–40°C to 85°C	5 mV	SOIC – D	Reel of 2500	TLV7211AIDR	7211AI
			Tube of 75	TLV7211AID	
		SOT-23-5 – DBV	Reel of 3000	TLV7211AIDBVR	YBN_
		SOT (SC-70) – DCK	Reel of 3000	TLV7211AIDCKR	Y8_
			Reel of 250	TLV7211AIDCKT	
	15 mV	SOIC – D	Reel of 2500	TLV7211IDR	TY7211
			Tube of 75	TLV7211ID	
		SOT-23-5 – DBV	Reel of 3000	TLV7211IDBVR	YBK_
		SOT (SC-70) – DCK	Reel of 3000	TLV7211IDCKR	Y7_
			Reel of 250	TLV7211IDCKT	

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

(2) DBV/DCK: The actual top-side marking has one additional character that designates the assembly/test site.



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.

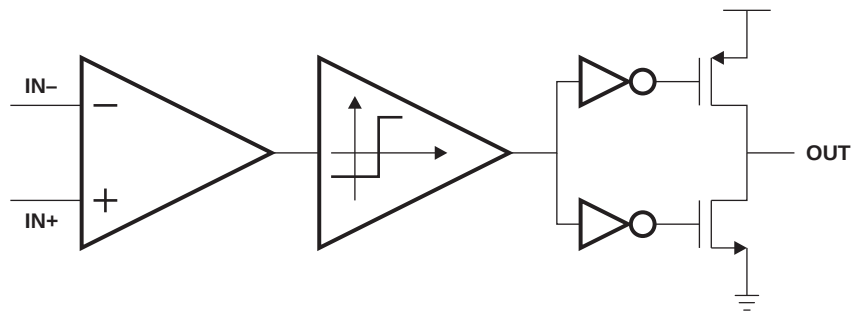
TLV7211, TLV7211A

CMOS COMPARATORS

WITH RAIL-TO-RAIL INPUT AND PUSH-PULL OUTPUT

SLCS149B – AUGUST 2006 – REVISED JANUARY 2007

FUNCTIONAL BLOCK DIAGRAM



Absolute Maximum Ratings⁽¹⁾

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

		MIN	MAX	UNIT
$V_{CC+} - V_{CC-}$	Supply voltage ⁽²⁾		16	V
V_{ID}	Differential input voltage ⁽³⁾		$\pm$ Supply voltage	V
V_I	Input voltage range (any input)	$V_{CC-} - 0.3$	$V_{CC+} + 0.3$	V
V_O	Output voltage range	$V_{CC-} - 0.3$	$V_{CC+} + 0.3$	V
I_{CC}	Supply current		40	mA
I_I	Input current		± 5	mA
I_O	Output current		± 30	mA
θ_{JA}	Package thermal impedance ⁽⁴⁾⁽⁵⁾	D package	97	$^{\circ}\text{C/W}$
		DBV package	206	
		DCK package	259	
T_J	Operating virtual junction temperature		150	$^{\circ}\text{C}$
T_{stg}	Storage temperature range	-65	150	$^{\circ}\text{C}$

- (1) 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.
- (2) All voltage values (except differential voltages and V_{CC} specified for the measurement of I_{OS}) are with respect to the network GND.
- (3) Differential voltages are at IN+ with respect to IN-.
- (4) Maximum power dissipation is a function of $T_J(\text{max})$, θ_{JA} , and T_A . The maximum allowable power dissipation at any allowable ambient temperature is $P_D = (T_J(\text{max}) - T_A)/\theta_{JA}$. Operating at the absolute maximum T_J of 150 $^{\circ}\text{C}$ can affect reliability.
- (5) The package thermal impedance is calculated in accordance with JESD 51-7.

ESD Protection

	TYP	UNIT
Human-Body Model	2000	V

Recommended Operating Conditions

		MIN	MAX	UNIT
$V_{CC+} - V_{CC-}$	Supply voltage	2.7	15	V
T_J	Operating virtual junction temperature	-40	85	$^{\circ}\text{C}$

2.7-V Electrical Characteristics

$V_{CC+} = 2.7\text{ V}$, $V_{CC-} = \text{GND}$, $V_{CM} = V_O = V_{CC+}/2$, and $R_L > 1\text{ M}\Omega$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS	T_J	TLV7211A			TLV7211			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
V_{OS} Input offset voltage		25°C		3	5		3	15	mV
		–40°C to 85°C			8			18	
TCV _{OS} Input offset voltage temperature drift		25°C		1			1		µV/°C
Input offset voltage average drift ⁽¹⁾		25°C		3.3			3.3		µV/month
I_B Input current		25°C		0.04			0.04		pA
I_{OS} Input offset current		25°C		0.02			0.02		pA
CMRR Common-mode rejection ratio	$0 \leq V_{CM} \leq 2.7\text{ V}$	25°C		75			75		dB
PSRR Power-supply rejection ratio	$2.7\text{ V} \leq V_{CC+} \leq 15\text{ V}$	25°C		80			80		dB
A_V Voltage gain		25°C		100			100		dB
CMVR Input common-mode voltage range	CMRR > 55 dB	25°C	2.9	3		2.9	3		V
		–40°C to 85°C	2.7			2.7			
	CMRR > 55 dB	25°C		–0.3	–0.2		–0.3	–0.2	
		–40°C to 85°C			0			0	
V_{OH} High-level output voltage	$I_{load} = 2.5\text{ mA}$	25°C	2.4	2.5		2.4	2.5		V
		–40°C to 85°C	2.3			2.3			
V_{OL} Low-level output voltage	$I_{load} = 2.5\text{ mA}$	25°C		0.2	0.3		0.2	0.3	V
		–40°C to 85°C			0.4			0.4	
I_{CC} Supply current	$V_{OUT} = \text{Low}$	25°C		7	12		7	12	µA
		–40°C to 85°C			14			14	
	$V_{OUT} = \text{High-Idle}$	25°C		5	10		5	10	
		–40°C to 85°C			12			12	

(1) Input offset voltage average drift is calculated by dividing the accelerated operating life V_{OS} drift by the equivalent operational time. This represents worst-case input conditions and includes the first 30 days of drift.

TLV7211, TLV7211A

CMOS COMPARATORS

WITH RAIL-TO-RAIL INPUT AND PUSH-PULL OUTPUT

SLCS149B – AUGUST 2006 – REVISED JANUARY 2007

5-V Electrical Characteristics

$V_{CC+} = 5\text{ V}$, $V_{CC-} = \text{GND}$, $V_{CM} = V_O = V_{CC+}/2$, and $R_L > 1\text{ M}\Omega$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS	T_J	TLV7211A			TLV7211			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
V_{OS} Input offset voltage		25°C		3	5		3	15	mV
		–40°C to 85°C			8			18	
TCV _{OS} Input offset voltage temperature drift		25°C		1			1		µV/°C
Input offset voltage average drift ⁽¹⁾		25°C		3.3			3.3		µV/month
I_B Input current		25°C		0.04			0.04		pA
I_{OS} Input offset current		25°C		0.02			0.02		pA
CMRR Common-mode rejection ratio		25°C		75			75		dB
PSRR Power-supply rejection ratio	$5\text{ V} \leq V_{CC+} \leq 10\text{ V}$	25°C		80			80		dB
A_V Voltage gain		25°C		100			100		dB
CMVR Input common-mode voltage range	CMRR > 55 dB	25°C	5.2	5.3		5.2	5.3		V
		–40°C to 85°C	5			5			
	CMRR > 55 dB	25°C		–0.3	–0.2		–0.3	–0.2	
		–40°C to 85°C			0			0	
V_{OH} High-level output voltage	$I_{load} = 5\text{ mA}$	25°C	4.6	4.8		4.6	4.8		V
		–40°C to 85°C	4.45			4.45			
V_{OL} Low-level output voltage	$I_{load} = 5\text{ mA}$	25°C		0.2	0.4		0.2	0.4	V
		–40°C to 85°C			0.55			0.55	
I_{CC} Supply current	$V_{OUT} = \text{Low}$	25°C		7	14		7	14	µA
		–40°C to 85°C			18			18	
	$V_{OUT} = \text{High-Idle}$	25°C		5	10		5	10	
		–40°C to 85°C			13			13	
I_{OH} Short-circuit output current	I_{source}	25°C		30			30		mA
I_{OL} Short-circuit output current	I_{sink} , $V_O < 12\text{ V}^{(2)}$	25°C		45			45		mA

(1) Input offset voltage average drift is calculated by dividing the accelerated operating life V_{OS} drift by the equivalent operational time. This represents worst-case input conditions and includes the first 30 days of drift.

(2) Do not short circuit the output to $V+$ if $V+$ is >12 V.

15-V Electrical Characteristics

$V_{CC+} = 15\text{ V}$, $V_{CC-} = \text{GND}$, $V_{CM} = V_O = V_{CC+}/2$, and $R_L > 1\text{ M}\Omega$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS	T_J	TLV7211A			TLV7211			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
V_{OS} Input offset voltage		25°C		3	5		3	15	mV
		–40°C to 85°C			8			18	
TCV_{OS} Input offset voltage temperature drift		25°C		4			4		$\mu\text{V}/^\circ\text{C}$
Input offset voltage average drift ⁽¹⁾		25°C		4			4		$\mu\text{V}/\text{month}$
I_B Input current		25°C		0.04			0.04		pA
I_{OS} Input offset current		25°C		0.02			0.02		pA
CMRR Common-mode rejection ratio		25°C		82			82		dB
PSRR Power-supply rejection ratio	$5\text{ V} \leq V_{CC+} \leq 10\text{ V}$	25°C		80			80		dB
A_V Voltage gain		25°C		100			100		dB
CMVR Input common-mode voltage range	CMRR > 55 dB	25°C	15.2	15.3		15.2	15.3		V
		–40°C to 85°C	15			15			
	CMRR > 55 dB	25°C		–0.3	–0.2		–0.3	–0.2	
		–40°C to 85°C			0			0	
V_{OH} High-level output voltage	$I_{load} = 5\text{ mA}$	25°C	14.6	14.8		14.6	14.8		V
		–40°C to 85°C	14.45			14.45			
V_{OL} Low-level output voltage	$I_{load} = 5\text{ mA}$	25°C		0.2	0.4		0.2	0.4	V
		–40°C to 85°C			0.55			0.55	
I_{CC} Supply current	$V_{OUT} = \text{Low}$	25°C		7	14		7	14	μA
		–40°C to 85°C			18			18	
	$V_{OUT} = \text{High-Idle}$	25°C		5	12		5	12	
		–40°C to 85°C			14			14	
I_{OH} Short-circuit output current	I_{source}	25°C	30			30			mA
I_{OL} Short-circuit output current	I_{sink} , $V_O < 12\text{ V}^{(2)}$	25°C	45			45			mA

- (1) Input offset voltage average drift is calculated by dividing the accelerated operating life V_{OS} drift by the equivalent operational time. This represents worst-case input conditions and includes the first 30 days of drift.
- (2) Do not short circuit the output to $V+$ if $V+$ is $>12\text{ V}$.

TLV7211, TLV7211A

CMOS COMPARATORS

WITH RAIL-TO-RAIL INPUT AND PUSH-PULL OUTPUT

SLCS149B – AUGUST 2006 – REVISED JANUARY 2007

Switching Characteristics

$T_J = 25^\circ\text{C}$, $V_{CC+} = 5\text{ V}$, $V_{CC-} = \text{GND}$, $V_{CM} = V_O = V_{CC+}/2$, and $R_L > 1\text{ M}\Omega$ (unless otherwise noted)

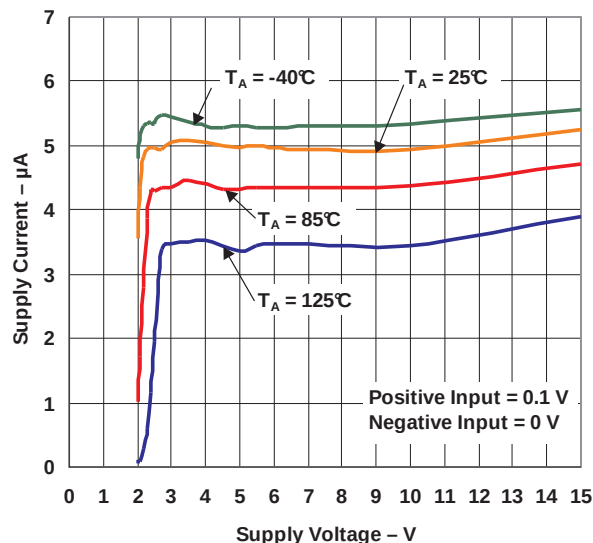
PARAMETER		TEST CONDITIONS		TYP	UNIT
t_{rise}	Rise time	$f = 10\text{ kHz}$, $C_L = 50\text{ pF}^{(1)}$, Overdrive = 10 mV		0.3	μs
t_{fall}	Fall time	$f = 10\text{ kHz}$, $C_L = 50\text{ pF}^{(1)}$, Overdrive = 10 mV		0.3	μs
t_{PHL}	Propagation delay time, high to low ⁽²⁾	$f = 10\text{ kHz}$, $C_L = 50\text{ pF}^{(1)}$	10 mV	10	μs
			100 mV	4	
		$V_{CC+} = 2.7\text{ V}$, $f = 10\text{ kHz}$, $C_L = 50\text{ pF}^{(1)}$	10 mV	10	
			100 mV	4	
t_{PLH}	Propagation delay time, low to high ⁽²⁾	$f = 10\text{ kHz}$, $C_L = 50\text{ pF}^{(1)}$	10 mV	6	μs
			100 mV	4	
		$V_{CC+} = 2.7\text{ V}$, $f = 10\text{ kHz}$, $C_L = 50\text{ pF}^{(1)}$	10 mV	7	
			100 mV	4	

(1) C_L includes probe and jig capacitance.

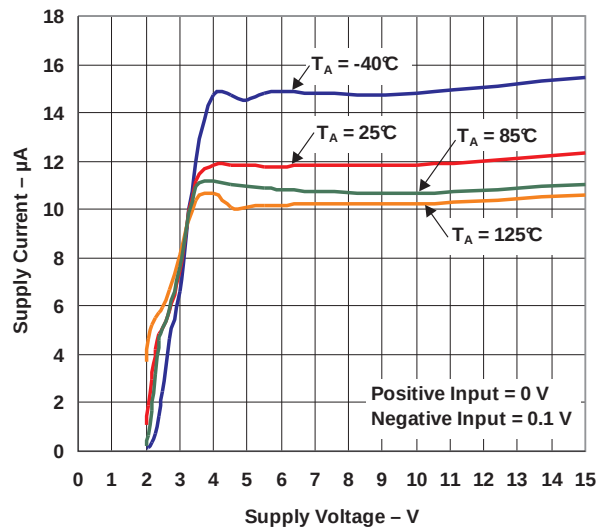
(2) Input step voltage for propagation delay measurement is 2 V.

TYPICAL CHARACTERISTICS

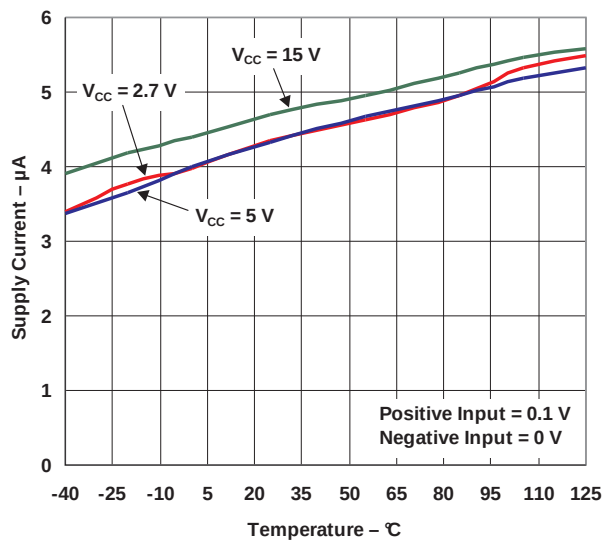
SUPPLY CURRENT
vs
SUPPLY VOLTAGE
(SOURCING)



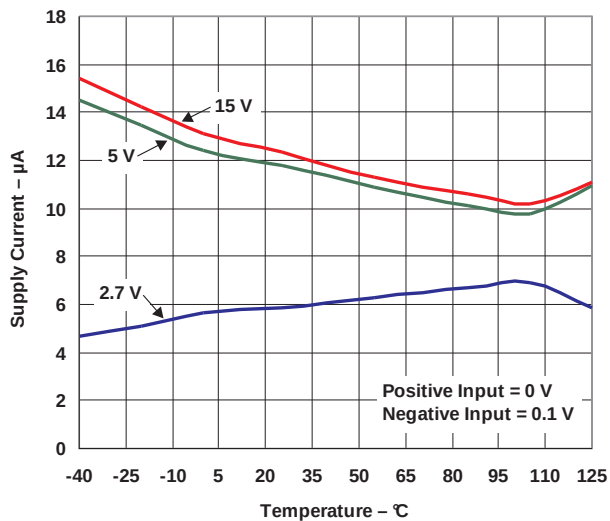
SUPPLY CURRENT
vs
SUPPLY VOLTAGE
(SINKING)



SUPPLY CURRENT
vs
TEMPERATURE
(SOURCING)

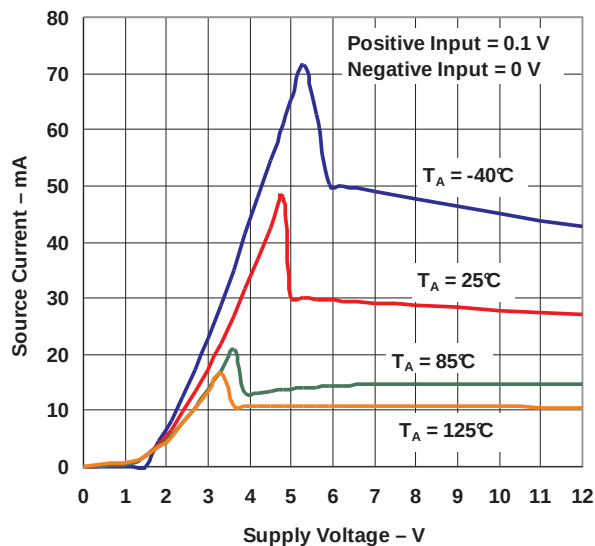


SUPPLY CURRENT
vs
TEMPERATURE
(SINKING)

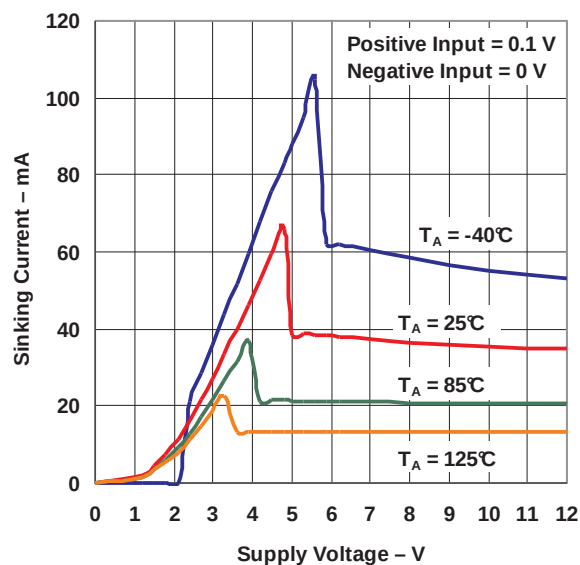


TYPICAL CHARACTERISTICS (continued)

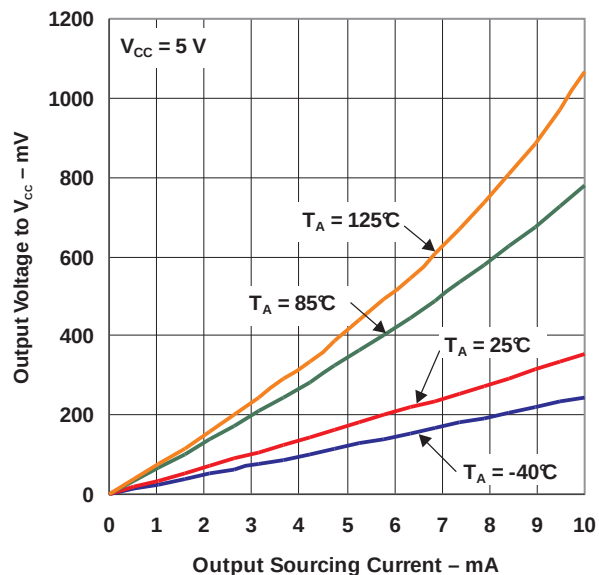
OUTPUT SOURCING CURRENT
vs
SUPPLY VOLTAGE



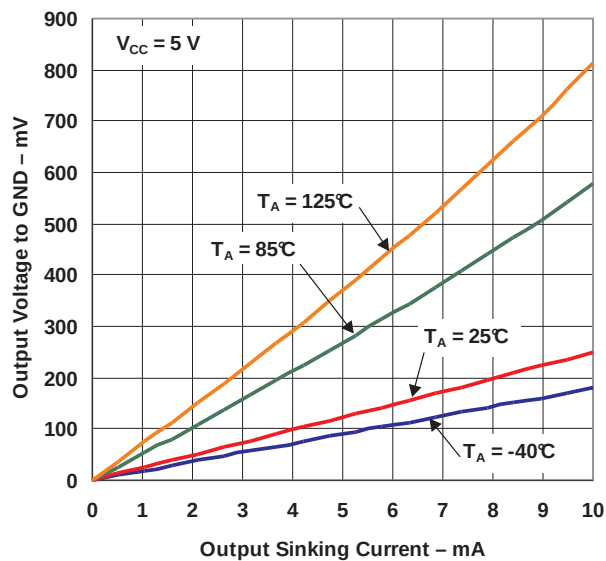
OUTPUT SINKING CURRENT
vs
SUPPLY VOLTAGE



OUTPUT VOLTAGE
vs
OUTPUT SOURCING CURRENT

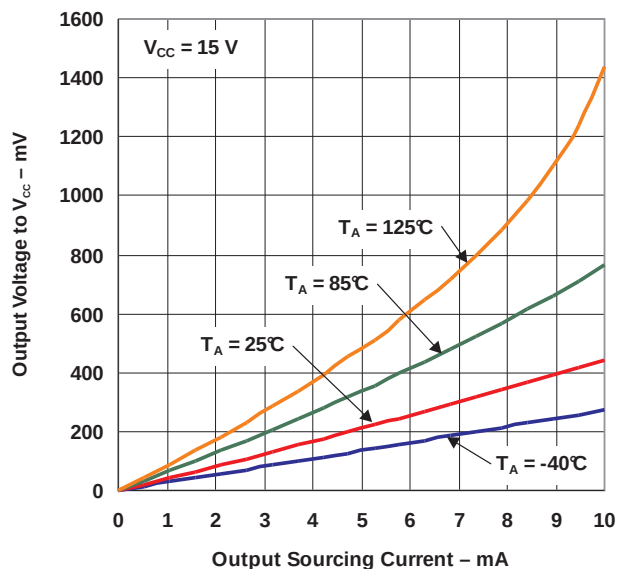


OUTPUT VOLTAGE
vs
OUTPUT SINKING CURRENT

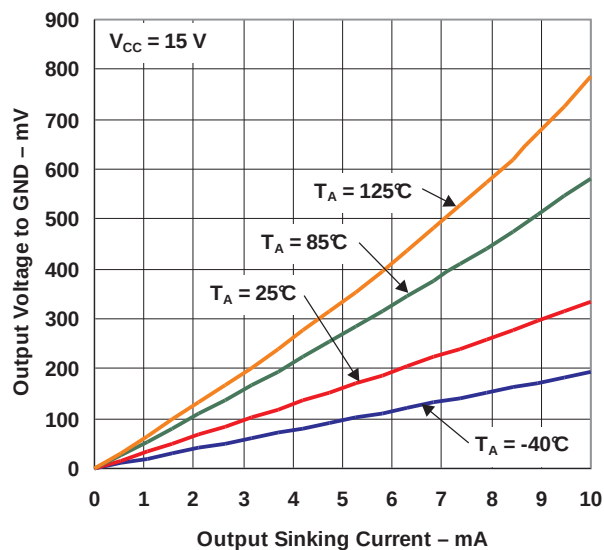


TYPICAL CHARACTERISTICS (continued)

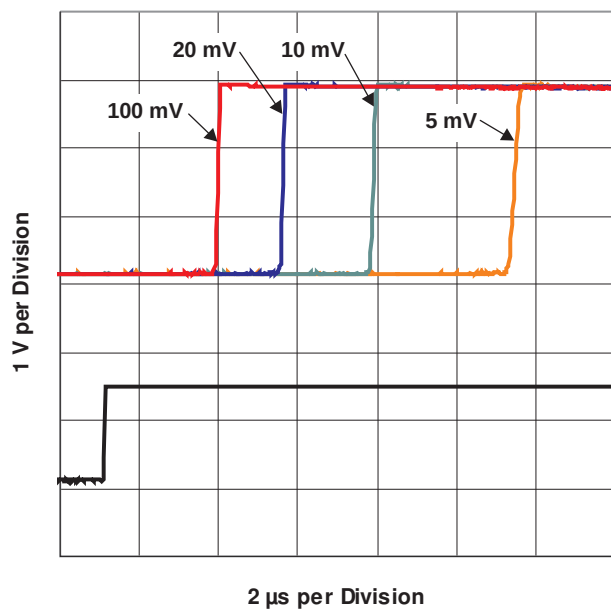
OUTPUT VOLTAGE
vs
OUTPUT SOURCING CURRENT



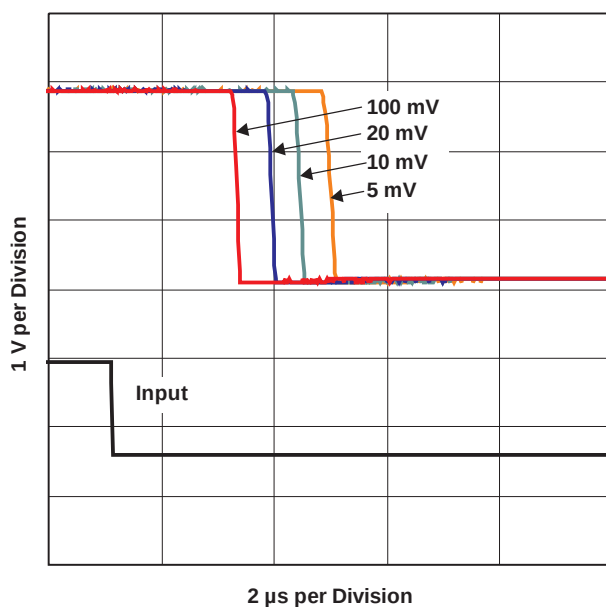
OUTPUT VOLTAGE
vs
OUTPUT SINKING CURRENT



Response Time (t_{PLH}) for Various Input Overdrives
($V_{CC} = 2.7\text{ V}$)



Response Time (t_{PHL}) for Various Input Overdrives
($V_{CC} = 2.7\text{ V}$)

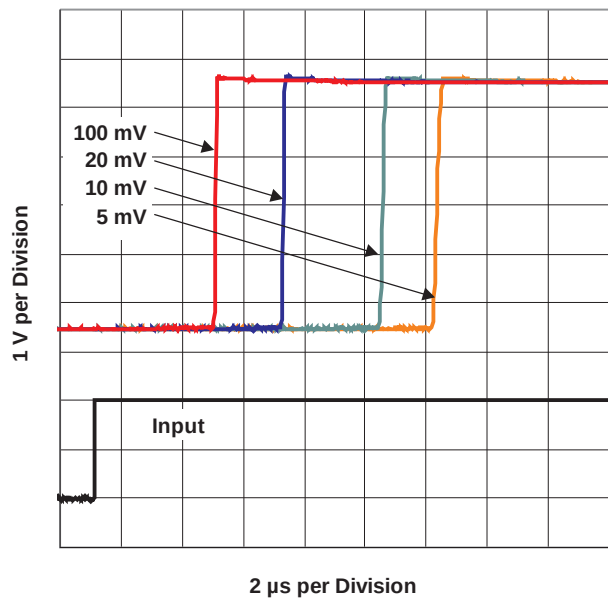


TLV7211, TLV7211A CMOS COMPARATORS WITH RAIL-TO-RAIL INPUT AND PUSH-PULL OUTPUT

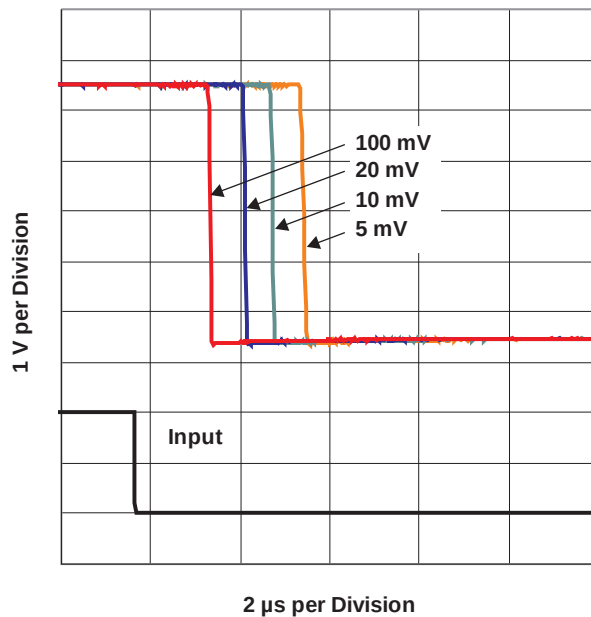
SLCS149B – AUGUST 2006 – REVISED JANUARY 2007

TYPICAL CHARACTERISTICS (continued)

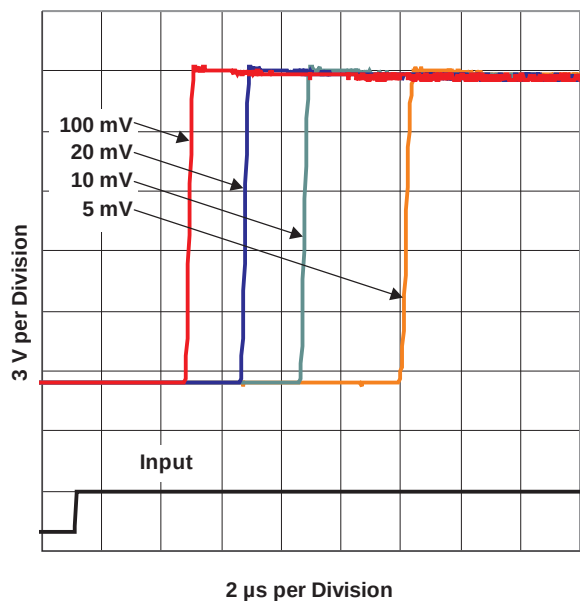
Response Time (t_{PLH}) for Various Input Overdrives
($V_{CC} = 5\text{ V}$)



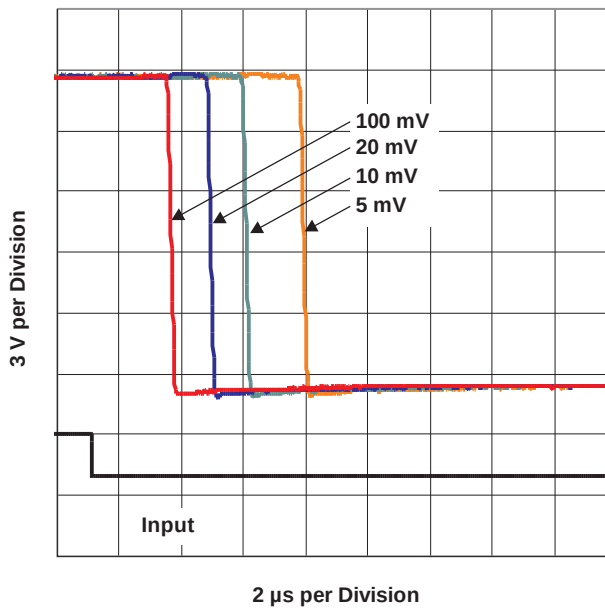
Response Time (t_{PHL}) for Various Input Overdrives
($V_{CC} = 5\text{ V}$)



Response Time (t_{PLH}) for Various Input Overdrives
($V_{CC} = 15\text{ V}$)



Response Time (t_{PHL}) for Various Input Overdrives
($V_{CC} = 15\text{ V}$)



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)
TLV7211AID	Active	Production	SOIC (D) 8	75 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	7211AI
TLV7211AID.A	Active	Production	SOIC (D) 8	75 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	7211AI
TLV7211AIDBVR	Active	Production	SOT-23 (DBV) 5	3000 LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 85	YBNM
TLV7211AIDBVR.A	Active	Production	SOT-23 (DBV) 5	3000 LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 85	YBNM
TLV7211AIDCKR	Active	Production	SC70 (DCK) 6	3000 LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 85	Y8A
TLV7211AIDCKR.A	Active	Production	SC70 (DCK) 6	3000 LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 85	Y8A
TLV7211AIDCKRG4.A	Active	Production	SC70 (DCK) 6	3000 LARGE T&R	-	Call TI	Call TI	-40 to 85	
TLV7211AIDCKT	Obsolete	Production	SC70 (DCK) 6	-	-	Call TI	Call TI	-40 to 85	Y8A
TLV7211AIDR	Active	Production	SOIC (D) 8	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	7211AI
TLV7211AIDR.A	Active	Production	SOIC (D) 8	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	7211AI
TLV7211ID	Active	Production	SOIC (D) 8	75 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	TY7211
TLV7211ID.A	Active	Production	SOIC (D) 8	75 TUBE	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	TY7211
TLV7211IDBVR	Active	Production	SOT-23 (DBV) 5	3000 LARGE T&R	Yes	NIPDAU SN	Level-1-260C-UNLIM	-40 to 85	YBKM
TLV7211IDBVR.A	Active	Production	SOT-23 (DBV) 5	3000 LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 85	YBKM
TLV7211IDCKR	Active	Production	SC70 (DCK) 6	3000 LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 85	Y7A
TLV7211IDCKR.A	Active	Production	SC70 (DCK) 6	3000 LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 85	Y7A
TLV7211IDCKRG4.A	Active	Production	SC70 (DCK) 6	3000 LARGE T&R	-	Call TI	Call TI	-40 to 85	
TLV7211IDCKT	Obsolete	Production	SC70 (DCK) 6	-	-	Call TI	Call TI	-40 to 85	Y7A
TLV7211IDR	Active	Production	SOIC (D) 8	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	TY7211
TLV7211IDR.A	Active	Production	SOIC (D) 8	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	TY7211
TLV7211IDRG4	Active	Production	SOIC (D) 8	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	TY7211
TLV7211IDRG4.A	Active	Production	SOIC (D) 8	2500 LARGE T&R	Yes	NIPDAU	Level-1-260C-UNLIM	-40 to 85	TY7211

⁽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.

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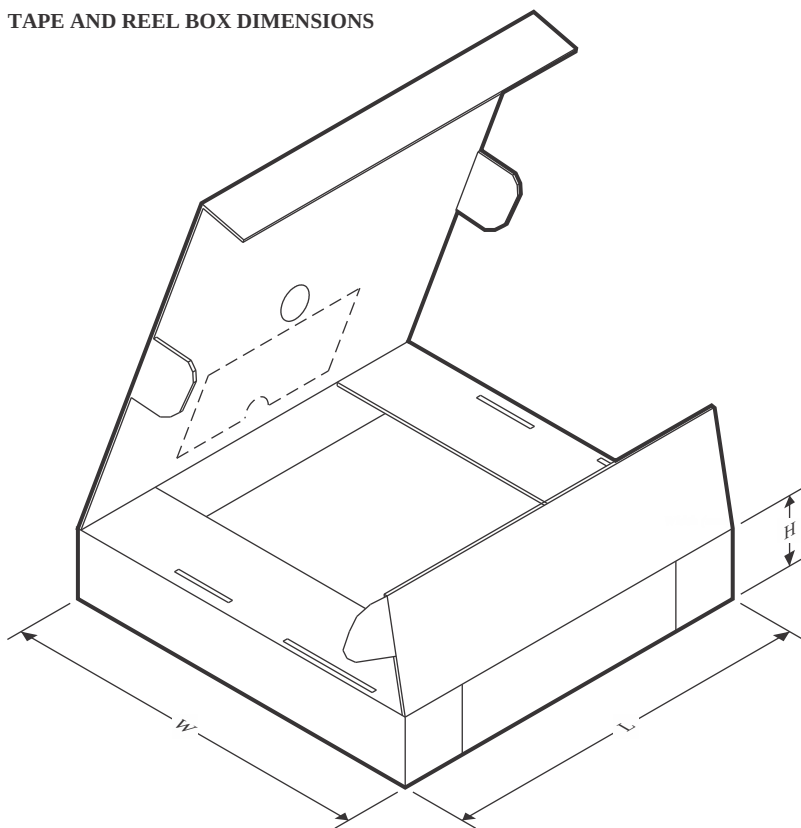
TAPE AND REEL INFORMATION



*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
TLV7211AIDBVR	SOT-23	DBV	5	3000	178.0	9.0	2.4	2.5	1.2	4.0	8.0	Q3
TLV7211AIDCKR	SC70	DCK	6	3000	178.0	9.0	2.4	2.5	1.2	4.0	8.0	Q3
TLV7211AIDR	SOIC	D	8	2500	330.0	12.4	6.4	5.2	2.1	8.0	12.0	Q1
TLV7211IDBVR	SOT-23	DBV	5	3000	178.0	9.0	2.4	2.5	1.2	4.0	8.0	Q3
TLV7211IDCKR	SC70	DCK	6	3000	178.0	9.0	2.4	2.5	1.2	4.0	8.0	Q3
TLV7211IDR	SOIC	D	8	2500	330.0	12.4	6.4	5.2	2.1	8.0	12.0	Q1
TLV7211IDRG4	SOIC	D	8	2500	330.0	12.4	6.4	5.2	2.1	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)
TLV7211AIDBVR	SOT-23	DBV	5	3000	180.0	180.0	18.0
TLV7211AIDCKR	SC70	DCK	6	3000	180.0	180.0	18.0
TLV7211AIDR	SOIC	D	8	2500	340.5	338.1	20.6
TLV7211IDBVR	SOT-23	DBV	5	3000	180.0	180.0	18.0
TLV7211IDCKR	SC70	DCK	6	3000	180.0	180.0	18.0
TLV7211IDR	SOIC	D	8	2500	340.5	338.1	20.6
TLV7211IDRG4	SOIC	D	8	2500	340.5	338.1	20.6

TUBE



*All dimensions are nominal

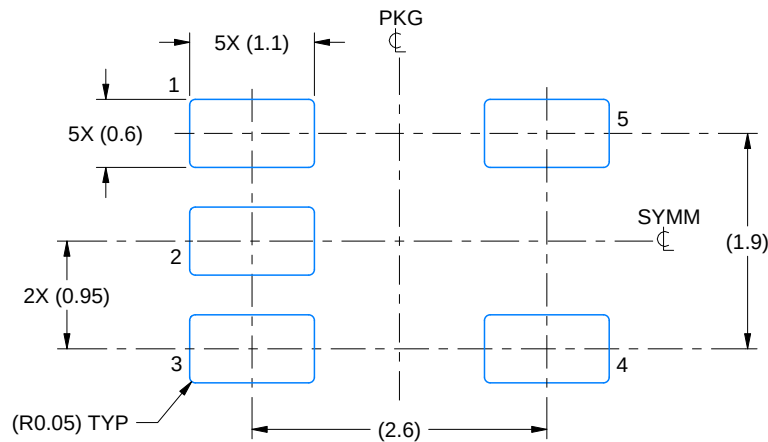
Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (μm)	B (mm)
TLV7211AID	D	SOIC	8	75	507	8	3940	4.32
TLV7211AID.A	D	SOIC	8	75	507	8	3940	4.32
TLV7211ID	D	SOIC	8	75	507	8	3940	4.32
TLV7211ID.A	D	SOIC	8	75	507	8	3940	4.32

EXAMPLE BOARD LAYOUT

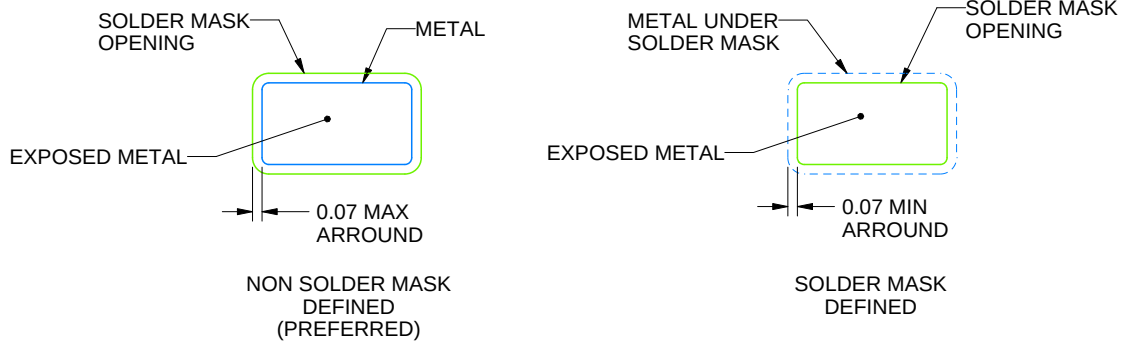
DBV0005A

SOT-23 - 1.45 mm max height

SMALL OUTLINE TRANSISTOR



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE:15X



SOLDER MASK DETAILS

4214839/K 08/2024

NOTES: (continued)

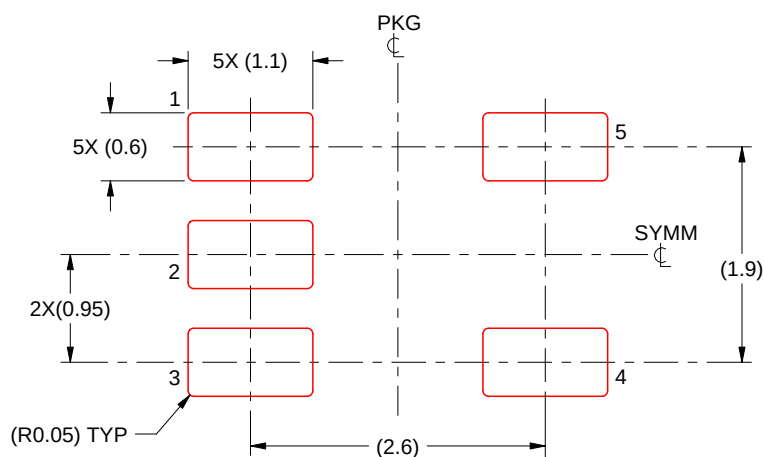
6. Publication IPC-7351 may have alternate designs.
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

EXAMPLE STENCIL DESIGN

DBV0005A

SOT-23 - 1.45 mm max height

SMALL OUTLINE TRANSISTOR



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE:15X

4214839/K 08/2024

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.



SOT - 1.1 max height

Technical drawing of a connector housing, showing three views: front view, side view, and cross-section view.

Front View:

- Overall width: 2.4
- Pin pitch: 1.8
- Pin width: 1.4
- Pin 1 INDEX AREA (hatched area)
- Pin 1 location: 1.3
- Pin 2 location: 0.65
- Pin 3 location: 0.30
- Pin 4 location: 0.15
- Pin 5 location: 0.30
- Pin 6 location: 0.15
- Pin 1 location: 1.3
- Pin 2 location: 0.65
- Pin 3 location: 0.30
- Pin 4 location: 0.15
- Pin 5 location: 0.30
- Pin 6 location: 0.15

Side View:

- Overall height: 2.15
- Pin diameter: 0.1
- Pin pitch: 1.1
- Pin width: 0.8

Cross-section View:

- GAGE PLANE: 0.15
- SEATING PLANE: 0.26
- Pin diameter: 0.22
- Pin width: 0.08
- Pin angle: 4X 4° -15°
- Pin angle: 8° 0° TYP

Surface Texture Symbols:

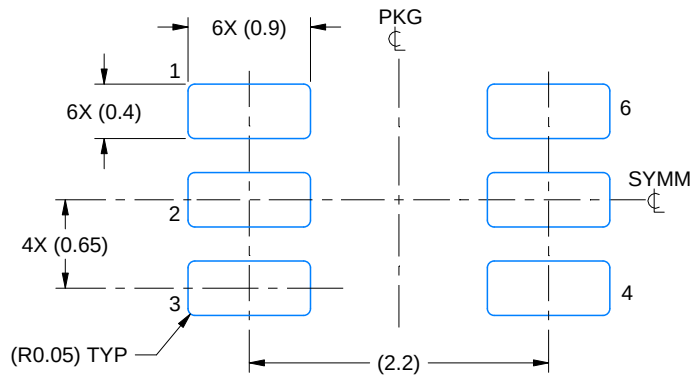
- Pin 1 INDEX AREA: 0.1 (C) A B
- Cross-section: 0.1 (C) A B

NOTE 5:

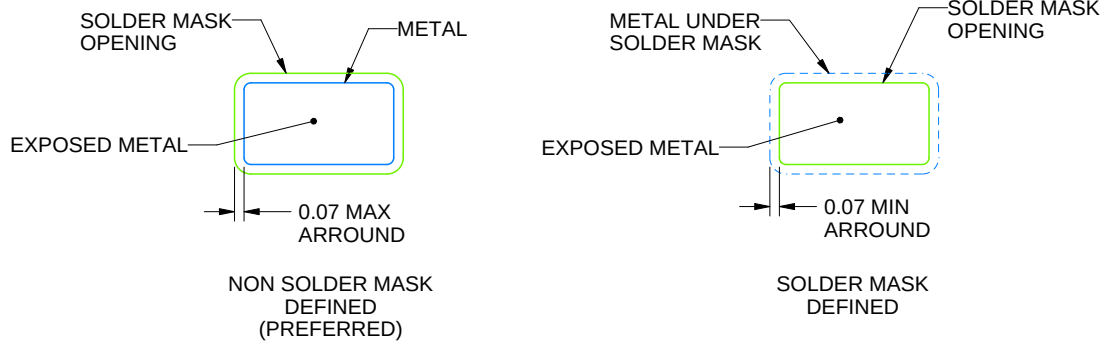
0.1 (C) A B



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LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE:18X

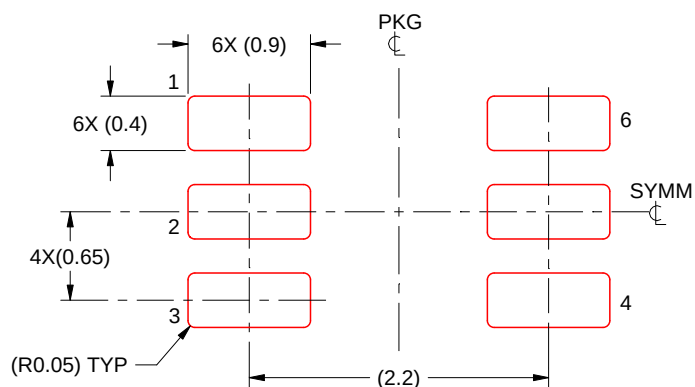


SOLDER MASK DETAILS

4214835/D 11/2024

NOTES: (continued)

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

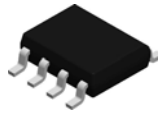


SOLDER PASTE EXAMPLE
BASED ON 0.125 THICK STENCIL
SCALE:18X

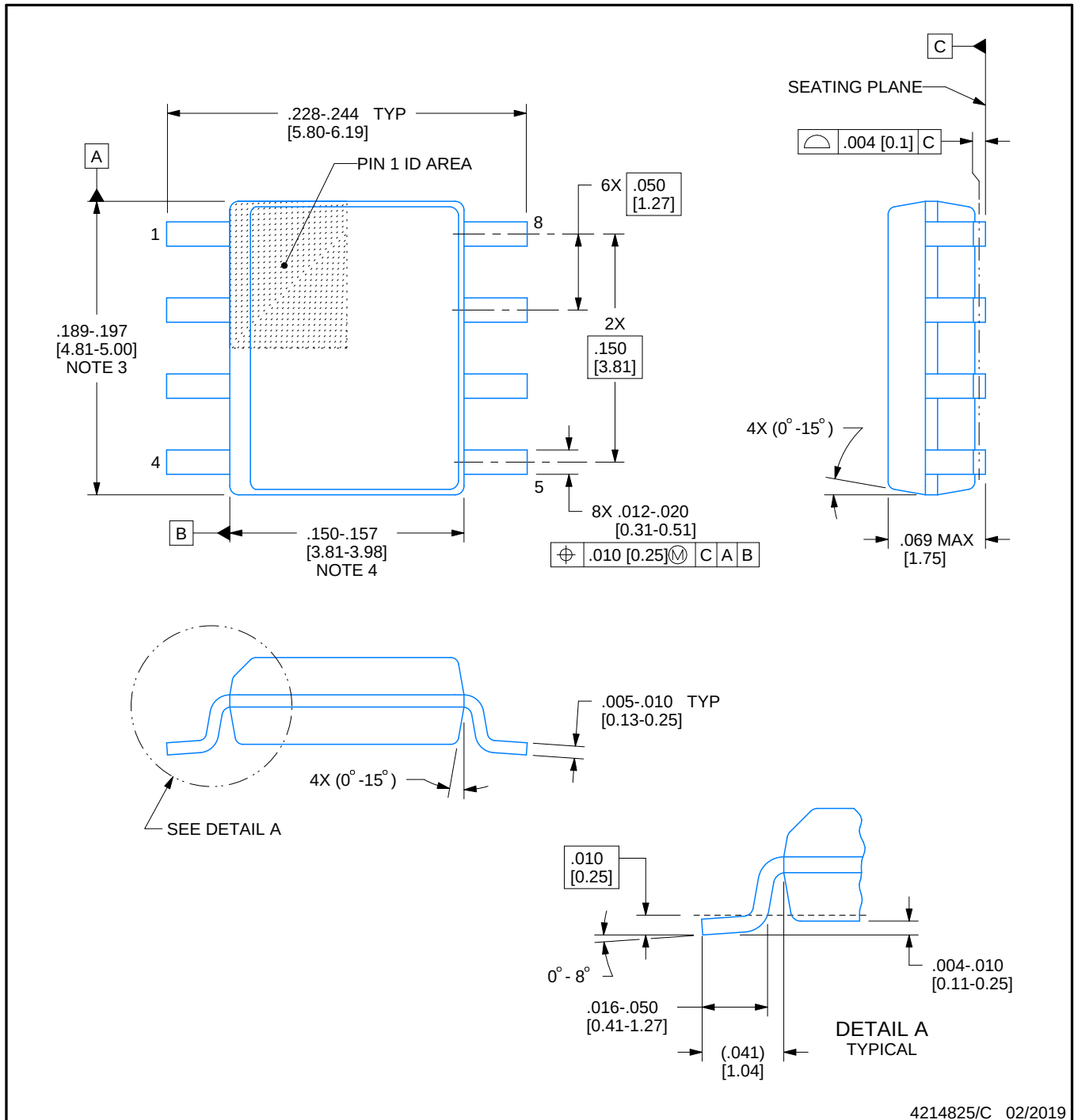
4214835/D 11/2024

NOTES: (continued)

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

D0008A**PACKAGE OUTLINE****SOIC - 1.75 mm max height**

SMALL OUTLINE INTEGRATED CIRCUIT



4214825/C 02/2019

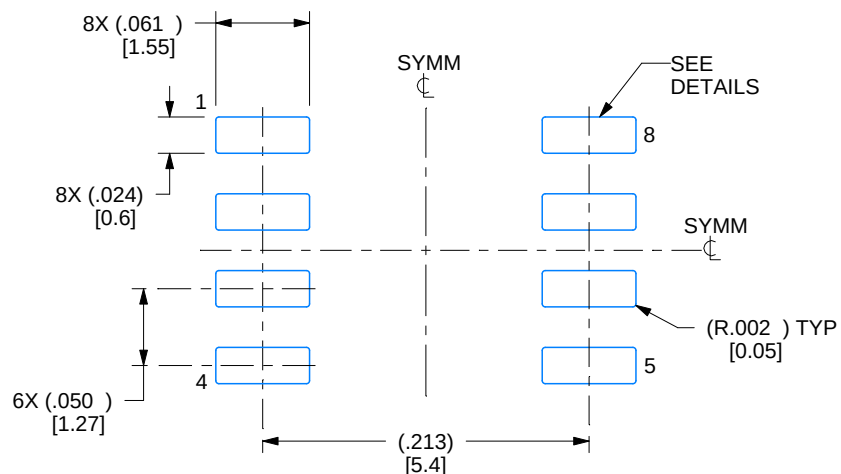
NOTES:

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 $.006$ [0.15] per side.
4. This dimension does not include interlead flash.
5. Reference JEDEC registration MS-012, variation AA.

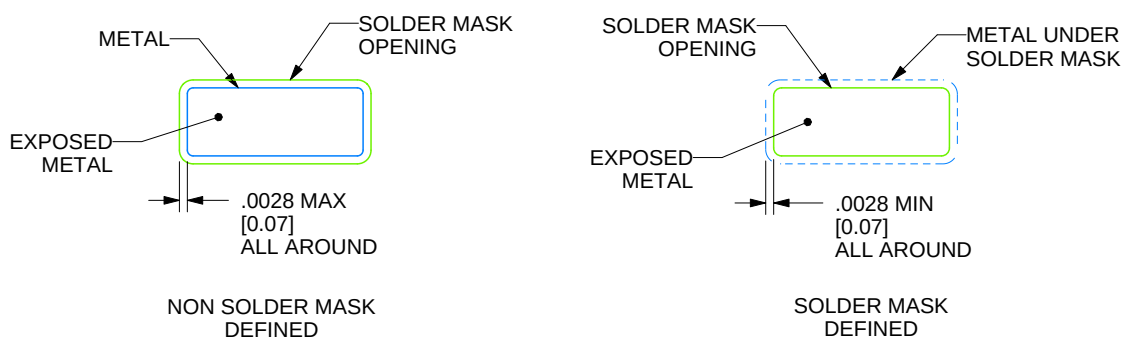
D0008A

SOIC - 1.75 mm max height

SMALL OUTLINE INTEGRATED CIRCUIT



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE:8X



SOLDER MASK DETAILS

4214825/C 02/2019

NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.

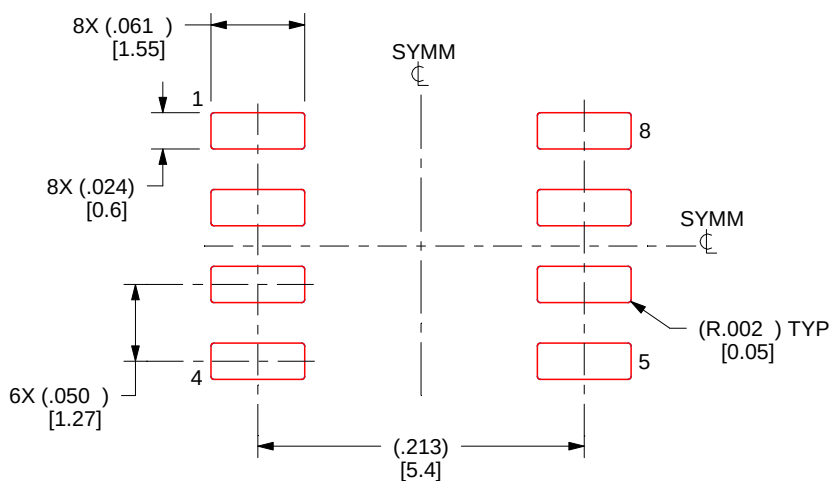
7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

EXAMPLE STENCIL DESIGN

D0008A

SOIC - 1.75 mm max height

SMALL OUTLINE INTEGRATED CIRCUIT



SOLDER PASTE EXAMPLE
BASED ON .005 INCH [0.125 MM] THICK STENCIL
SCALE:8X

4214825/C 02/2019

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.

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Last updated 10/2025