参考資料

LM5107、100V/1.4Aピーク、ハーフブリッジ・ゲート・ドライバ

1 特長

- ハイサイドとローサイド両方のNチャネルMOSFETを駆動
- 高いピーク出力電流（1.4Aシンク/1.3Aソース）
- 独立したTTL互換入力
- ブートストラップ・ダイオードを内蔵
- ブートストラップ電源電圧：118V DC
- 高速伝搬時間（標準27ns）
- 15nsの立ち上がり/立ち下がり時間で1000pFの負荷を駆動
- 優れた伝搬遅延マッチング（標準2ns）
- 電源レールの低電圧誤動作防止
- 低消費電力
- ISL6700とピン・コンパチブル
- パッケージ:
  - SOIC
  - WSON（4mm×4mm）

2 アプリケーション

- 電流供給プッシュプル・コンバータ
- ハーフ/フルブリッジのパワー・コンバータ
- ソリッド・ステート・モーター・ドライブ
- 2スイッチのフォワード・パワー・コンバータ

3 概要

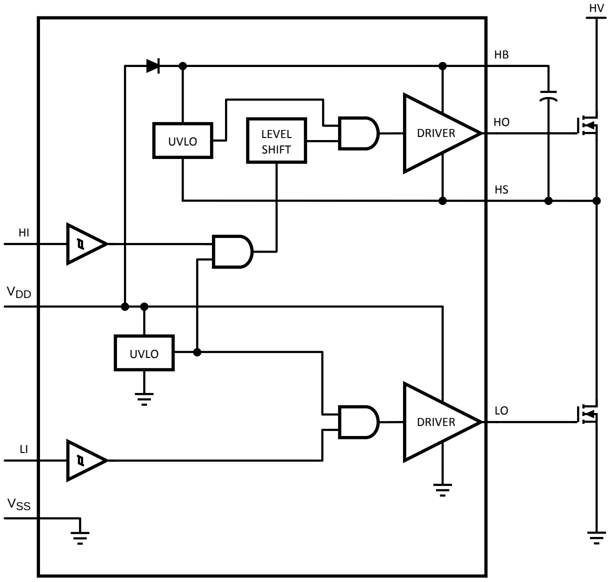
LM5107は、同期降圧型またはハーフブリッジの構成においてハイサイドとローサイド両方のNチャネルMOSFETを駆動するよう設計された、低コストの高電圧ゲート・ドライバです。フローティング・ハイサイド・ドライバは、最大100Vのレール電圧で動作できます。各出力は、TTL互換の入力スレッショルドによって独立に制御されます。ハイサイド・ゲート・ドライバのブートストラップ・コンデンサの充電用に高電圧ダイオードを内蔵しています。堅牢なレベル・シフタ技術により、消費電力を抑えながら高速で動作し、制御入力ロジックからハイサイド・ゲート・ドライバへのクリーンなレベル遷移を実現します。ローサイドとハイサイド両方の電源レールに低電圧誤動作防止機能が搭載されています。このデバイスは、SOICパッケージ、および熱特性を強化したWSONパッケージで供給されます。

製品情報[1]

型番	パッケージ	本体サイズ（公称）
LM5107	SOIC (8)	4.90mm×3.91mm
	WSON (8)	4.00mm×4.00mm

(1) 提供されているすべてのパッケージについては、巻末の注文情報を参照してください。

ブロック概略図



English Data Sheet: SNVS333

目次

4 改訂履歴

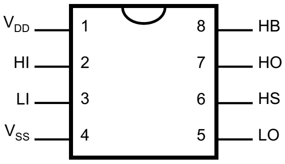
資料番号末尾の英字は改訂を表しています。その改訂履歴は英語版に準じています。

Revision から変更 D (March 2013) to Revision E	**Page**
• 「*製品情報*」の表、「*ESD定格*」、「*ピン構成および機能*」、「*詳細説明*」、「*アプリケーションと実装*」、「*レイアウト*」、「*デバイスとドキュメントのサポート*」、「*メカニカル、パッケージ、および注文情報*」追加	1

Revision から変更 C (March 2013) to Revision D	**Page**
• Changed layout of National Data Sheet to TI format	11

5 Pin Configuration and Functions

D and NGT Packages
8-Pin SOIC, WSON
Top View



Pin Functions(1)

Pin #		Name	Description	Application Information
SOIC	WSON			
1	1	V_{DD}	Positive gate drive supply	Locally decouple to V_{SS} using low ESR/ESL capacitor located as close to IC as possible.
2	2	HI	High side control input	The LM5107 HI input is compatible with TTL input thresholds. Unused HI input should be tied to ground and not left open
3	3	LI	Low side control input	The LM5107 LI input is compatible with TTL input thresholds. Unused LI input should be tied to ground and not left open.
4	4	V_{SS}	Ground reference	All signals are referenced to this ground.
5	5	LO	Low side gate driver output	Connect to the gate of the low side N-MOS device.
6	6	HS	High side source connection	Connect to the negative terminal of the bootstrap capacitor and to the source of the high side N-MOS device.
7	7	HO	High side gate driver output	Connect to the gate of the low side N-MOS device.
8	8	HB	High side gate driver positive supply rail	Connect the positive terminal of the bootstrap capacitor to HB and the negative terminal of the bootstrap capacitor to HS. The bootstrap capacitor should be placed as close to IC as possible.

(1) For WSON package it is recommended that the exposed pad on the bottom of the LM5107 be soldered to ground plane on the PCB board and the ground plane should extend out from underneath the package to improve heat dissipation.

6 Specifications

6.1 Absolute Maximum Ratings

See (1)(2)

V_{DD} to V_{SS}	-0.3V to 18V
HB to HS	−0.3V to 18V
LI or HI to V_{SS}	−0.3V to V_{DD} +0.3V
LO to V_{SS}	−0.3V to V_{DD} +0.3V
HO to V_{SS}	V_{HS} −0.3V to V_{HB} +0.3V
HS to V_{SS}(3)	−5V to 100V
HB to V_{SS}	118V
Junction Temperature	-40°C to +150°C
Storage Temperature Range	−55°C to +150°C

(1) Absolute Maximum Ratings indicate limits beyond which damage to the component may occur. Operating Ratings are conditions under which operation of the device is specified. Operating Ratings do not imply performance limits. For performance limits and associated test conditions, see the Electrical Characteristics .

(2) If Military/Aerospace specified devices are required, please contact the Texas Instruments Sales Office/Distributors for availability and specifications.

(3) In the application the HS node is clamped by the body diode of the external lower N-MOSFET, therefore the HS voltage will generally not exceed -1V. However in some applications, board resistance and inductance may result in the HS node exceeding this stated voltage transiently. If negative transients occur on HS, the HS voltage must never be more negative than V_{DD} - 15V. For example, if V_{DD} = 10V, the negative transients at HS must not exceed -5V.

6.2 ESD Ratings

			VALUE	UNIT
$V_{(ESD)}$	Electrostatic discharge	Human-body model (HBM)(1)	±2000	V

(1) The human body model is a 100 pF capacitor discharged through a 1.5kΩ resistor into each pin. Pin 6 , Pin 7 and Pin 8 are rated at 500V.

6.3 Recommended Operating Conditions

V_{DD}	8V to 14V
HS(1)	−1V to 100V
HB	V_{HS} +8V to V_{HS} +14V
HS Slew Rate	< 50 V/ns
Junction Temperature	−40°C to +125°C

(1) In the application the HS node is clamped by the body diode of the external lower N-MOSFET, therefore the HS voltage will generally not exceed -1V. However in some applications, board resistance and inductance may result in the HS node exceeding this stated voltage transiently. If negative transients occur on HS, the HS voltage must never be more negative than V_{DD} - 15V. For example, if V_{DD} = 10V, the negative transients at HS must not exceed -5V.

6.4 Electrical Characteristics

Specifications in standard typeface are for T_J = +25°C, and those in **boldface type** apply over the full **operating junction temperature range**. Unless otherwise specified, $V_{DD} = V_{HB} = 12V$, $V_{SS} = V_{HS} = 0V$, No Load on LO or HO.

Symbol	Parameter	Conditions	Min[1]	Typ	Max[1]	Units
SUPPLY CURRENTS						
I_{DD}	V_{DD} Quiescent Current	LI = HI = 0V		0.3	**0.6**	mA
I_{DDO}	V_{DD} Operating Current	f = 500 kHz		2.1	**3.4**	mA
I_{HB}	Total HB Quiescent Current	LI = HI = 0V		0.06	**0.2**	mA
I_{HBO}	Total HB Operating Current	f = 500 kHz		1.6	**3.0**	mA
I_{HBS}	HB to V_{SS} Current, Quiescent	$V_{HS} = V_{HB} = 100V$		0.1	**10**	µA
I_{HBSO}	HB to V_{SS} Current, Operating	f = 500 kHz		0.5		mA
INPUT PINS LI and HI						
V_{IL}	Low Level Input Voltage Threshold		**0.8**	1.8		V
V_{IH}	High Level Input Voltage Threshold			1.8	**2.2**	V
R_I	Input Pulldown Resistance		**100**	180	**500**	kΩ
UNDER VOLTAGE PROTECTION						
V_{DDR}	V_{DD} Rising Threshold	$V_{DDR} = V_{DD} - V_{SS}$	**6.0**	6.9	**7.4**	V
V_{DDH}	V_{DD} Threshold Hysteresis			0.5		V
V_{HBR}	HB Rising Threshold	$V_{HBR} = V_{HB} - V_{HS}$	**5.7**	6.6	**7.1**	V
V_{HBH}	HB Threshold Hysteresis			0.4		V
BOOT STRAP DIODE						
V_{DL}	Low-Current Forward Voltage	$I_{VDD\text{-}HB}$ = 100 µA $V_{DL} = V_{DD} - V_{HB}$		0.58	**0.9**	V
V_{DH}	High-Current Forward Voltage	$I_{VDD\text{-}HB}$ = 100 mA $V_{DH} = V_{DD} - V_{HB}$		0.82	**1.1**	V
R_D	Dynamic Resistance	$I_{VDD\text{-}HB}$ = 100 mA		0.8	**1.5**	Ω
LO GATE DRIVER						
V_{OLL}	Low-Level Output Voltage	I_{LO} = 100 mA $V_{OHL} = V_{LO} – V_{SS}$		0.28	**0.45**	V
V_{OHL}	High-Level Output Voltage	I_{LO} = −100 mA, $V_{OHL} = V_{DD} – V_{LO}$		0.45	**0.75**	V
I_{OHL}	Peak Pullup Current	V_{LO} = 0V		1.3		A
I_{OLL}	Peak Pulldown Current	V_{LO} = 12V		1.4		A
HO GATE DRIVER						
V_{OLH}	Low-Level Output Voltage	I_{HO} = 100 mA $V_{OLH} = V_{HO} – V_{HS}$		0.28	**0.45**	V
V_{OHH}	High-Level Output Voltage	I_{HO} = −100 mA $V_{OHH} = V_{HB} – V_{HO}$		0.45	**0.75**	V
I_{OHH}	Peak Pullup Current	V_{HO} = 0V		1.3		A
I_{OLH}	Peak Pulldown Current	V_{HO} = 12V		1.4		A
THERMAL RESISTANCE						
$θ_{JA}$[2]	Junction to Ambient	SOIC		160		°C/W
		WSON[3]		40		

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(1) Min and Max limits are 100% production tested at 25°C. Limits over the operating temperature range are specified through correlation using Statistical Quality Control (SQC) methods. Limits are used to calculate Average Outgoing Quality Level (AOQL).

(2) The $θ_{JA}$ is not a constant for the package and depends on the printed circuit board design and the operating conditions.

(3) 4 layer board with Cu finished thickness 1.5/1/1/1.5 oz. Maximum die size used. 5x body length of Cu trace on PCB top. 50 x 50mm ground and power planes embedded in PCB. See Application Note AN-1187.

6.5 Switching Characteristics

Specifications in standard typeface are for T_J = +25°C, and those in **boldface type** apply over the full **operating junction temperature range**. Unless otherwise specified, V_{DD} = V_{HB} = 12V, V_{SS} = V_{HS} = 0V, No Load on LO or HO.

Symbol	Parameter	Conditions	Min[1]	Typ	Max[1]	Units
LM5100A						
t_{LPHL}	Lower Turn-Off Propagation Delay (LI Falling to LO Falling)			27	**56**	ns
t_{HPHL}	Upper Turn-Off Propagation Delay (HI Falling to HO Falling)			27	**56**	ns
t_{LPLH}	Lower Turn-On Propagation Delay (LI Rising to LO Rising)			29	**56**	ns
t_{HPLH}	Upper Turn-On Propagation Delay (HI Rising to HO Rising)			29	**56**	ns
t_{MON}	Delay Matching: Lower Turn-On and Upper Turn-Off			2	**15**	ns
t_{MOFF}	Delay Matching: Lower Turn-Off and Upper Turn-On			2	**15**	ns
t_{RC}, t_{FC}	Either Output Rise/Fall Time	C_L = 1000 pF		15	-	ns
t_{PW}	Minimum Input Pulse Width that Changes the Output			50		ns
t_{BS}	Bootstrap Diode Turn-Off Time	I_F = 100 mA, I_R = 100 mA		105		ns

(1) Min and Max limits are 100% production tested at 25°C. Limits over the operating temperature range are specified through correlation using Statistical Quality Control (SQC) methods. Limits are used to calculate Average Outgoing Quality Level (AOQL).

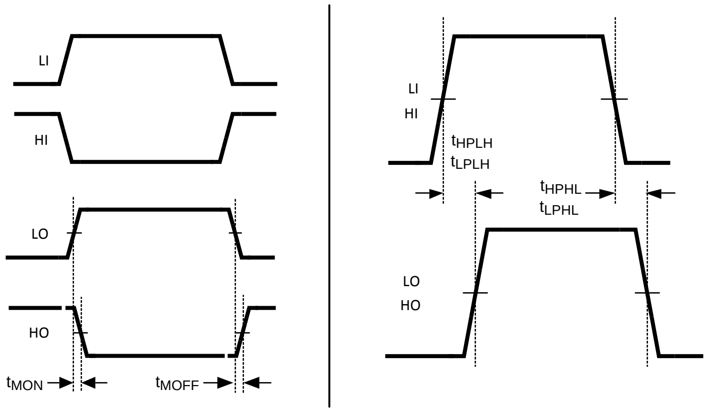


Figure 1. Timing Diagram

6.6 Typical Performance Characteristics

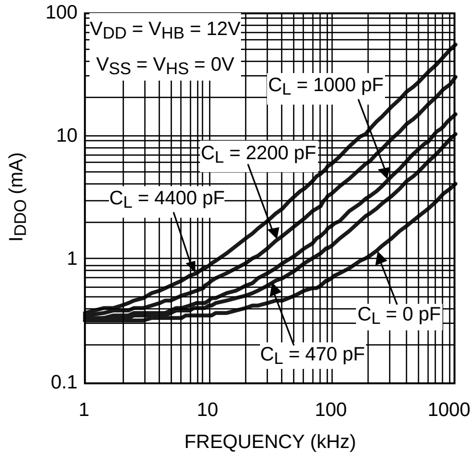


Figure 2. V_{DD} Operating Current vs Frequency

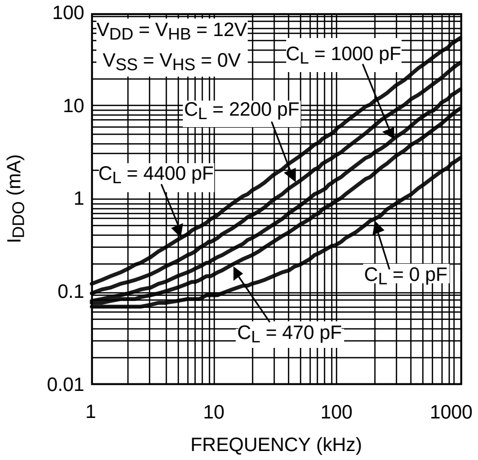


Figure 3. HB Operating Current vs Frequency

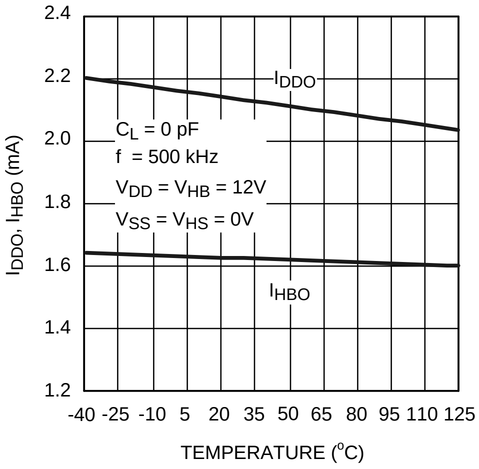


Figure 4. Operating Current vs Temperature

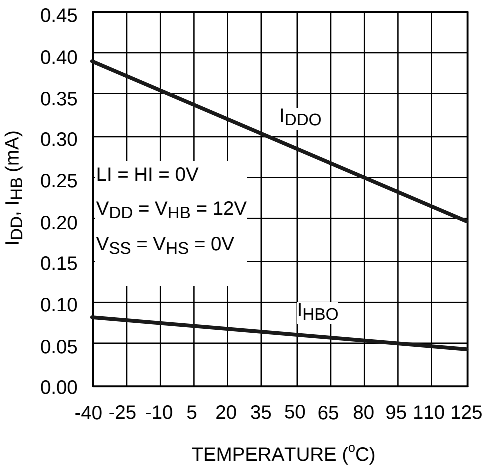


Figure 5. Quiescent Current vs Temperature

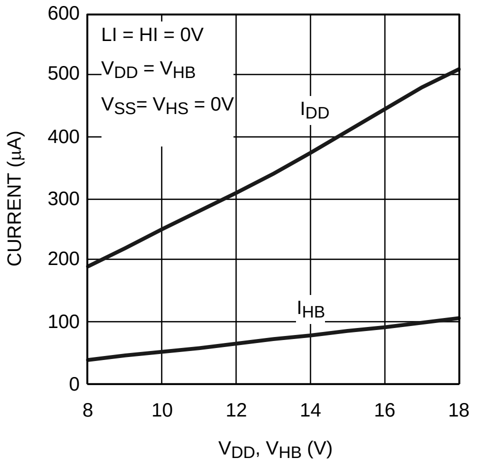


Figure 6. Quiescent Current vs Voltage

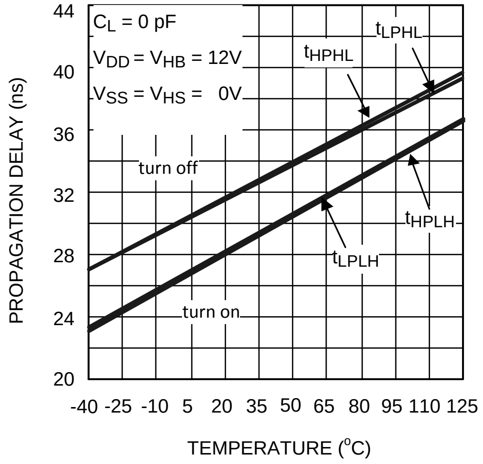


Figure 7. Propagation Delay vs Temperature

Typical Performance Characteristics (continued)

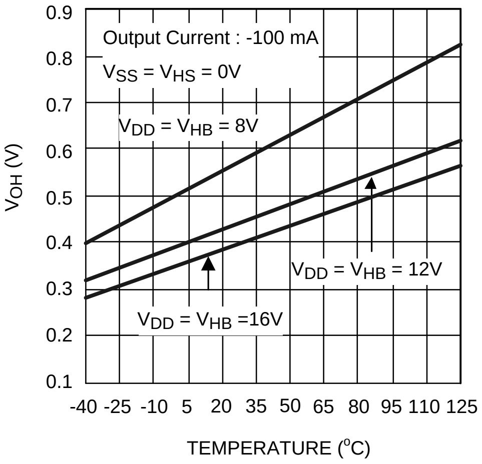


Figure 8. LO and HO High Level Output Voltage vs Temperature

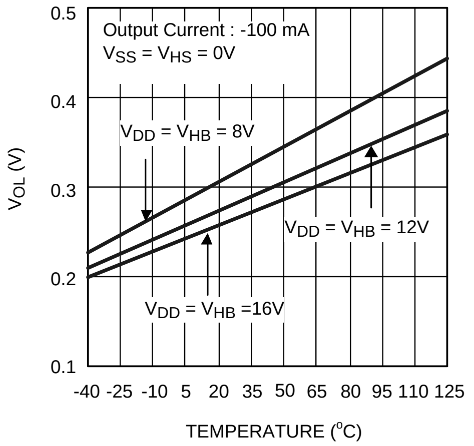


Figure 9. LO and HO Low Level Output Voltage vs Temperature

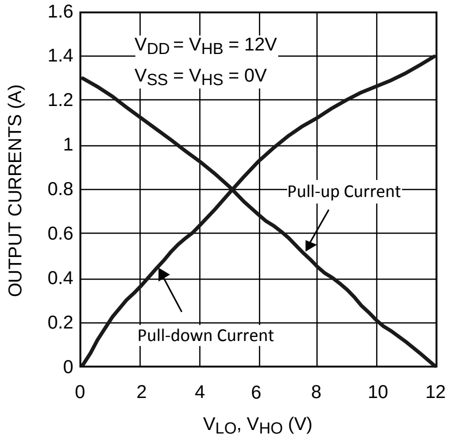


Figure 10. HO and LO Peak Output Current vs Output Voltage

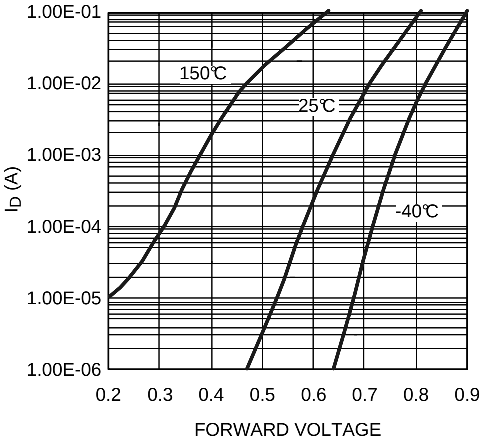


Figure 11. Doide Forward Voltage

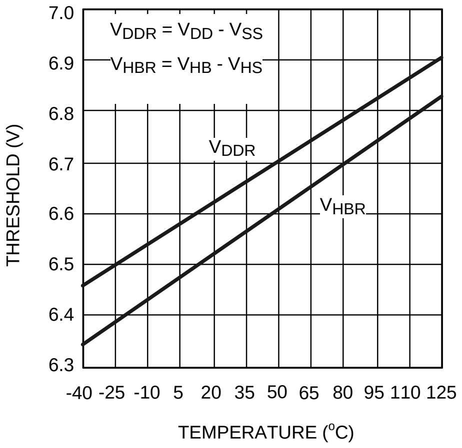


Figure 12. Undervoltage Rising Thresholds vs Temperature

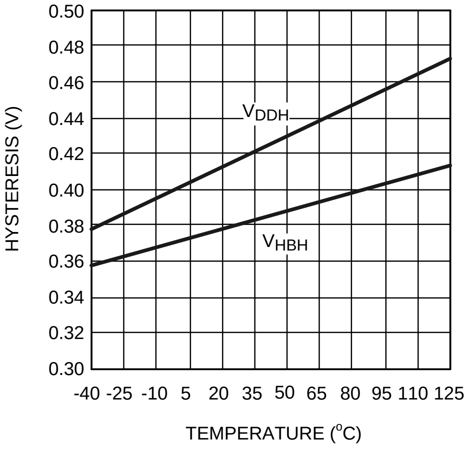


Figure 13. Undervoltage Hysteresis vs Temperature

Typical Performance Characteristics (continued)

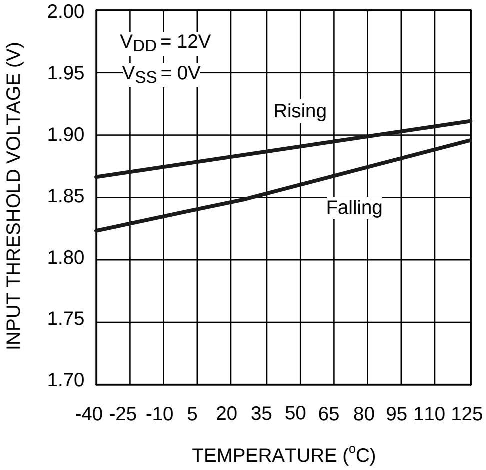


Figure 14. Input Thresholds vs Temperature

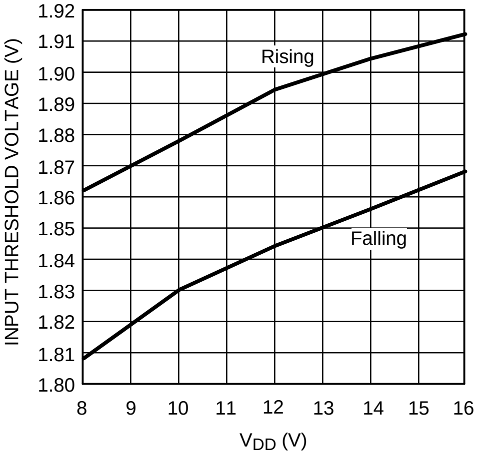
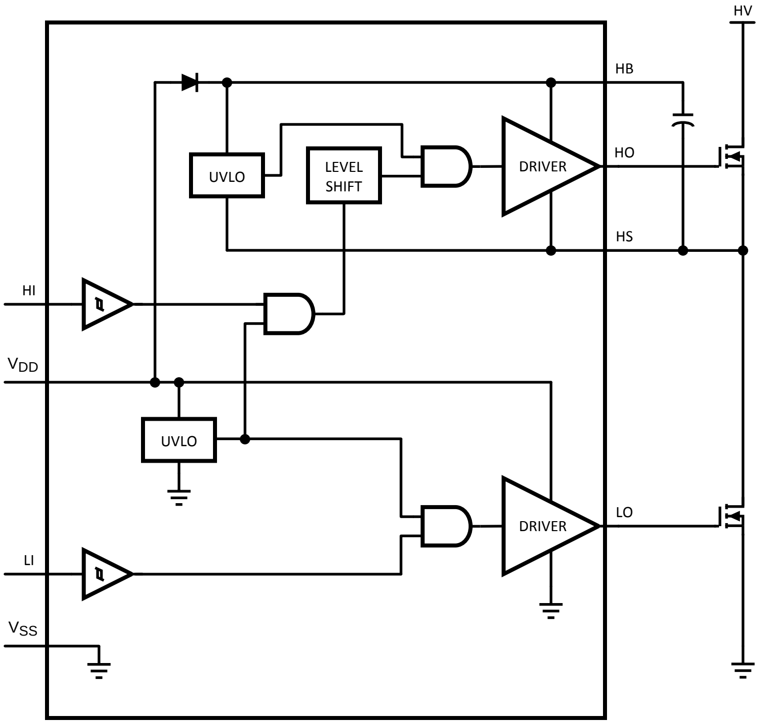


Figure 15. Input Thresholds vs Supply Voltage

7 Detailed Description

7.1 Functional Block Diagram



8 Application and Implementation

NOTE

Information in the following applications sections is not part of the TI component specification, and TI does not warrant its accuracy or completeness. TI's customers are responsible for determining suitability of components for their purposes. Customers should validate and test their design implementation to confirm system functionality.

8.1 Application Information

8.1.1 HS Transient Voltages Below Ground

The HS node will always be clamped by the body diode of the lower external FET. In some situations, board resistances and inductances can cause the HS node to transiently swing several volts below ground. The HS node can swing below ground provided:

1. HS must always be at a lower potential than HO. Pulling HO more than -0.3V below HS can activate parasitic transistors resulting in excessive current to flow from the HB supply possibly resulting in damage to the IC. The same relationship is true with LO and VSS. If necessary, a Schottky diode can be placed externally between HO and HS or LO and GND to protect the IC from this type of transient. The diode must be placed as close to the IC pins as possible in order to be effective.
2. HB to HS operating voltage should be 15V or less . Hence, if the HS pin transient voltage is -5V, VDD should be ideally limited to 10V to keep HB to HS below 15V.
3. A low ESR bypass capacitor between HB to HS as well as VDD to VSS is essential for proper operation. The capacitor should be located at the leads of the IC to minimize series inductance. The peak currents from LO and HO can be quite large. Any series inductances with the bypass capacitor will cause voltage ringing at the leads of the IC which must be avoided for reliable operation.

9 Layout

9.1 Layout Guidelines

The optimum performance of high and low side gate drivers cannot be achieved without taking due considerations during circuit board layout. Following points are emphasized.

1. A low ESR / ESL capacitor must be connected close to the IC, and between V_{DD} and V_{SS} pins and between HB and HS pins to support high peak currents being drawn from VDD during turn-on of the external MOSFET.
2. To prevent large voltage transients at the drain of the top MOSFET, a low ESR electrolytic capacitor must be connected between MOSFET drain and ground (V_{SS}).
3. In order to avoid large negative transients on the switch node (HS) pin, the parasitic inductances in the source of top MOSFET and in the drain of the bottom MOSFET (synchronous rectifier) must be minimized.
4. Grounding Considerations:
   - The first priority in designing grounding connections is to confine the high peak currents from charging and discharging the MOSFET gate in a minimal physical area. This will decrease the loop inductance and minimize noise issues on the gate terminal of the MOSFET. The MOSFETs should be placed as close as possible to the gate driver.
   - The second high current path includes the bootstrap capacitor, the bootstrap diode, the local ground referenced bypass capacitor and low side MOSFET body diode. The bootstrap capacitor is recharged on the cycle-by-cycle basis through the bootstrap diode from the ground referenced V_{DD} bypass capacitor. The recharging occurs in a short time interval and involves high peak current. Minimizing this loop length and area on the circuit board is important to ensure reliable operation.

10 デバイスおよびドキュメントのサポート

10.1 コミュニティ・リソース

The following links connect to TI community resources. Linked contents are 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.

TI E2E™ Online Community ***TI's Engineer-to-Engineer (E2E) Community.*** Created to foster collaboration among engineers. At e2e.ti.com, you can ask questions, share knowledge, explore ideas and help solve problems with fellow engineers.

Design Support ***TI's Design Support*** Quickly find helpful E2E forums along with design support tools and contact information for technical support.

10.2 商標

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10.3 静電気放電に関する注意事項

これらのデバイスは、限定的なESD（静電破壊）保護機能を内 蔵しています。保存時または取り扱い時は、MOSゲートに対す る静電破壊を防止するために、リード線同士をショートさせて おくか、デバイスを導電フォームに入れる必要があります。

10.4 Glossary

SLYZ022 — *TI Glossary*.

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

11 メカニカル、パッケージ、および注文情報

以降のページには、メカニカル、パッケージ、および注文に関する情報が記載されています。これらの情報は、指定のデバイスに対して提供されている最新のデータです。このデータは予告なく変更されることがあり、ドキュメントが改訂される場合もあります。本データシートのブラウザ版を使用されている場合は、画面左側の説明をご覧ください。

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)
LM5107MA/NOPB	Active	Production	SOIC (D) | 8	95 | TUBE	Yes	SN	Level-1-260C-UNLIM	-40 to 125	L5107 MA
LM5107MA/NOPB.A	Active	Production	SOIC (D) | 8	95 | TUBE	Yes	SN	Level-1-260C-UNLIM	-40 to 125	L5107 MA
LM5107MA/NOPB.B	Active	Production	SOIC (D) | 8	95 | TUBE	Yes	SN	Level-1-260C-UNLIM	-40 to 125	L5107 MA
LM5107MAX/NOPB	Active	Production	SOIC (D) | 8	2500 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	L5107 MA
LM5107MAX/NOPB.A	Active	Production	SOIC (D) | 8	2500 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	L5107 MA
LM5107MAX/NOPB.B	Active	Production	SOIC (D) | 8	2500 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	L5107 MA
LM5107SD/NOPB	Active	Production	WSON (NGT) | 8	1000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	L5107SD
LM5107SD/NOPB.A	Active	Production	WSON (NGT) | 8	1000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	L5107SD
LM5107SD/NOPB.B	Active	Production	WSON (NGT) | 8	1000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	L5107SD

[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.

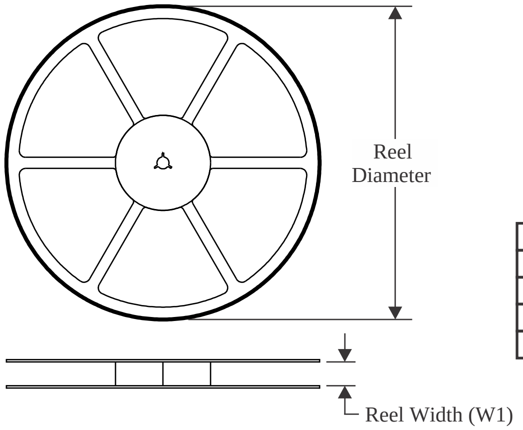
Multiple part markings will be inside parentheses. Only one part marking contained in parentheses and separated by a "~" will appear on a part. If a line is indented then it is a continuation of the previous line and the two combined represent the entire part marking for that device.

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.

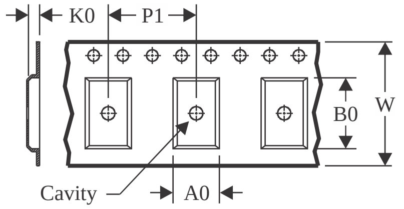
In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

TAPE AND REEL INFORMATION

REEL DIMENSIONS

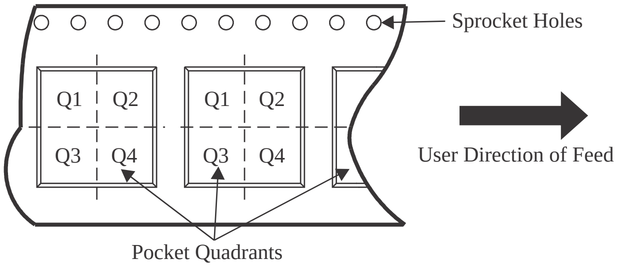


TAPE DIMENSIONS



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

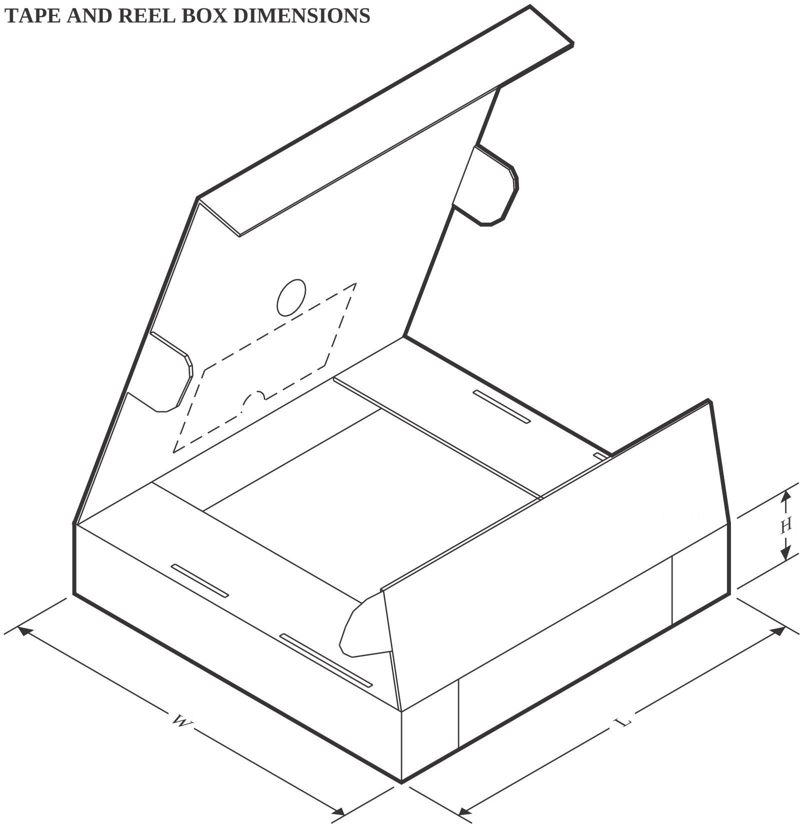
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*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
LM5107MAX/NOPB	SOIC	D	8	2500	330.0	12.4	6.5	5.4	2.0	8.0	12.0	Q1
LM5107SD/NOPB	WSON	NGT	8	1000	177.8	12.4	4.3	4.3	1.3	8.0	12.0	Q1

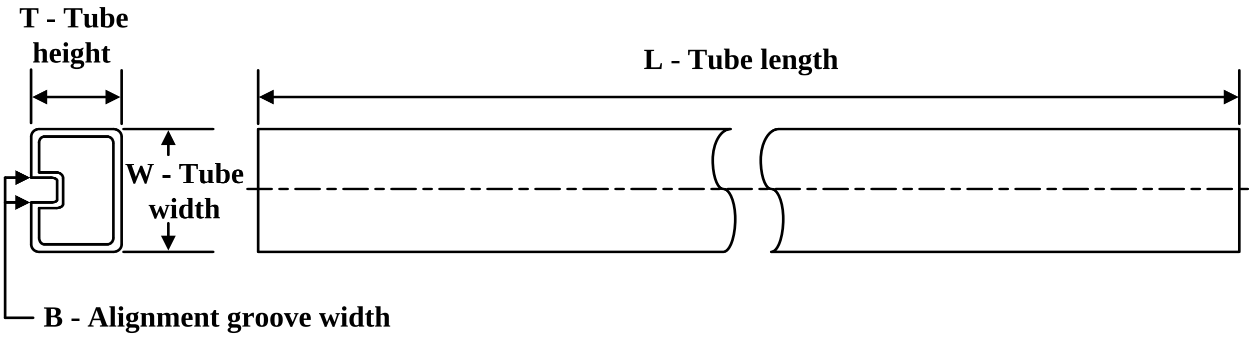
TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
LM5107MAX/NOPB	SOIC	D	8	2500	367.0	367.0	35.0
LM5107SD/NOPB	WSON	NGT	8	1000	208.0	191.0	35.0

TUBE



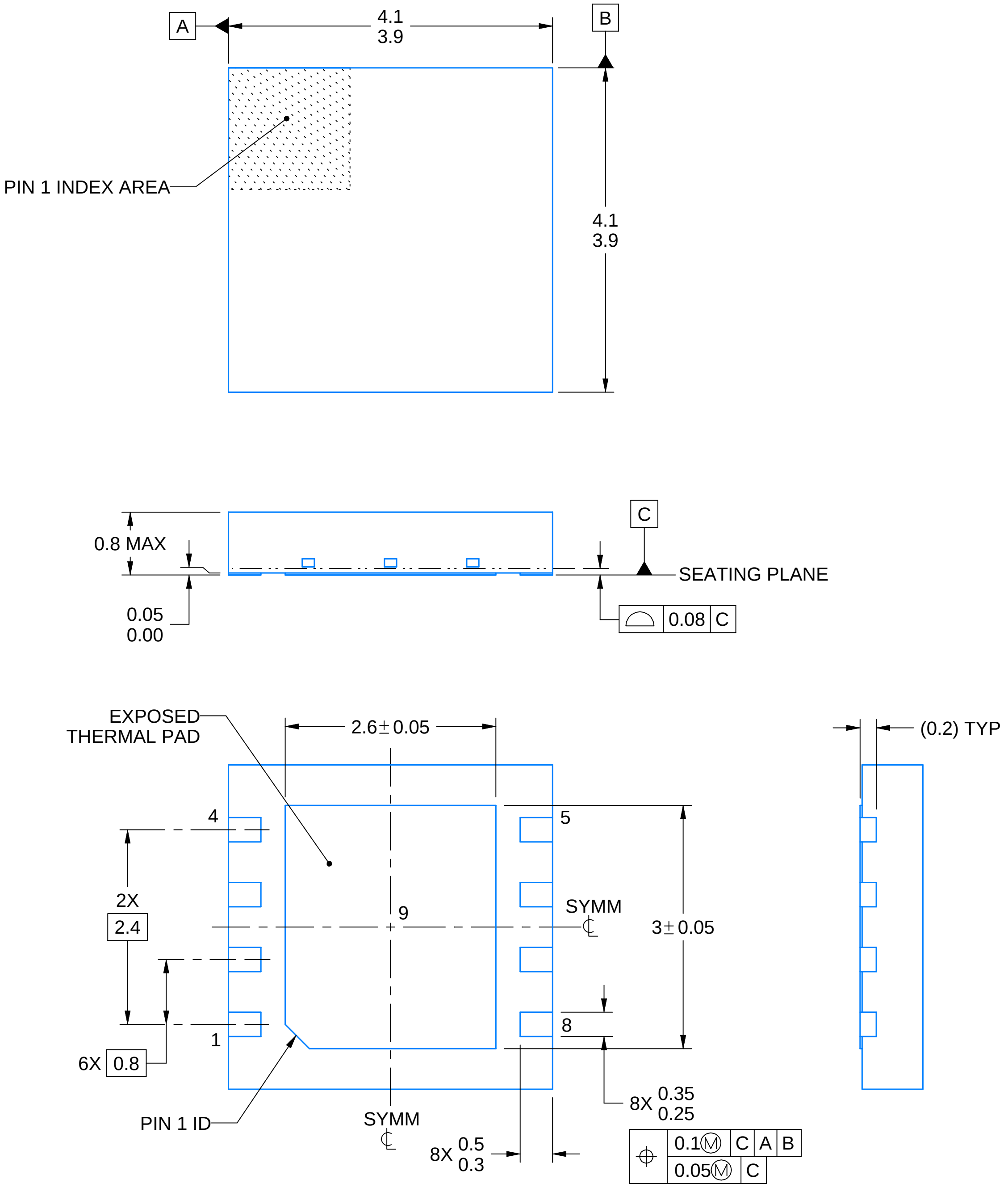
*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (µm)	B (mm)
LM5107MA/NOPB	D	SOIC	8	95	495	8	4064	3.05
LM5107MA/NOPB.A	D	SOIC	8	95	495	8	4064	3.05
LM5107MA/NOPB.B	D	SOIC	8	95	495	8	4064	3.05

PACKAGE OUTLINE

WSON - 0.8 mm max height

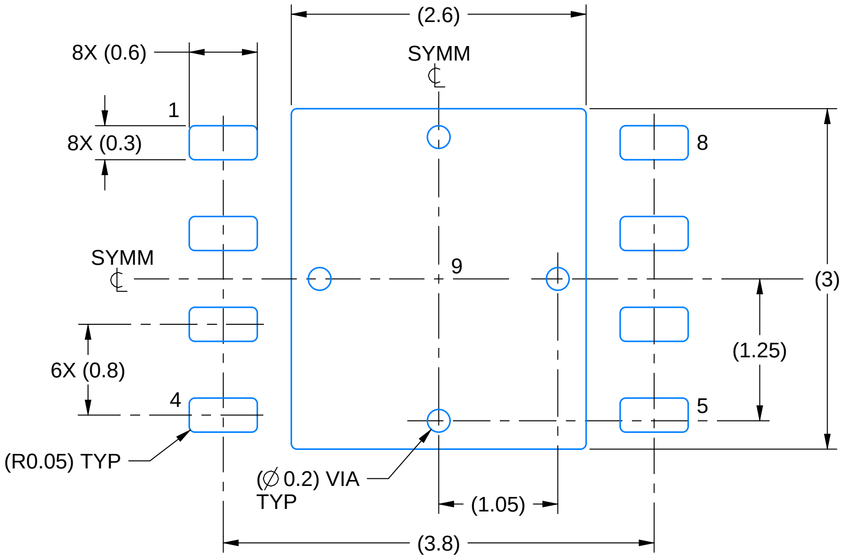
PLASTIC SMALL OUTLINE - NO LEAD



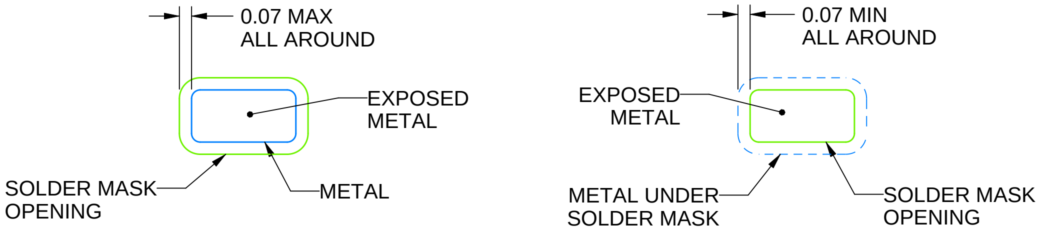
4214935/A 08/2020

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:15X



NON SOLDER MASK
DEFINED
(PREFERRED)

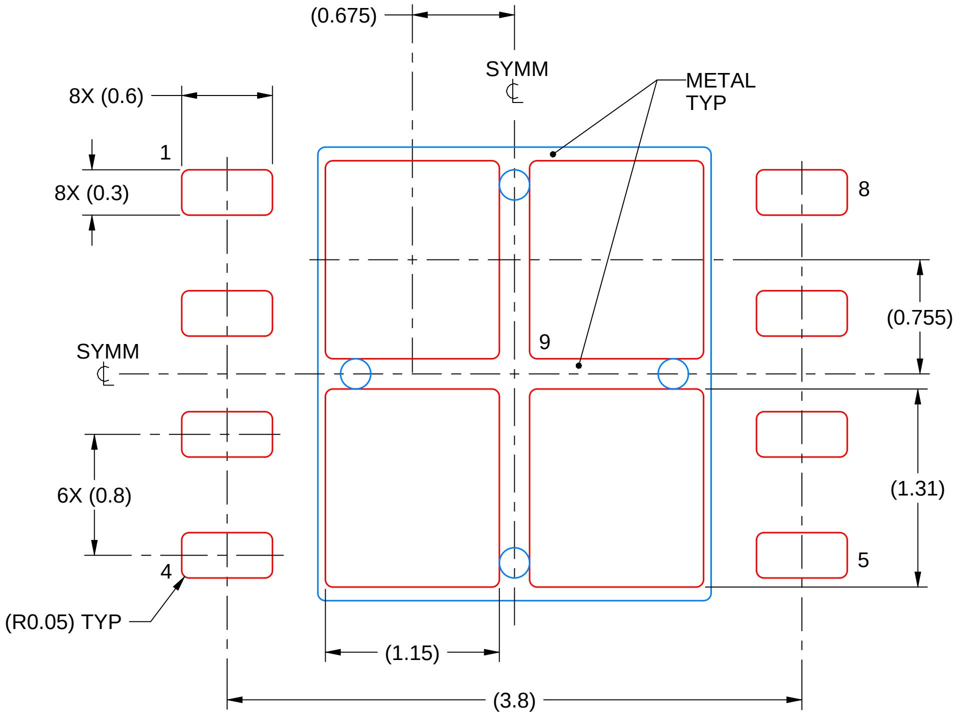
SOLDER MASK
DEFINED

SOLDER MASK DETAILS

4214935/A 08/2020

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.

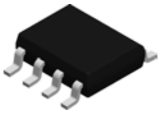


SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL

EXPOSED PAD 9:
77% PRINTED SOLDER COVERAGE BY AREA UNDER PACKAGE
SCALE:20X

NOTES: (continued)

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

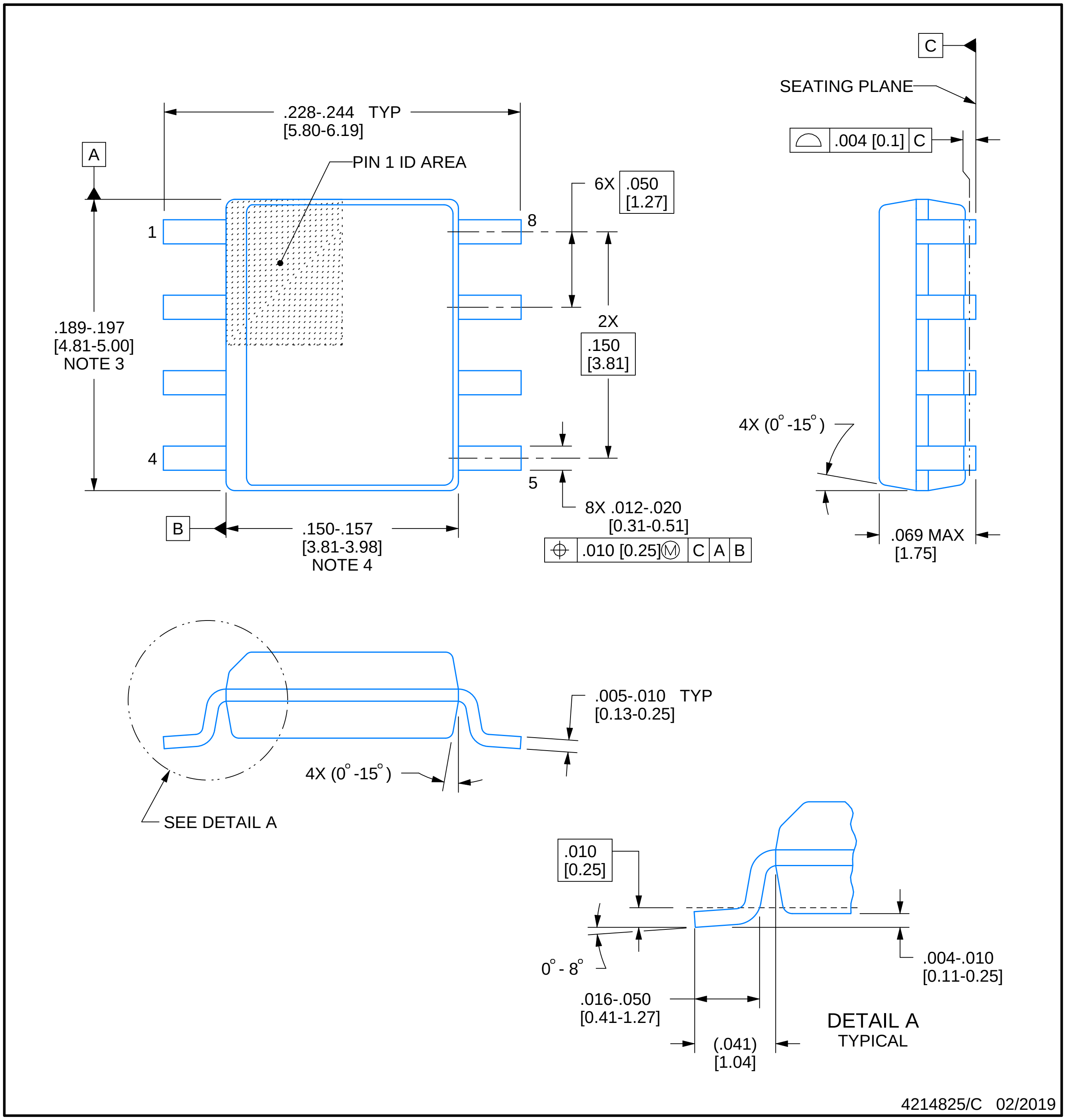


D0008A

PACKAGE OUTLINE

SOIC - 1.75 mm max height

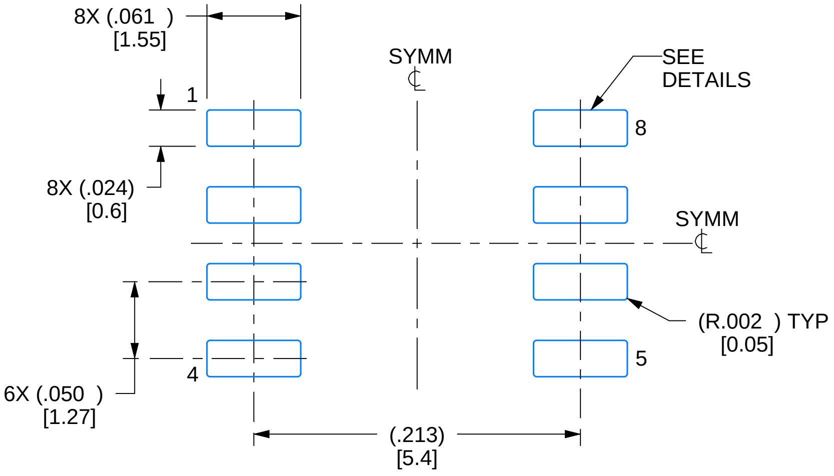
SMALL OUTLINE INTEGRATED CIRCUIT



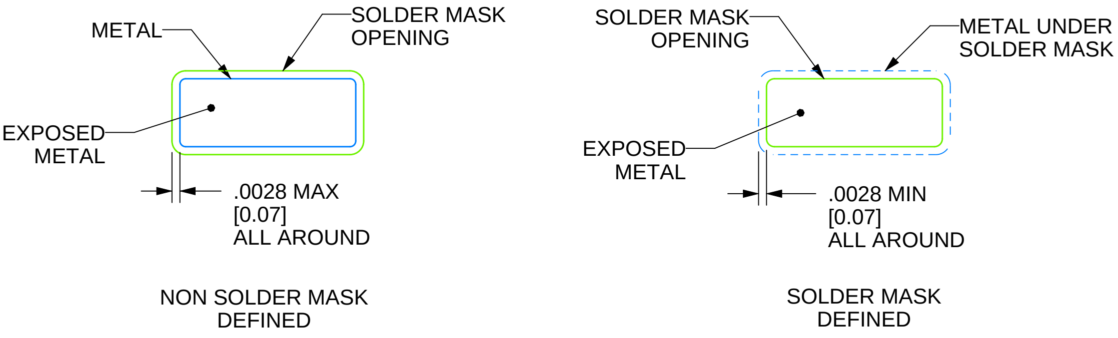
4214825/C 02/2019

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.



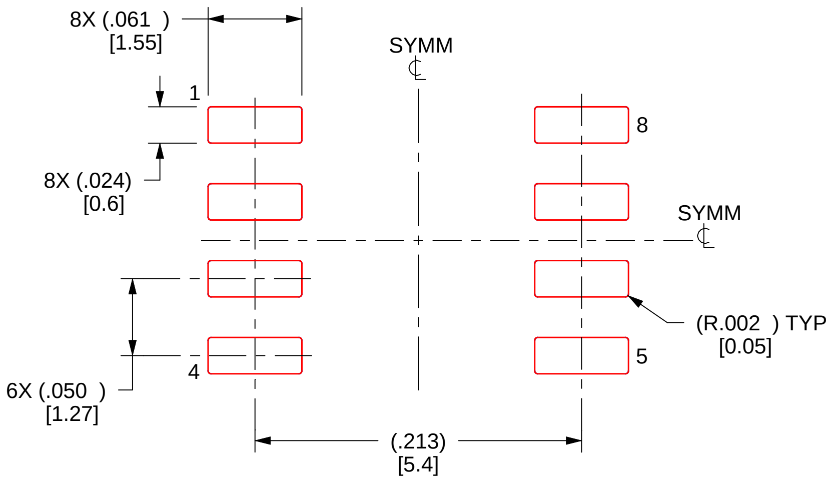
LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE:8X



SOLDER MASK DETAILS

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 .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.

重要なお知らせと免責事項

最終更新日：2025 年 10 月