TMAG5134 High Sensitivity, In-Plane Hall-Effect Switch With Concentrator

1 Features

- Supply range: 1.65V to 5.5V
- Operating temperature range: –40°C to 125°C
- In-plane axis of sensitivity
- Integrated magnetic concentrator
- Magnetic pole detection options:
  - Omnipolar
  - Dual-unipolar
- Output type:
  - Push-pull
  - Open-drain
- Available in both active low and active high
- Magnetic operate points (B_{OP})
  - 1mT
  - 1.3mT
  - 1.5mT
  - 2mT
- Low average current consumption I_{CCAVG}
  - 1.25Hz: 0.5µA
  - 5Hz: 0.6µA
  - 10Hz: 0.9µA
  - 20Hz: 1.4µA
- Industry standard package and pinout
  - SOT-23 (DBV)
  - X1LGA (ZFC)

2 Applications

- Door and window sensor
- Appliances
- Water meters
- Gas meters
- E-locks
- Medical devices
- Tablets
- Laptops
- Internet of Things (IoT)

3 Description

The TMAG5134 is a high sensitivity, low power, in-plane hall effect digital switch designed to replace TMR, AMR and Reed switches. The TMAG5134 features an integrated magnetic concentrator to achieve higher sensitivity and lower power consumption than traditional hall effect devices.

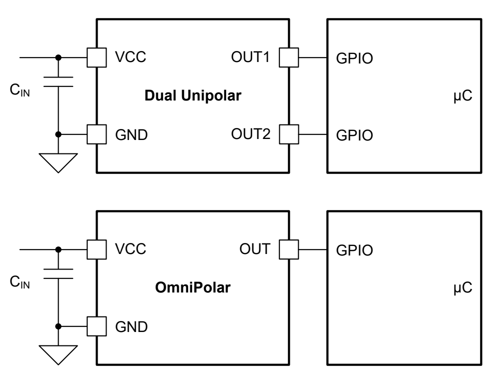
The TMAG5134 product family is available in packages with either a single omni-polar output (SOT-23) or with two independent unipolar outputs (X1LGA). The device supports multiple combinations of high sensitivity thresholds with various sampling rates that allow flexible system design for magnet selection, sensitivity, and power requirements.

To minimize power consumption, the TMAG5134 is internally duty-cycled. The device has a push-pull (CMOS) output which eliminates the need for an external pullup resistor, and is available in industry standard SOT-23 and X1LGA packages. The TMAG5134 is also available in an open-drain configuration.

Package Information

PART NUMBER	PACKAGE[(1)]	PACKAGE SIZE[(2)]
TMAG5134	DBV (SOT-23, 3)	2.92mm × 2.8mm
	ZFC (X1LGA, 4)	0.90mm × 1.30mm

(1) For more information, see Section 11.
(2) The package size (length × width) is a nominal value and includes pins, where applicable.



TMAG5134 Simplified Schematic

Table of Contents

4 Device Comparison Table

PART NUMBER	TYPICAL B_{OP} THRESHOLD	TYPICAL HYSTERESIS	MAGNETIC RESPONSE	OUTPUT TYPE	SAMPLING RATE	PACKAGES AVAILABLE
TMAG5134A1CDBVR	1mT	0.4mT	Omnipolar, Active Low	Push-pull	10Hz	SOT-23
TMAG5134B1ADBVR	1.3mT	0.4mT	Omnipolar, Active Low	Push-pull	1.25Hz	SOT-23
TMAG5134B1BDBVR	1.3mT	0.4mT	Omnipolar, Active Low	Push-pull	5Hz	SOT-23
TMAG5134B1DDBVR	1.3mT	0.4mT	Omnipolar, Active Low	Push-pull	20Hz	SOT-23
TMAG5134B5DZFCR	1.3mT	0.4mT	Dual-unipolar, Active Low	Push-pull	20Hz	X1LGA
TMAG5134C1ADBVR	1.5mT	0.4mT	Omnipolar, Active Low	Push-pull	1.25Hz	SOT-23
TMAG5134C1CDBVR	1.5mT	0.4mT	Omnipolar, Active Low	Push-pull	10Hz	SOT-23
TMAG5134E1DDBVR	2mT	0.4mT	Omnipolar, Active Low	Push-pull	20Hz	SOT-23
TMAG5134H1CDBVR	0.9mT	0.4mT	Omnipolar, Active Low	Push-pull	10Hz	SOT-23

Table 4-1 indicates the B_{OP}, output configuration, and sampling rate options available for the TMAG5134xxx. For example, TMAG5143C6G is a 1.5mT BOP, Unipolar, Active High, Open Drain, 160Hz version of the device. For new version samples please contact your local representative. Additional sampling rates up to 20kHz available.

Table 4-1. Additional Device Configuration Options

B_{OP}	Output Configuration	Sampling Rate
A = 1.0mT	**0** - Omnipolar, Active Low, Open-Drain	**A** = 1.25Hz
B = 1.3mT	**1** - Omnipolar, Active Low, Push-pull	**B** = 5Hz
C = 1.5mT	**2** - Omnipolar, Active High, Open-Drain	**C** = 10Hz
D = 1.8mT	**3** - Omnipolar, Active High, Push-pull	**D** = 20Hz
E = 2.0mT	**4** - Unipolar, Active Low, Open-Drain	**E** = 40Hz
F = 2.5mT	**5** - Unipolar, Active Low, Push-pull	**F** = 80Hz
G = 3.0mT	**6** - Unipolar, Active High, Open-Drain	**G** = 160Hz
H = 0.9mT	**7** - Unipolar, Active High, Push-pull	**H** = 320Hz
		I = 640Hz
		J = 8kHz
		K = 1kHz
		L = 2kHz
		M = 4kHz
		N = 16kHz
		O = 30kHz

5 Pin Configuration and Functions

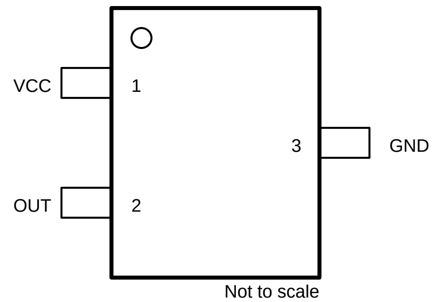


Figure 5-1. DBV Package, 3-Pin SOT-23 (Top View)

Figure 5-2. ZFC Package, 4-Pin X1LGA (Top View)

Table 5-1. Pin Functions

PIN			TYPE[1]	DESCRIPTION
NAME	SOT-23 (3)	X1LGA (4)		
GND	3	2	G	Ground
OUT	2	-	O	Omnipolar output, responds to both positive and negative magnetic flux density through the package.
OUT1	-	4	O	Unipolar output, responds to positive magnetic flux density through the package.
OUT2	-	1	O	Unipolar output, responds to negative magnetic flux density through the package.
VCC	1	3	P	Supply voltage

(1) G = ground, O = output, I = input

6 Specifications

6.1 Absolute Maximum Ratings

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

		MIN	MAX	UNIT
Power supply voltage	V_{CC}	–0.3	6	V
Output pin voltage	OUT, OUT1, OUT2	GND – 0.3	V_{CC} + 0.3	
Output pin current	OUT, OUT1, OUT2	–5.5	5.5	mA
Magnetic flux density, B_{MAX}		Unlimited		T
Junction temperature, T_J		–65	150	°C
Storage temperature, T_{stg}		–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.

6.2 ESD Ratings

			VALUE	UNIT
$V_{(ESD)}$	Electrostatic discharge	Human body model (HBM), per ANSI/ESDA/JEDEC JS-001, all pins[1]	±2000	V
		Charged device model (CDM), ANSI/ESDA/JEDEC JS-002[2]	±500	

(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.

6.3 Recommended Operating Conditions

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

		MIN	MAX	UNIT
V_{CC}	Power supply voltage	1.65	5.5	V
V_O	Output voltage, OUT, OUT1, OUT2	0	V_{CC}	V
I_O	Output current, OUT, OUT1, OUT2	–5	5	mA
T_A	Ambient temperature	–40	125	°C

6.4 Thermal Information

THERMAL METRIC[1]		TMAG5134		UNIT
		SOT-23 (DBV)	X1LGA (ZFC)	
		3 PINS	4 PINS	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	233.8	393.5	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	89.1	149.7	
$R_{\theta JB}$	Junction-to-board thermal resistance	76.2	257.8	
Ψ_{JT}	Junction-to-top characterization parameter	33.1	7.1	
Ψ_{JB}	Junction-to-board characterization parameter	75.3	273.2	

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

6.5 Electrical Characteristics

over free-air temperature range and V_{CC} = 1.65V to 5.5V (unless otherwise noted); Typical specifications are at T_A = 25°C and V_{CC} = 3.3V (unless otherwise noted)

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
DIGITAL INPUT/OUTPUT						
V_{OH}	High-level output voltage	I_O = –0.5mA	V_{CC} – 0.05		V_{CC}	V
		I_O = –5mA	V_{CC} – 0.70		V_{CC}	
V_{OL}	Low-level output voltage	I_O = 0.5mA	0		0.03	V
		I_O = 5mA	0		0.40	
POWER SUPPLY						
I_{ACTIVE}	Supply current during measurement	T_A = 25°C		2.4	3.0	mA
		T_A = –40°C to 85°C			3.3	
		T_A = –40°C to 125°C			3.5	
I_{SLEEP}	Sleep current	T_A = 25°C		0.32	0.55	µA
		T_A = –40°C to 85°C			0.75	
		T_A = –40°C to 125°C			1.3	
t_{ON}	Power-on time	V_{CC} = 5.5V		60	500	µs
t_{ACTIVE}	Active time period			26		µs
C_{OUT}	Pin capacitance	f = 1MHz		2		pF
TMAG5134xxA 1.25Hz						
f_S	Frequency of magnetic sampling		0.45	1.25	2.15	Hz
t_S	Period of magnetic sampling		465	800	2222	ms
I_{CCAVG}	Average current consumption	T_A = 25°C		0.39	0.59	µA
		T_A = –40°C to 85°C			0.81	
		T_A = –40°C to 125°C			1.3	
TMAG5134xxB 5Hz						
f_S	Frequency of magnetic sampling		1.8	5	8.2	Hz
t_S	Period of magnetic sampling		121	200	555	ms
I_{CCAVG}	Average current consumption	T_A = 25°C		0.6	0.95	µA
		T_A = –40°C to 85°C			1.15	
		T_A = –40°C to 125°C			1.65	
TMAG5134xxC 10Hz						
f_S	Frequency of magnetic sampling		4	10	18	Hz
t_S	Period of magnetic sampling		55	100	250	ms
I_{CCAVG}	Average current consumption	T_A = 25°C		0.9	1.42	µA
		T_A = –40°C to 85°C			1.62	
		T_A = –40°C to 125°C			2.19	
TMAG5134xxD 20Hz						
f_S	Frequency of magnetic sampling		7.5	20	35	Hz
t_S	Period of magnetic sampling		28	50	133	ms
I_{CCAVG}	Average current consumption	T_A = 25°C		1.4	2.1	µA
		T_A = –40°C to 85°C			2.5	
		T_A = –40°C to 125°C			3.0	

6.6 Magnetic Characteristics

over free-air temperature range and V_{CC} = 1.65V to 5.5V (unless otherwise noted); Typical specifications are at T_A = 25°C and V_{CC} = 3.3V (unless otherwise noted)

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
TMAG5134Axx 1mT						
B_{OP}	Magnetic threshold operate point	T_A = 25°C	±0.75	±1	±1.25	mT
		T_A = –40°C to 85°C	±0.7	±1	±1.3	
		T_A = –40°C to 125°C	±0.7	±1	±1.3	
B_{RP}	Magnetic release operate point	T_A = 25°C	±0.33	±0.6	±0.87	mT
		T_A = –40°C to 85°C	±0.3	±0.6	±0.9	
		T_A = –40°C to 125°C	±0.3	±0.6	±0.9	
B_{HYS}	Magnetic hysteresis: $\|B_{OP} – B_{RP}\|$	T_A = 25°C	0.18	0.4		mT
		T_A = –40°C to 85°C	0.14	0.4		
		T_A = –40°C to 125°C	0.12	0.4		
TMAG5134Bxx 1.3mT						
B_{OP}	Magnetic threshold operate point	T_A = 25°C	±1.05	±1.3	±1.55	mT
		T_A = –40°C to 85°C	±0.97	±1.3	±1.63	
		T_A = –40°C to 125°C	±0.93	±1.3	±1.67	
B_{RP}	Magnetic release operate point	T_A = 25°C	±0.65	±0.9	±1.15	mT
		T_A = –40°C to 85°C	±0.54	±0.9	±1.26	
		T_A = –40°C to 125°C	±0.43	±0.9	±1.37	
B_{HYS}	Magnetic hysteresis: $\|B_{OP} – B_{RP}\|$	T_A = 25°C	0.15	0.4		mT
		T_A = –40°C to 85°C	0.13	0.4		
		T_A = –40°C to 125°C	0.12	0.4		
TMAG5134Cxx 1.5mT						
B_{OP}	Magnetic threshold operate point	T_A = 25°C	±1.20	±1.5	±1.80	mT
		T_A = –40°C to 85°C	±1.15	±1.5	±1.85	
		T_A = –40°C to 125°C	±1.10	±1.5	±1.90	
B_{RP}	Magnetic release operate point	T_A = 25°C	±0.80	±1.1	±1.40	mT
		T_A = –40°C to 85°C	±0.75	±1.1	±1.45	
		T_A = –40°C to 125°C	±0.69	±1.1	±1.5	
B_{HYS}	Magnetic hysteresis: $\|B_{OP} – B_{RP}\|$	T_A = 25°C	0.17	0.4		mT
		T_A = –40°C to 85°C	0.14	0.4		
		T_A = –40°C to 125°C	0.12	0.4		

6.7 Typical Characteristics

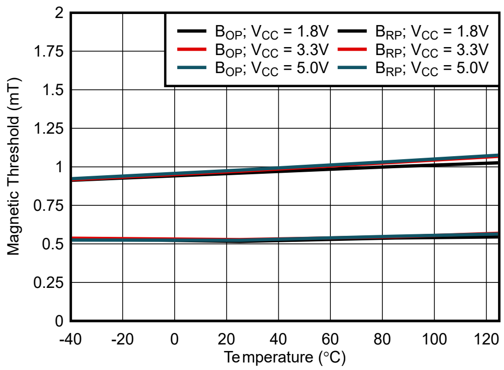


Figure 6-1. 1.0mT B_{OP} and B_{RP} Thresholds vs Temperature

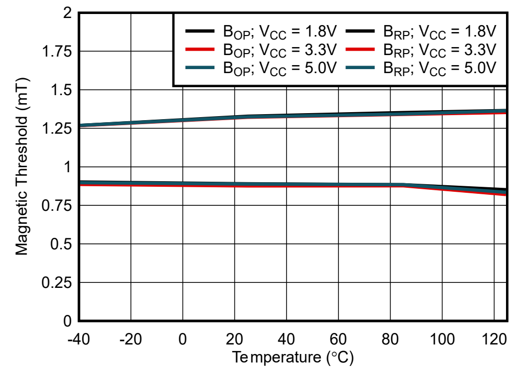


Figure 6-2. 1.3mT B_{OP} and B_{RP} Thresholds vs Temperature

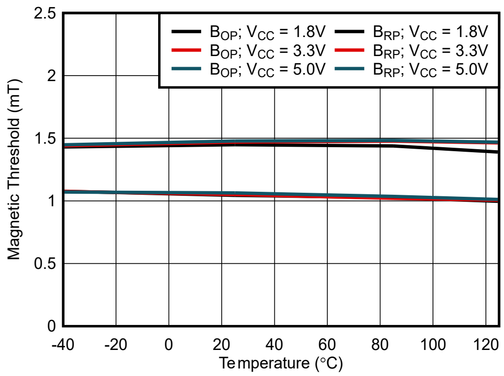


Figure 6-3. 1.5mT B_{OP} and B_{RP} Thresholds vs Temperature

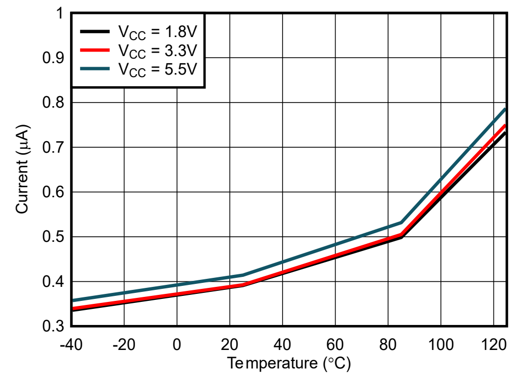


Figure 6-4. 1.25Hz I_{CCAVG} vs Temperature

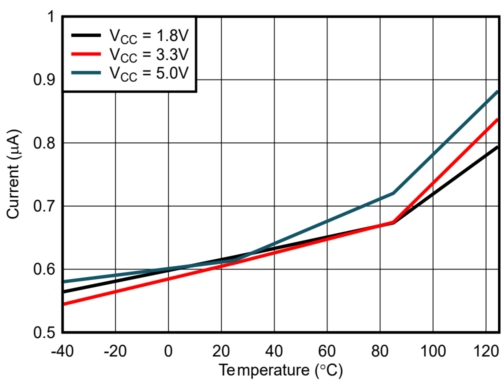


Figure 6-5. 5Hz I_{CCAVG} vs Temperature

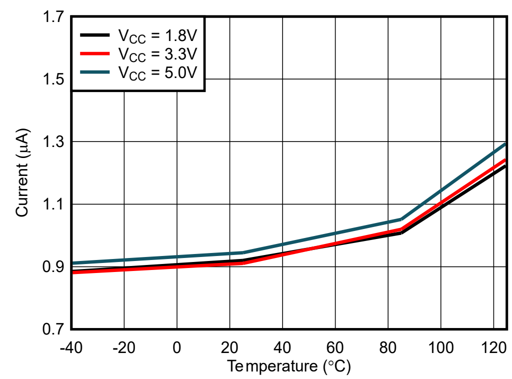


Figure 6-6. 10Hz I_{CCAVG} vs Temperature

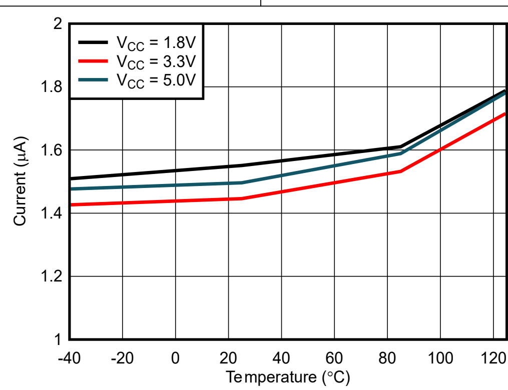


Figure 6-7. 20Hz I_{CCAVG} vs Temperature

7 Detailed Description

7.1 Overview

The TMAG5134 is a Hall-effect magnetic position sensor with a digital output that indicates when the magnetic flux density thresholds have been crossed. As an omnipolar switch, the OUT pin is sensitive to positive and negative magnetic flux density through the sensor. The X1LGA package enables a unipolar magnetic response with two outputs, where the OUT1 pin is sensitive to positive magnetic flux density and the OUT2 pin is sensitive to negative magnetic flux density. The TMAG5134 periodically samples the Hall-effect sensor according to the sampling rate. After sampling the sensor the device enters a low power sleep state to conserve power.

7.2 Functional Block Diagram

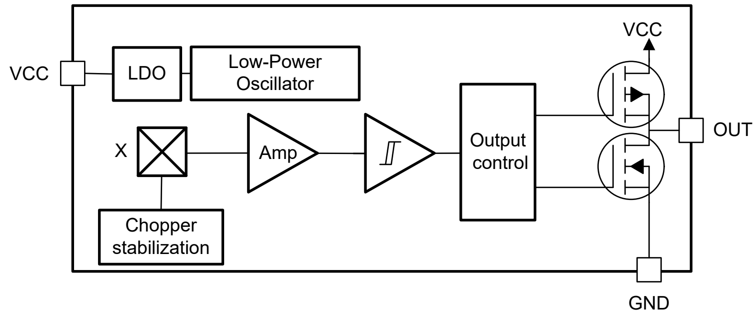


Figure 7-1. SOT-23 Block Diagram

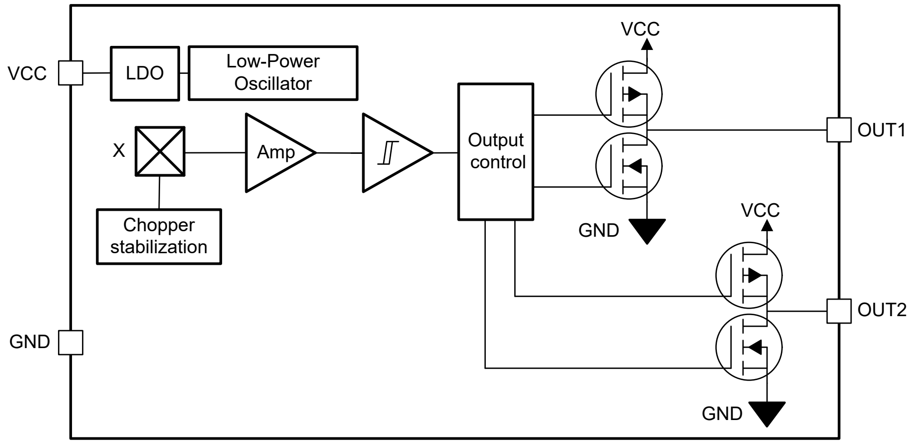


Figure 7-2. X1LGA Block Diagram

7.3 Feature Description

7.3.1 SOT-23 Magnetic Flux Density Direction

The TMAG5134 SOT-23 detects the magnetic flux density which is horizontal to the package marking surface.

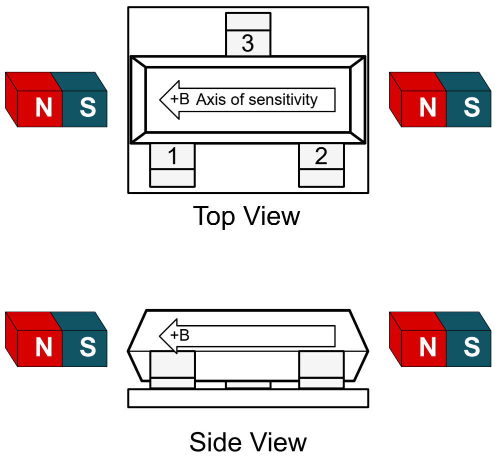


Figure 7-3. Positive Magnetic Flux Density

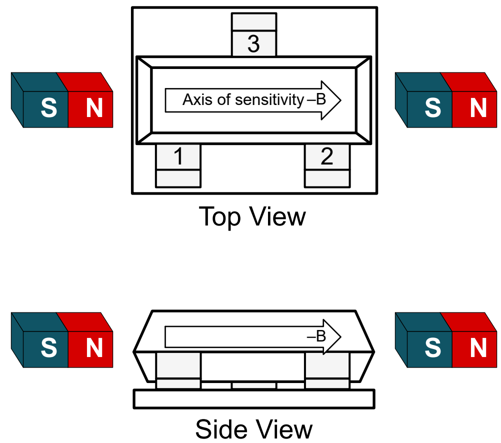


Figure 7-4. Negative Magnetic Flux Density

Magnetic flux density traveling from the pin 2 side of the package to the pin 1 side of the package is considered positive, while magnetic flux density traveling from the pin 1 side of the package to the pin 2 side of the package is considered negative.

A magnet creates a three-dimensional magnetic field that permeates the surrounding space, with field strength and direction varying at different points. This variation allows for multiple ways to induce a positive (or negative) magnetic flux density, as illustrated in Figure 7-5 and Figure 7-6.

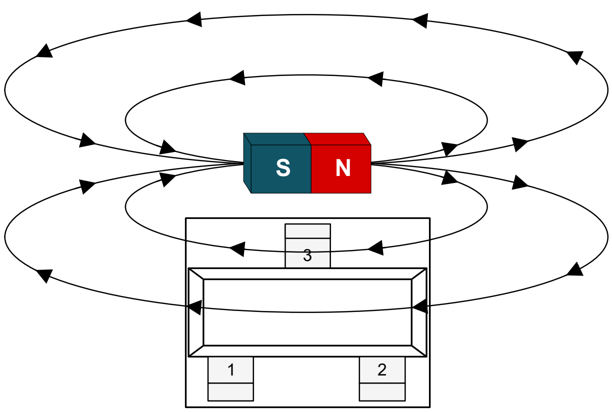


Figure 7-5. Positive Magnetic Flux Density: Magnet Offset

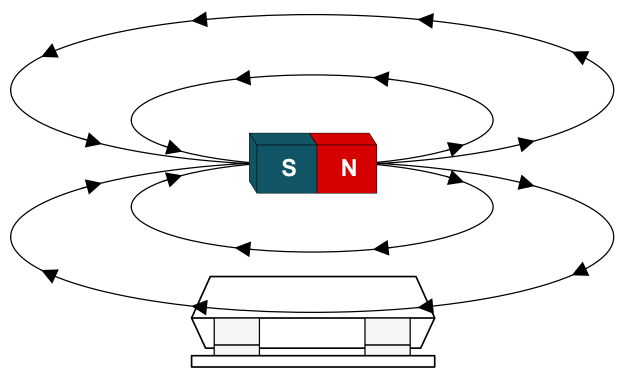


Figure 7-6. Positive Magnetic Flux Density: Magnet In-Line

7.3.2 Omnipolar Output

The TMAG5134 SOT-23 package is available with an omnipolar magnetic response. The OUT pin responds to both positive and negative magnetic flux densities. Figure 7-7 illustrates this omnipolar response with an active low output behavior.

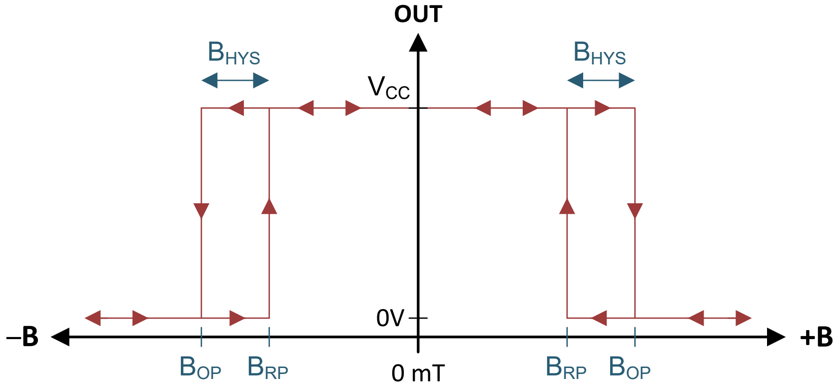


Figure 7-7. Omnipolar Output Response

7.3.3 X1LGA Magnetic Flux Direction

The TMAG5134X1LGA detects the magnetic flux density which is horizontal to the package marking surface.

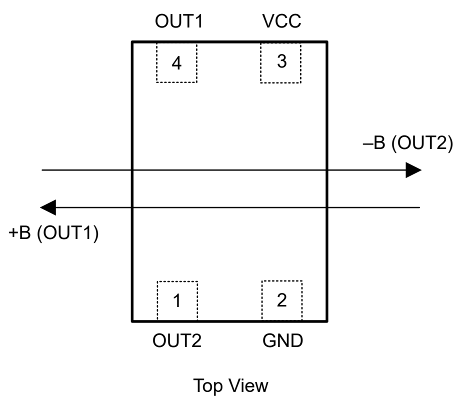


Figure 7-8. Direction of Sensitivity

Magnetic flux that travels from the pin 2 and 3 side of the package to the pin 1 and 4 side of the package is considered positive. Magnetic flux that travels from the pin 1 and 4 side of the package to the pin 2 and 3 side of the package is considered negative.

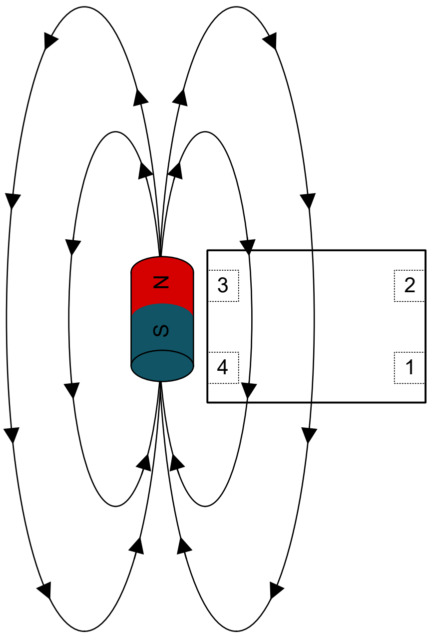


Figure 7-9. Positive Magnetic Flux Density: Magnet Offset

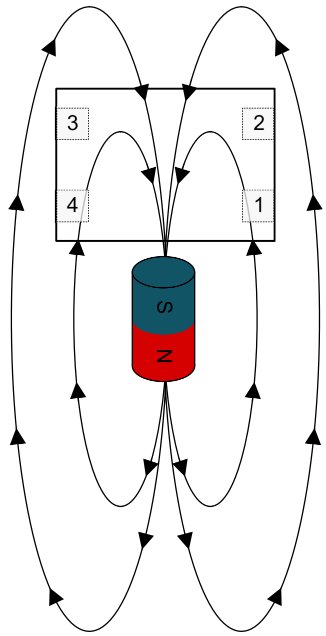


Figure 7-10. Positive Magnetic Flux Density: Magnet In-Line

7.3.4 Dual-Unipolar Output

The TMAG5134X1LGA package is available with two unipolar outputs. OUT1 responds to a positive magnetic flux density through the package, whereas OUT2 responds to a negative magnetic flux density through the package. Figure 7-11 illustrates this dual-unipolar response with an active low output behavior.

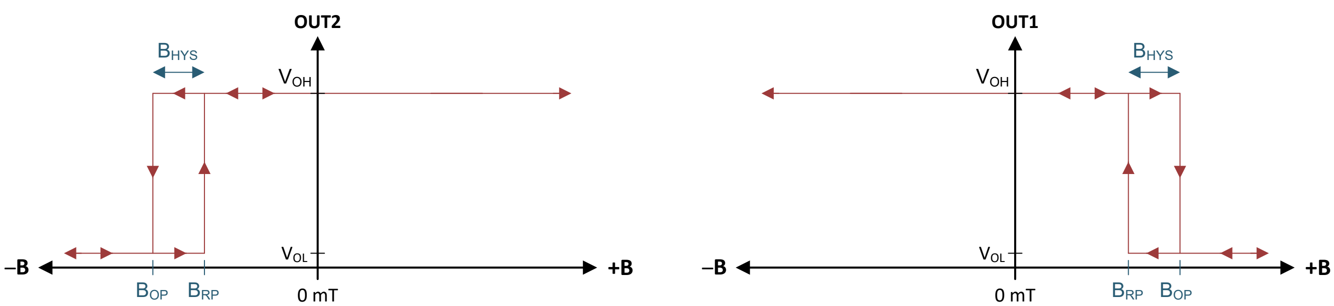
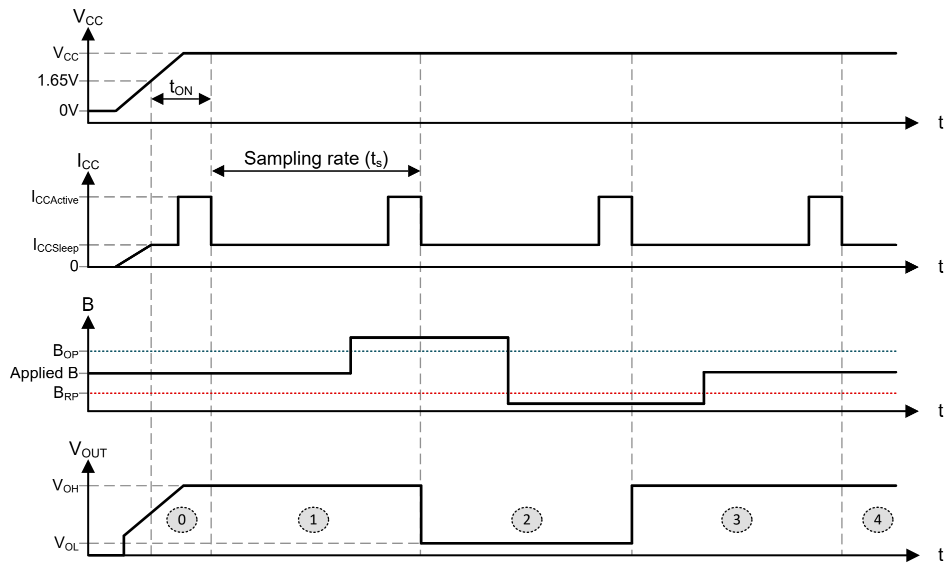


Figure 7-11. Dual-Unipolar Output Response

7.3.5 Sampling Rate

Figure 7-12 displays the start-up behavior of the TMAG5134 and some examples of the output pin voltage based on different magnetic flux density value scenarios for an active low version. When the minimum value for V_{CC} is reached, the TMAG5134 takes time t_{ON} to power up, measure the first magnetic sample and set the output value. When the output value is set, the output is latched and the device enters a low power sleep state. After each t_S time has passed, the device measures a new sample and updates the output if necessary. If the magnetic field does not change between periods, the output also does not change.



(0) The default start-up state for V_{OUT} is V_{OH} regardless of the B flux density through the package.

(1) 1st Sample: B flux density sampled was $B_{RP} < B < B_{OP}$, therefore V_{OUT} remains in its default start-up state (V_{OH}).

(2) 2nd Sample: B Flux density sampled was $B > B_{OP}$, therefore V_{OUT} is driven to V_{OL}.

(3) 3rd Sample: B Flux density sampled was $B < B_{RP}$, therefore V_{OUT} is driven to V_{OH}.

(4) 4th Sample: B Flux density sampled was $B_{RP} < B < B_{OP}$, therefore V_{OUT} continues its previous state (V_{OH} from sample 3).

Figure 7-12. Timing and Output Diagram

7.3.6 Hall Element Location

Hall Element Location shows the sensing element location inside the X1LGA package.

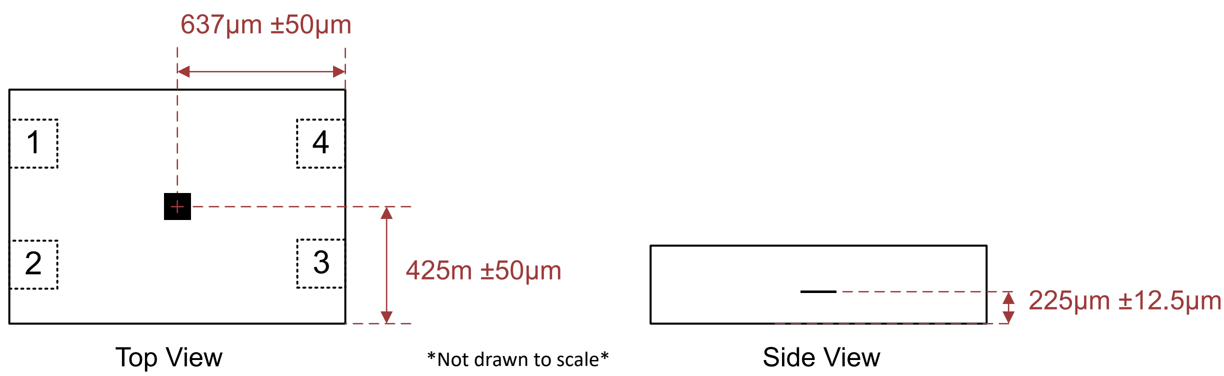


Figure 7-13. Hall Element Location

7.4 Device Functional Modes

The TMAG5134 always operates in a duty-cycled mode as described in the *Electrical Characteristics* section when the *Recommended Operating Conditions* are met.

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, as well as validating and testing their design implementation to confirm system functionality.

8.1 Application Information

The TMAG5134 is a Hall-effect switch used to detect the proximity of a magnet, which is often attached to a movable component within the system. When the magnet comes sufficiently close to the sensor and induces a magnetic flux density that exceeds the B_{OP} threshold along the TMAG5134 axis of sensitivity, the output of the sensor is pulled low to GND for an active low variant. This low output can be read by a GPIO pin on a controller, enabling the system to recognize that the magnet has crossed the threshold, thereby indicating the position or movement of the component. This application is common in various fields, such as industrial automation and consumer electronics, where precise detection of position or movement is critical.

Due to the complex, non-linear behavior of magnets, determining the appropriate magnet characteristics required to verify the system works as intended can be difficult. Therefore, TI recommends to begin the design process with experimentation to solve for a design that works. To help facilitate rapid design iteration, the *TI Magnetic Sense Simulator (TIMSS)* web tool provides a visual interface that emulates typical sensor performance in system designs. TIMSS simulations provide an understanding of expected magnetic field behavior across a range of motion, and the simulations are run in a few seconds.

8.2 Typical Application

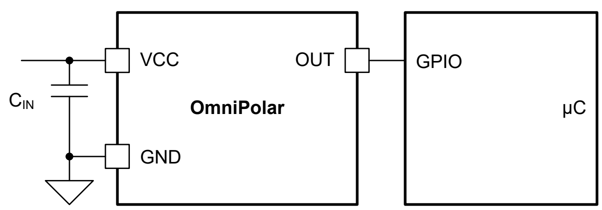


Figure 8-1. Typical Application Schematic

8.2.1 Design Requirements

This section provides an example using the *TI Magnetic Sense Simulator (TIMSS)* web tool for a magnet hinge application. The following table lists the design parameters related to the movement of the magnet on a hinge.

Table 8-1. Design Parameters

PARAMETER	VALUE
Supply voltage (V_{CC})	3.3V
Bypass capacitor	0.1µF
Part number	TMAG5134B1D
Magnet range of motion	10mm hinge
Magnet shape	Axial Cylinder
Magnet width	2mm
Magnet height	1mm
Magnet type	N35

8.2.2 Detailed Design Procedure

As the magnet travels from the starting position 60° to the final position 0°, the magnetic flux density seen by the TMAG5134 across the axis of sensitivity changes.

At the magnet starting position, the TMAG5134 output is high because the magnetic flux density is less than B_{OP}. As the magnet moves along the hinge arc towards the sensor, the magnetic flux density crosses the B_{OP} threshold of the TMAG5134 at an angle of 15°, making the output go low. If the hinge opens, the magnetic flux density decreases, and at an angle of 20° the B_{RP} threshold is crossed and the output goes high.

8.2.3 Application Performance Plots

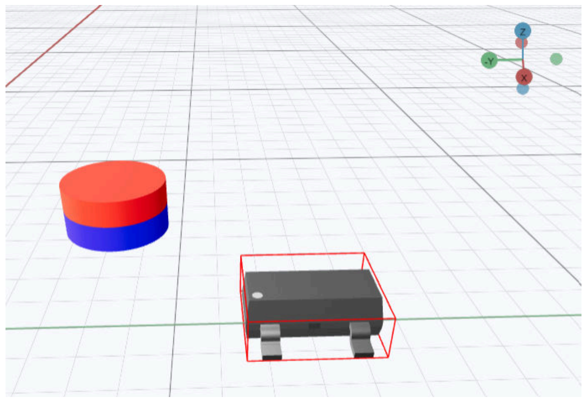


Figure 8-2. TIMSS Simulation Hinge Setup

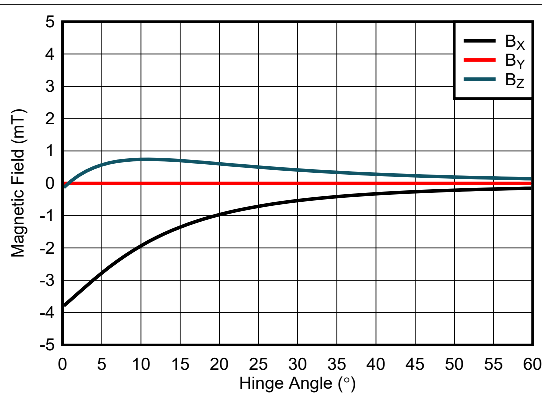


Figure 8-3. Magnetic Field Response

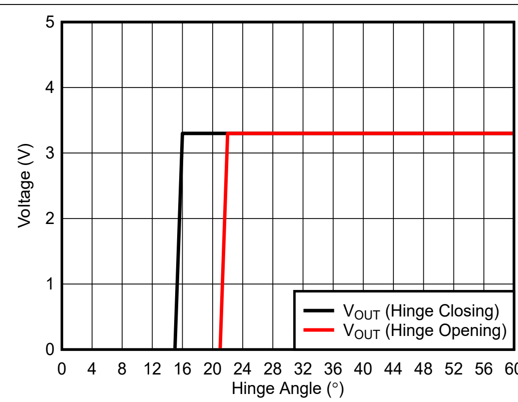


Figure 8-4. TMAG5134B1D V_{OUT}

8.3 Power Supply Recommendations

The TMAG5134 supports a supply range of 1.65V to 5.5V. TI recommends a bypass capacitor of at least 0.1µF between the sensor power supply and ground to help filter out voltage fluctuations and noise in the power supply. Best practice is to place this bypass capacitor as close to the supply pin of the sensor as possible.

8.4 Layout

8.4.1 Layout Guidelines

Magnetic fields pass through most non-ferromagnetic materials with no significant disturbance. Embedding Hall-effect sensors within plastic or aluminum enclosures and sensing magnets on the outside is common practice. Magnetic fields also easily pass through most printed circuit boards (PCBs), which makes the placement of the magnet on the opposite side possible.

8.4.2 Layout Example

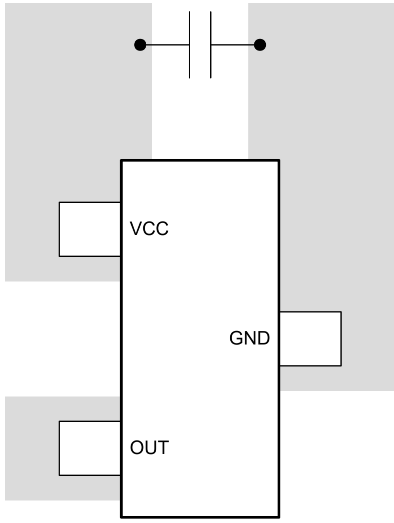


Figure 8-5. SOT-23 Layout Example

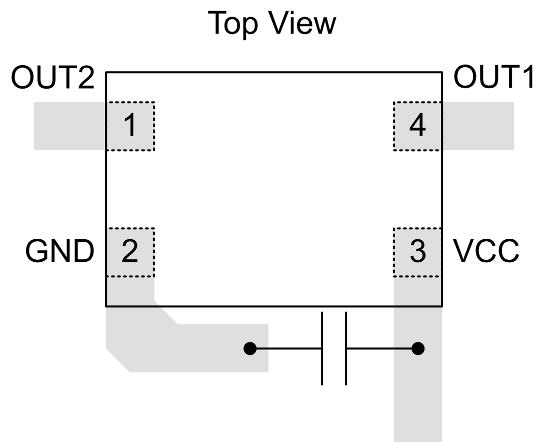


Figure 8-6. X1LGA Layout Example

9 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.

9.1 Documentation Support

9.1.1 Related Documentation

- Texas Instruments, *TMAG5134 Evaluation Module User's Guide*
- Texas Instruments, *Replacing Reed and Magnetoresistive Switches With Cost-Effective, Low-Power Hall-Effect Switches*
- Texas Instruments, *How Hall-Effect Sensors are Used in Electronic Smart Locks*

9.2 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.

9.3 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.

9.4 Trademarks

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9.5 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.

9.6 Glossary

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

10 Revision History

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

Changes from Revision C (November 2025) to Revision D (November 2025) — **Page**

- Added TMAG5134C1ADBV to *Device Comparison Table* ... 3

Changes from Revision B (September 2025) to Revision C (November 2025) — **Page**

- Changed 10Hz T_A = 25°C I_{CCAVG} maximum from 1.3µA to 1.42µA ... 6
- Changed 10Hz T_A = -40°C to 85°C I_{CCAVG} maximum from 1.42µA to 1.62µA ... 6
- Changed 10Hz T_A = -40°C to 125°C I_{CCAVG} maximum from 1.64µA to 2.19µA ... 6
- Added TMAG5134Cxx to *Magnetic Characteristics* Table ... 7
- Added 10Hz sampling rate graphs to *Typical Characteristics* section ... 8
- Added 1.5mT Threshold graphs to *Typical Characteristics* section ... 8

11 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)
TMAG5134A1CDBVR	Active	Production	SOT-23 (DBV) | 3	3000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	4A1C
TMAG5134B1ADBVR	Active	Production	SOT-23 (DBV) | 3	3000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	4B1A
TMAG5134B1BDBVR	Active	Production	SOT-23 (DBV) | 3	3000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	4B1B
TMAG5134B1DDBVR	Active	Production	SOT-23 (DBV) | 3	3000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	4B1D
TMAG5134B5DZFCR	Active	Production	NFBGA (ZFC) | 4	3000 | LARGE T&R	Yes	NIAU	Level-2-260C-1 YEAR	-40 to 125	
TMAG5134C1ADBVR	Active	Production	SOT-23 (DBV) | 3	3000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	4C1A
TMAG5134C1CDBVR	Active	Production	SOT-23 (DBV) | 3	3000 | LARGE T&R	Yes	SN	Level-1-260C-UNLIM	-40 to 125	4C1C

(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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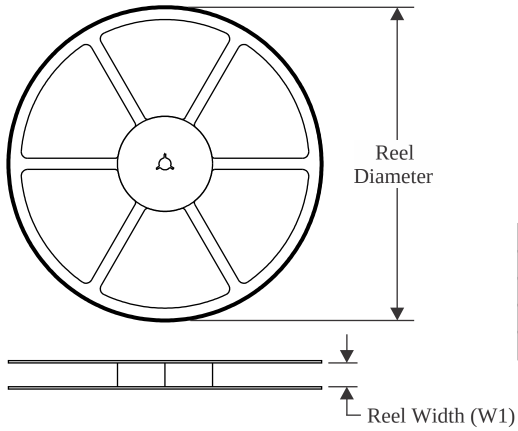
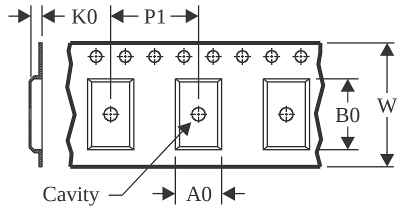
TAPE AND REEL INFORMATION

REEL DIMENSIONS

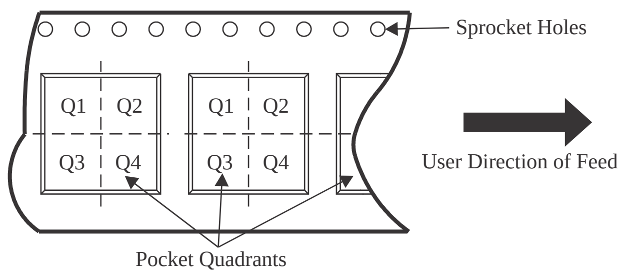


TAPE DIMENSIONS



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

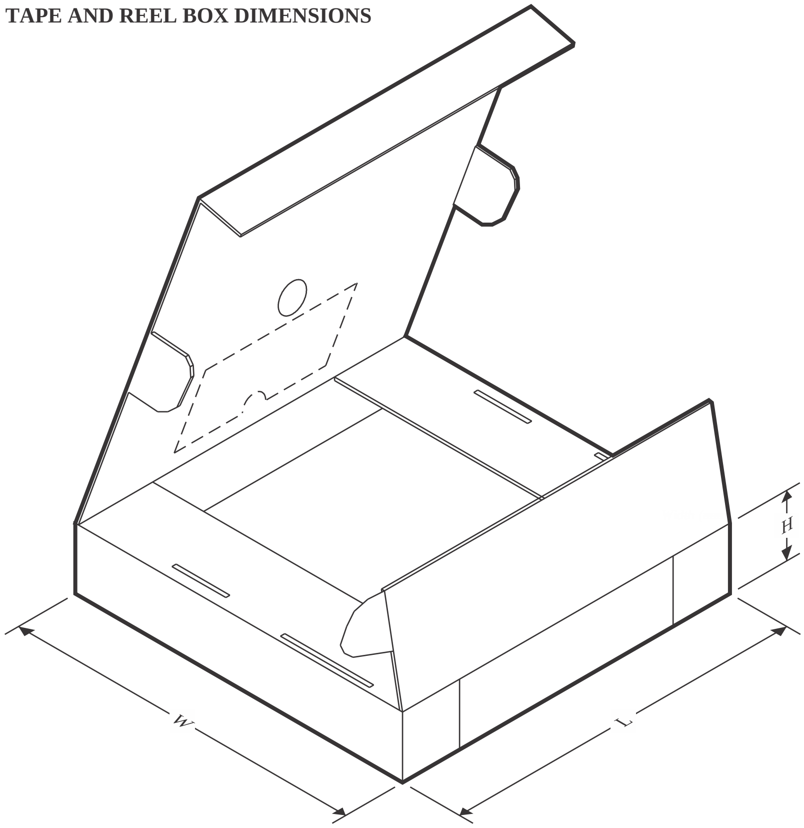
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

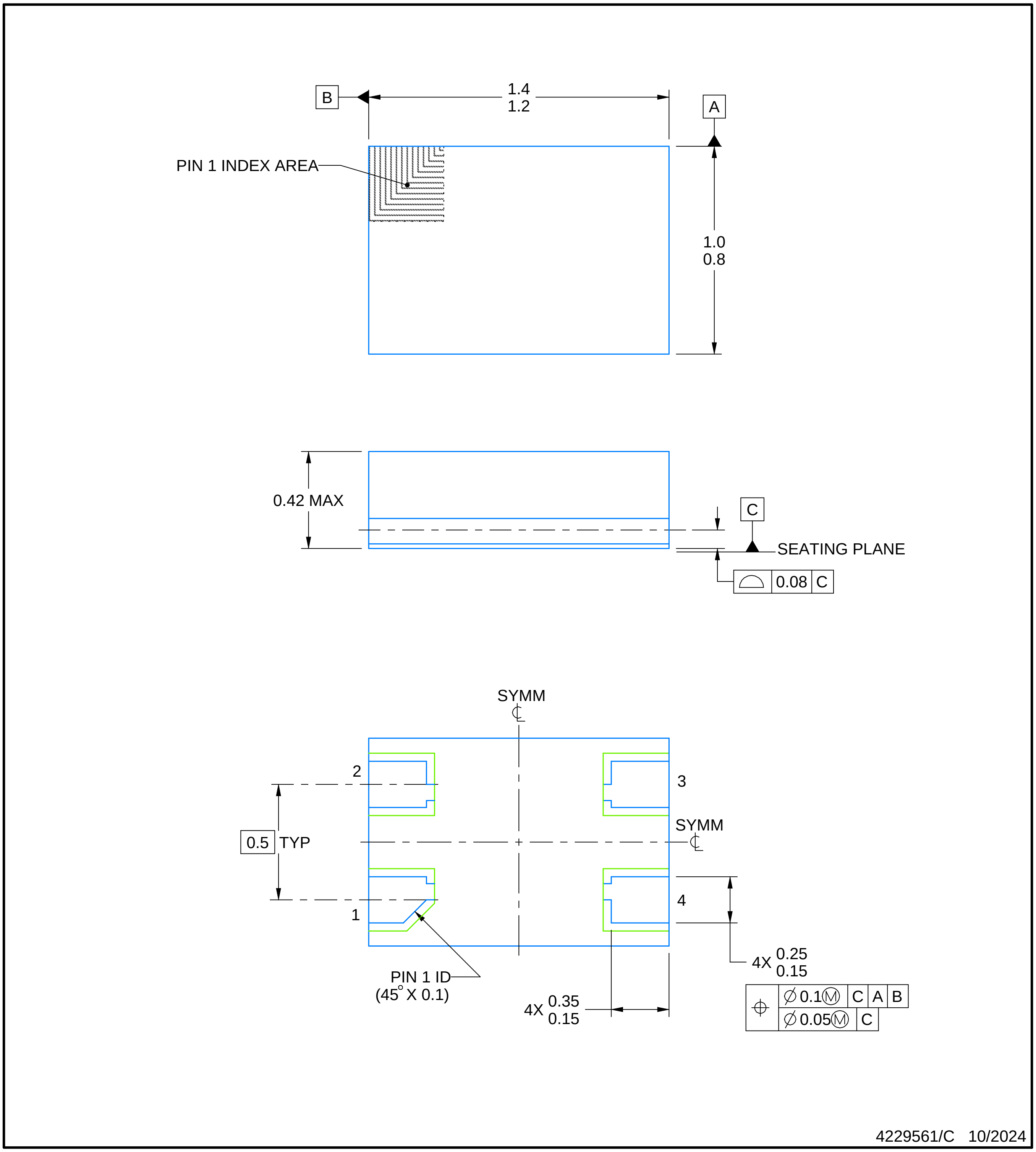
Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
TMAG5134A1CDBVR	SOT-23	DBV	3	3000	178.0	9.0	3.3	3.2	1.4	4.0	8.0	Q3
TMAG5134B1ADBVR	SOT-23	DBV	3	3000	178.0	9.0	3.3	3.2	1.4	4.0	8.0	Q3
TMAG5134B1BDBVR	SOT-23	DBV	3	3000	178.0	9.0	3.3	3.2	1.4	4.0	8.0	Q3
TMAG5134B1DDBVR	SOT-23	DBV	3	3000	178.0	9.0	3.3	3.2	1.4	4.0	8.0	Q3
TMAG5134B5DZFCR	NFBGA	ZFC	4	3000	180.0	8.4	1.07	1.47	0.52	4.0	8.0	Q3
TMAG5134C1ADBVR	SOT-23	DBV	3	3000	178.0	9.0	3.3	3.2	1.4	4.0	8.0	Q3
TMAG5134C1CDBVR	SOT-23	DBV	3	3000	178.0	9.0	3.3	3.2	1.4	4.0	8.0	Q3

TAPE AND REEL BOX DIMENSIONS



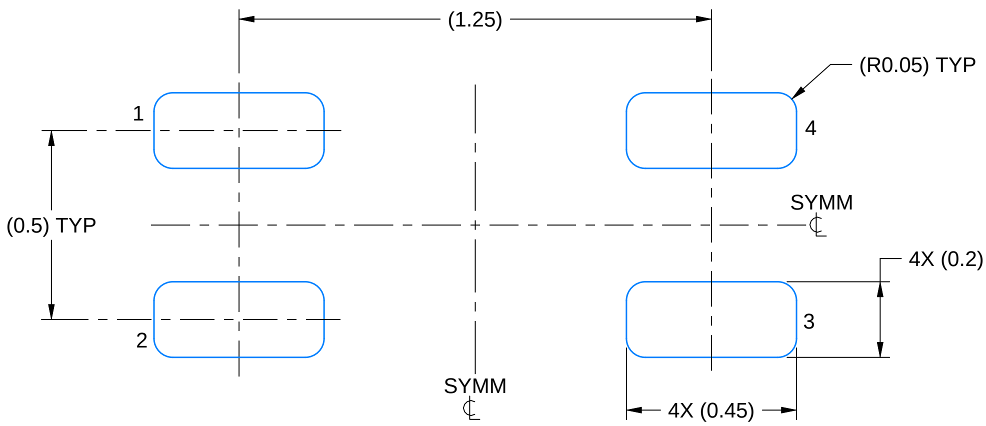
*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
TMAG5134A1CDBVR	SOT-23	DBV	3	3000	190.0	190.0	30.0
TMAG5134B1ADBVR	SOT-23	DBV	3	3000	190.0	190.0	30.0
TMAG5134B1BDBVR	SOT-23	DBV	3	3000	190.0	190.0	30.0
TMAG5134B1DDBVR	SOT-23	DBV	3	3000	190.0	190.0	30.0
TMAG5134B5DZFCR	NFBGA	ZFC	4	3000	210.0	185.0	35.0
TMAG5134C1ADBVR	SOT-23	DBV	3	3000	190.0	190.0	30.0
TMAG5134C1CDBVR	SOT-23	DBV	3	3000	190.0	190.0	30.0

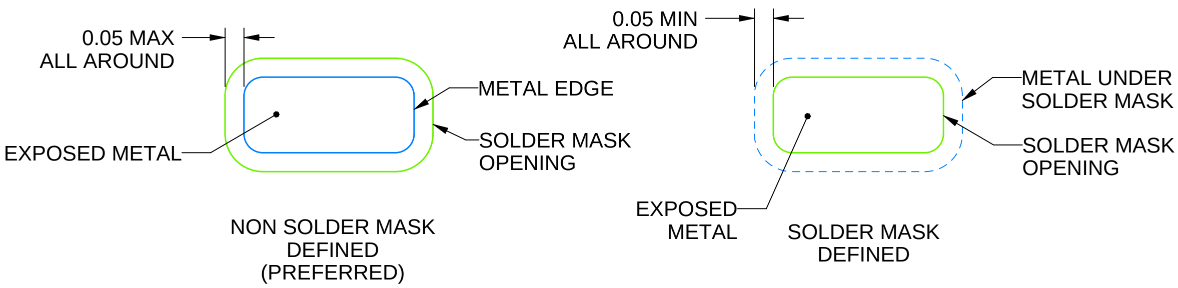


NOTES:

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.



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 50X

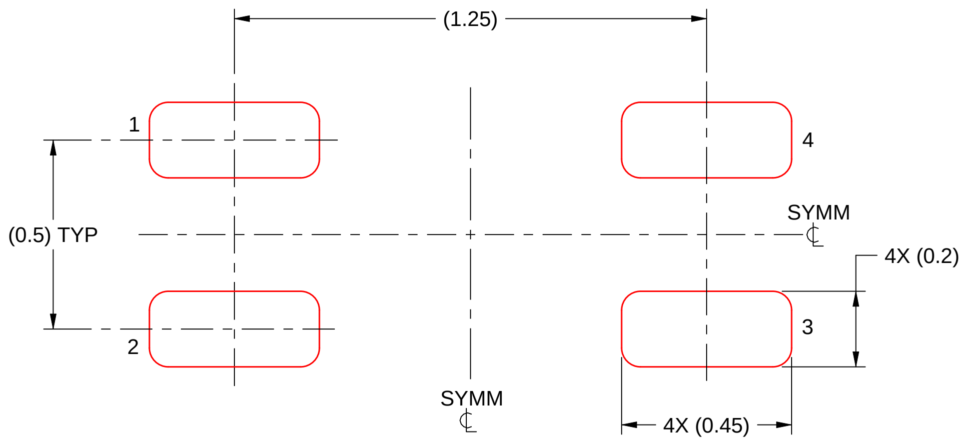


SOLDER MASK DETAILS
NOT TO SCALE

4229561/C 10/2024

NOTES: (continued)

3. Final dimensions may vary due to manufacturing tolerance considerations and also routing constraints. For information, see Texas Instruments literature number SPRAA99 (www.ti.com/lit/spraa99).



SOLDER PASTE EXAMPLE
BASED ON 0.100 mm THICK STENCIL
SCALE: 50X

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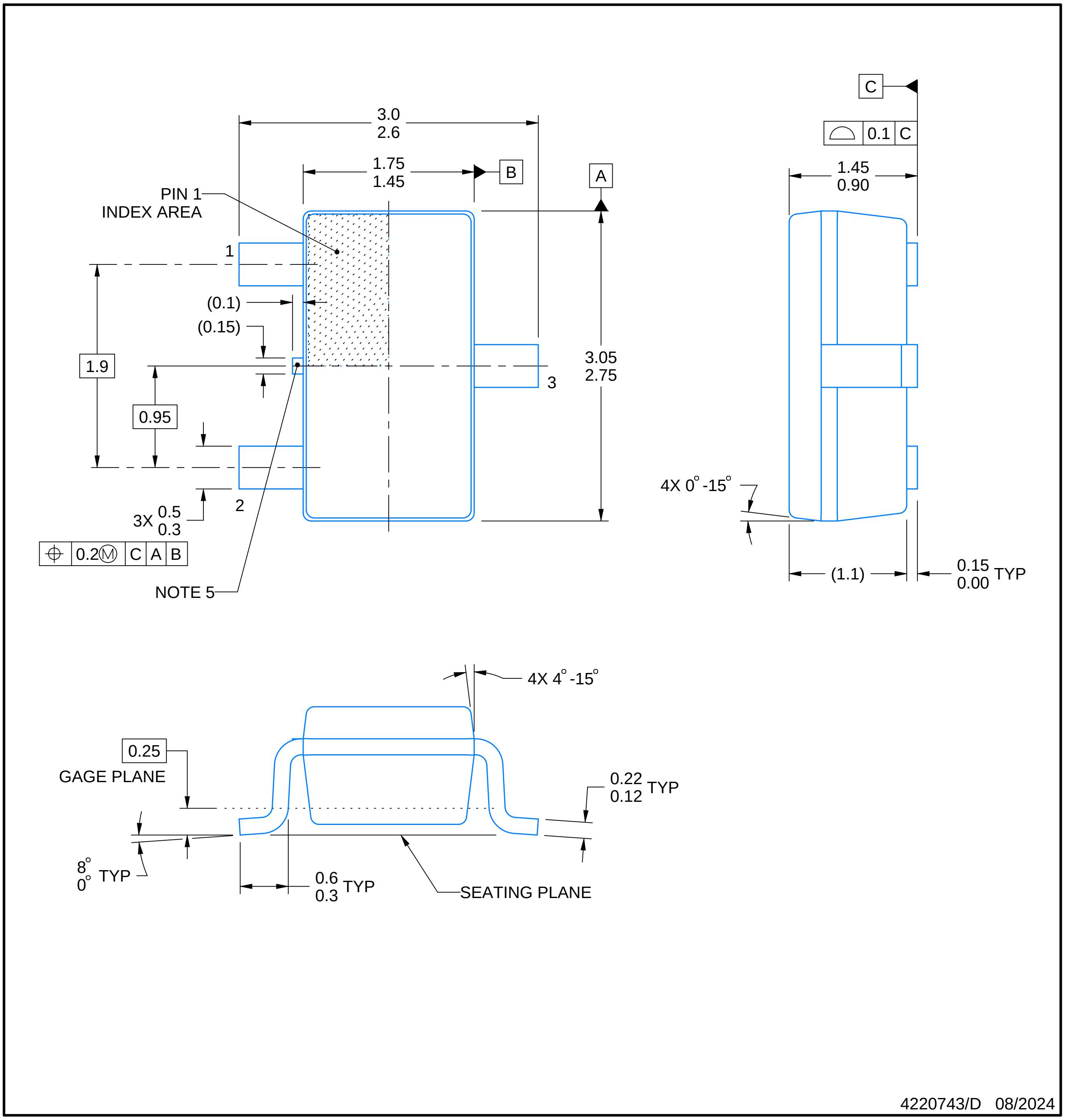
NOTES: (continued)

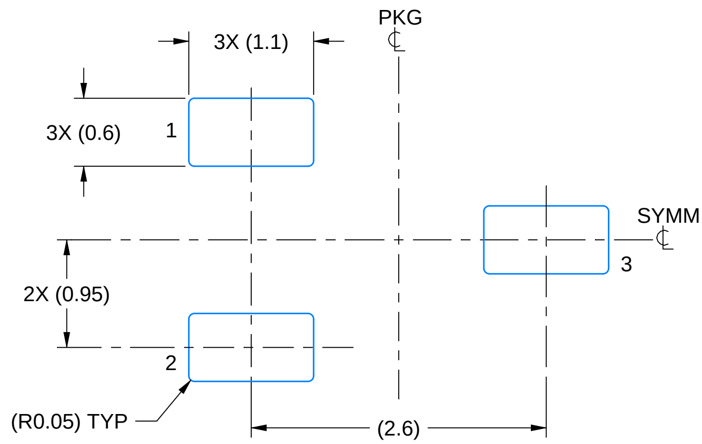
4. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release.

SMALL OUTLINE TRANSISTOR

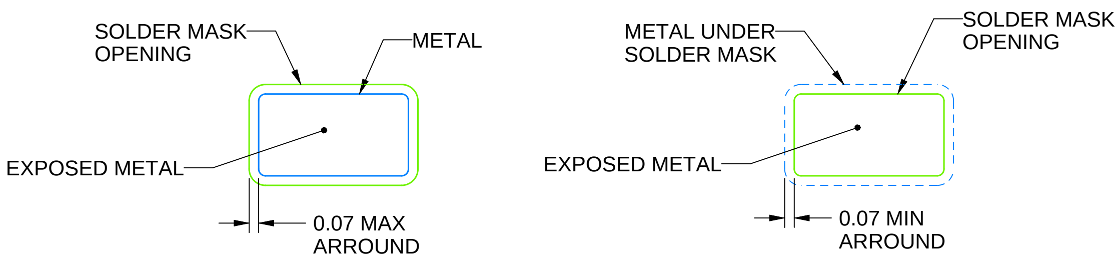


NOTES:

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. Refernce JEDEC MO-178.
4. Body dimensions do not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.25 mm per side.
5. Support pin may differ or may not be present.



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE:15X



NON SOLDER MASK DEFINED (PREFERRED)

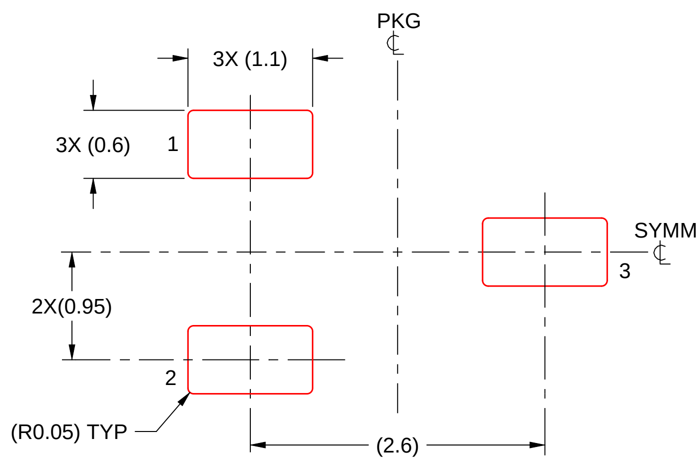
SOLDER MASK DEFINED

SOLDER MASK DETAILS

4220743/D 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.



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

4220743/D 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.

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