

## ■ General Description

The AME4624/AME4625 analog switches feature low ON resistance, single-pole, double-throw (SPDT) with wide operating single power supply voltage range, from 1.8V to 5.5V. The AME4624 offers break-before-make switching while the AME4625 offers make-before-break switching.

AME4624/AME4625 has 1Ω max ON resistance when +5V power supply is used. These products also have fast switching speeds,  $t_{ON} = t_{OFF} = 50\text{nS}$  max.

AME4624/AME4625 are available in SOT-26 & TSOT-26 (TSOT-23, 6 pins).

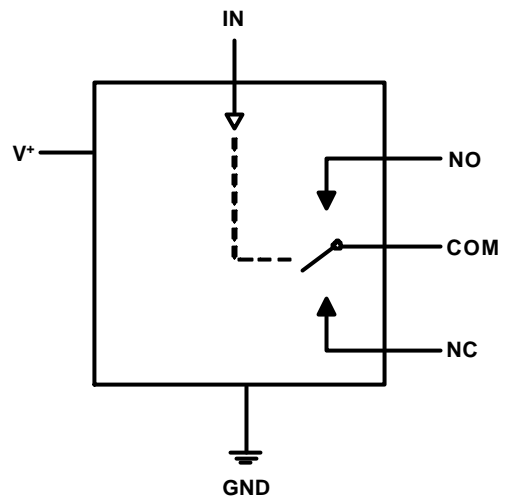
## ■ Features

- Low  $R_{ON}$
- Wide Operation Supply Voltage: 1.8V to 5.5V
- Fast Switching Time:  $t_{ON} = t_{OFF} = 50\text{nS}$  max.
- TTL-Logic Compatible
- Pin Compatible with MAX4624/MAX4625
- Over Thermal Protection
- Guaranteed Break-Before-Make(AME4624)
- Guaranteed Make-Before-Break(AME4625)

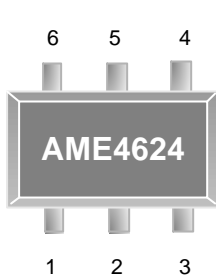
## ■ Applications

- Power Routing
- Battery-Operated Equipment
- Audio and Video Signal Routing
- Low-Voltage Data-Acquisition Systems
- Communications Circuits
- PCMCIA Cards
- PC Peripherals

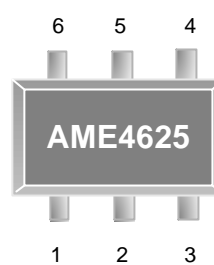
## ■ Functional Block Diagram



In Logic	NC	NO
0	ON	OFF
1	OFF	ON

**Pin Configuration**

**AME4624**

1. IN
2. V+
3. GND
4. NC
5. COM
6. NO

**\*Epoxy: Non-Conductive**

**AME4625**

1. IN
2. V+
3. GND
4. NC
5. COM
6. NO

**\*Epoxy: Non-Conductive**
**Pin Description**

Pin	Pin Name	Pin Description
1	IN	Digital Control Input
2	V+	Positive Supply Voltage Input
3	GND	Ground
4	NC	Analog Switch-Normally Closed
5	COM	Analog Switch-Common
6	NO	Analog Switch-Normally Open

**Ordering Information**

Part Number	Marking*	Activity Mode	Package	Operating Temp. Range
AME4624AEEY	AZLww	Break-Before-Make	SOT-26	- 40°C to + 85°C
AME4624AEEYZ	AZLww	Break-Before-Make	SOT-26	- 40°C to + 85°C
AME4624AEEYL	AZLww	Break-Before-Make	TSOT-26	- 40°C to + 85°C
AME4624AEEYY	AZLww	Break-Before-Make	TSOT-26	- 40°C to + 85°C
AME4625AEEY	BAHww	Make-Before-Break	SOT-26	- 40°C to + 85°C
AME4625AEEYZ	BAHww	Make-Before-Break	SOT-26	- 40°C to + 85°C
AME4625AEEYL	BAHww	Make-Before-Break	TSOT-26	- 40°C to + 85°C
AME4625AEEYY	BAHww	Make-Before-Break	TSOT-26	- 40°C to + 85°C

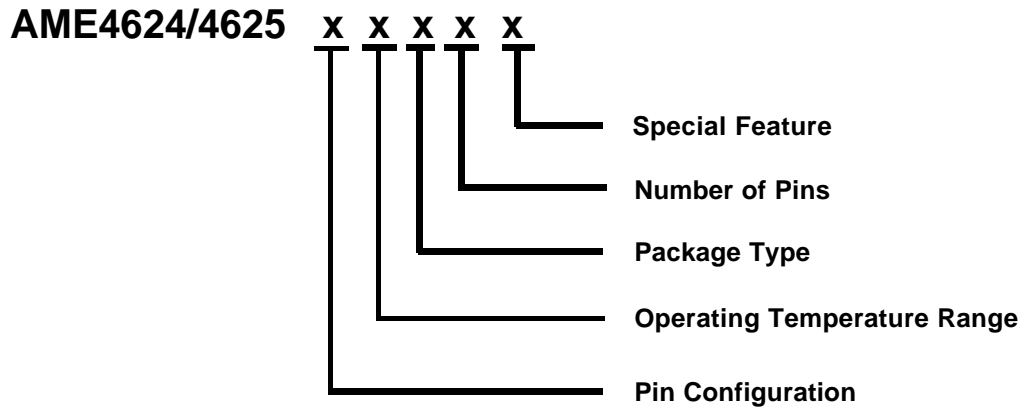
Note: ww represents the date code and pls refer to Date Code Rule before the page of Package Dimension.

\* A line on top of the first letter represents lead free plating such as AZL

Pls consult AME sales office or authorized Rep./Distributor for the availability of package type.



■ Ordering Information



Pin Configuration	Operating Temperature Range	Package Type	Number of Pins	Special Feature
A (SOT-26) 1. IN 2. V+ 3. GND 4. NC 5. COM 6. NO	E: -40°C to 85°C	E: SOT-2X	Y: 6	L: Low profile Z: Lead free Y: Lead free & Low profile



■ Absolute Maximum Ratings

Parameter	Maximum	Unit
V <sup>+</sup> , IN	6	V
COM, NC, NO	Note 1	V
Continuous Current COM, NC, NO	300	mA
ESD Classification	B	

Note1: Signals on COM, NC and NO can not exceed V<sup>+</sup>

Caution: Stress above the listed absolute maximum rating may cause permanent damage to the device

■ Recommended Operating Conditions

Parameter	Rating	Unit
V <sup>+</sup>	1.8 to 5.5	V
IN	CMOS, TTL Logic	V
Ambient Temperature Range	- 40 to + 85	°C
Junction Temperature Range	- 40 to + 125	°C

■ Thermal Information

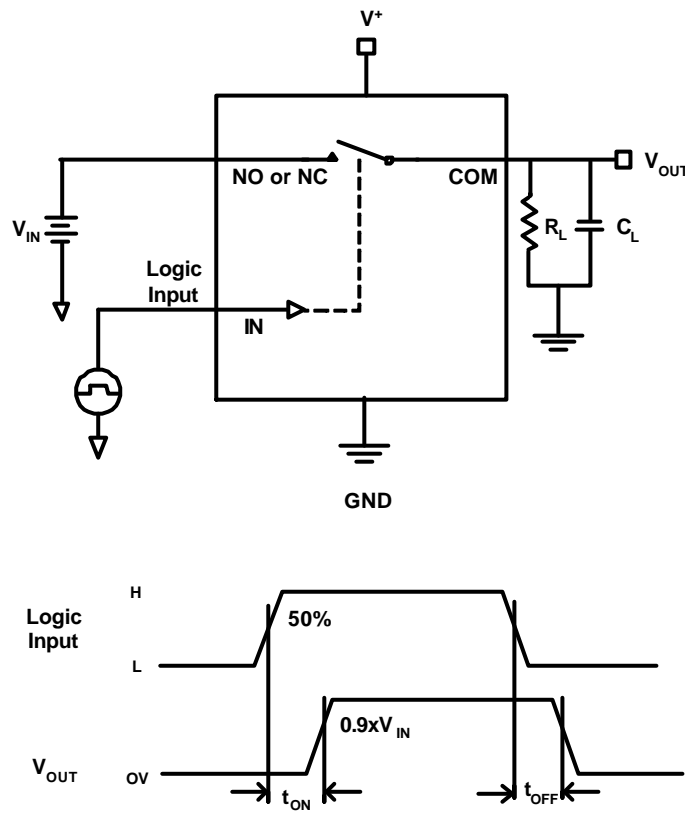
Parameter	Package	Die Attached	Symbol	Maximum	Unit
Thermal Resistance * (Junction to Case)	SOT-26	Non-Conductive	$\theta_{JC}$	140	°C / W
Thermal Resistance (Junction to Ambient)			$\theta_{JA}$	280	
Internal Power Dissipation			$P_D$	400	mW
Maximum Lead Temperature ( 10sec )				300	°C

\* Measure  $\theta_{JC}$  on center of molding compound if IC has no tab.

## ■ Electrical Specifications

$V^+ = +5V \pm 10\%$ ,  $GND = 0V$ ,  $IN_H = 2.4V$ ,  $IN_L = 0.8V$ ,  $T_A = T_{MIN}$  to  $T_{MAX}$ , unless otherwise noted.  
Typical values are at  $T_A = +25^\circ C$ .

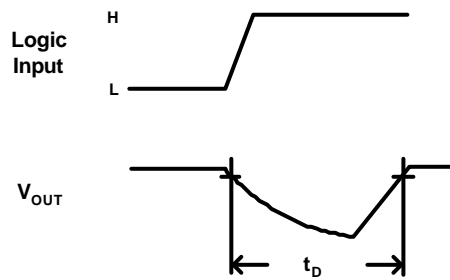
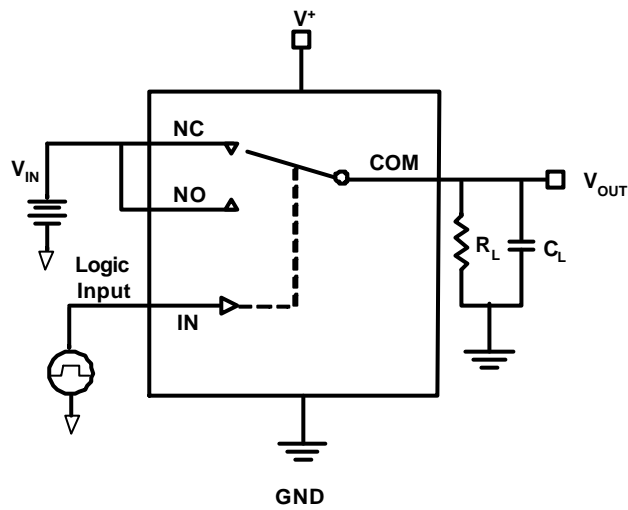
Parameter	Symbol	Test Condition	Min	Typ	Max	Units	
<b>ANALOG SWITCH</b>							
On-Resistance	$R_{ON}$	$V^+ = 4.5V$ $I_{COM} = 100mA$	$T_A = +25^\circ C$			1.0	$\Omega$
			$T_A = T_{MIN}$ to $T_{MAX}$			1.2	
On-Resistance Match between channels	$\Delta R_{on}$	$V^+ = 4.5V$ $I_{COM} = 100mA$ $V_{NO}$ or $V_{NC} = 3.5V$	$T_A = +25^\circ C$			0.12	$\Omega$
			$T_A = T_{MIN}$ to $T_{MAX}$			0.15	
On-Resistance Match Flatness	$R_{FLATE}$	$V^+ = 4.5V$ $I_{COM} = 100mA$ $V_{NO}$ or $V_{NC} = 0V, 1V, 2V$	$T_A = +25^\circ C$		0.15	0.2	$\Omega$
			$T_A = T_{MIN}$ to $T_{MAX}$			0.2	
NC or NO Off-Capaitance	$C_{OFF}$	$f=1MHz$ , $T_A=+25^\circ C$ , Figure4		30		$\mu F$	
COM On-Capacitance	$C_{COM(ON)}$	$f=1MHz$ , $T_A=+25^\circ C$ , Figure4		87		$\mu F$	
Switch Off-Leakage Current	$I_{NO(OFF)}$ $I_{NC(OFF)}$	$V^+ = 5.5V$ $V_{COM} = 1V, 4.5V$ $V_{NC}$ or $V_{NO} = 4.5V$ or $1V$	$T_A = +25^\circ C$	-0.1	0.05	0.1	$\mu A$
			$T_A = T_{MIN}$ to $T_{MAX}$	-1.0		1.0	
<b>DIGITAL I/O</b>							
Input Logic High	$IN_H$	$V^+ = 5.5V$		2.4		V	
Input Logic Low	$IN_L$				0.8		
Input Current Logic High or Low	$I_{IH}, I_{IL}$	$V_{IN} = V^+, 0V$		-1.0		$\mu A$	
<b>SWITCH DYNAMIC CHARACTERISTICS</b>							
Turn-On Time	$t_{ON}$	Figure 1	$T_A = +25^\circ C$			50	ns
			$T_A = T_{MIN}$ to $T_{MAX}$			60	
Turn-Off Time	$t_{OFF}$	Figure 1	$T_A = +25^\circ C$			50	ns
			$T_A = T_{MIN}$ to $T_{MAX}$			60	
Break-Before-Make Delay	$t_{BBM}$	AME4624 only, Figure 2	$T_A = +25^\circ C$	1	20		ns
			$T_A = T_{MIN}$ to $T_{MAX}$	1			
Make-Before-Break Delay	$t_{MBS}$	AME4625 only, Figure 3	$T_A = +25^\circ C$	1	3		ns
			$T_A = T_{MIN}$ to $T_{MAX}$	1			
<b>POWER SUPPLY</b>							
Power Supply Range	$V^+$		$T_A = T_{MIN}$ to $T_{MAX}$	1.8		5.5	V
$V^+$ Supply Current	$I^+$	$V^+ = 5.5V$ , $IN = 0V$ or $V^+$	$T_A = T_{MIN}$ to $T_{MAX}$			10.0	$\mu A$

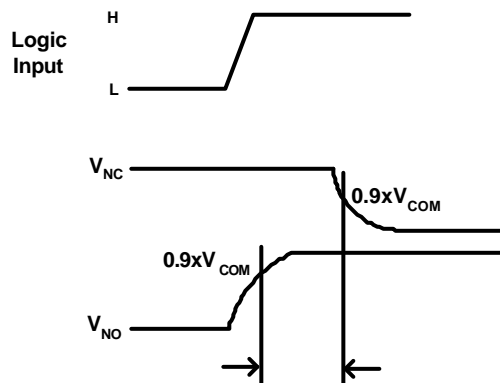
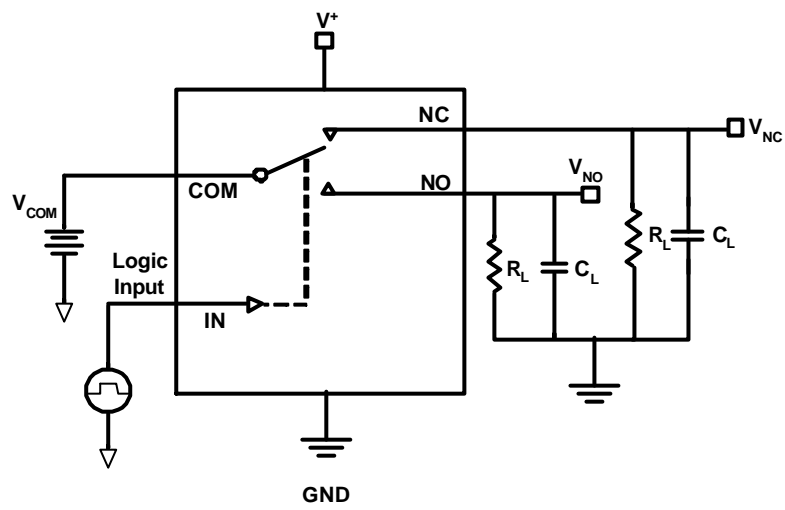
**■ Timing Diagrams**
**Figure 1. Switching Time (AME4624 / AME4625)**




■ Timing Diagrams (contd.)

Figure 2. Break-Before-Make Interval (AME4624)



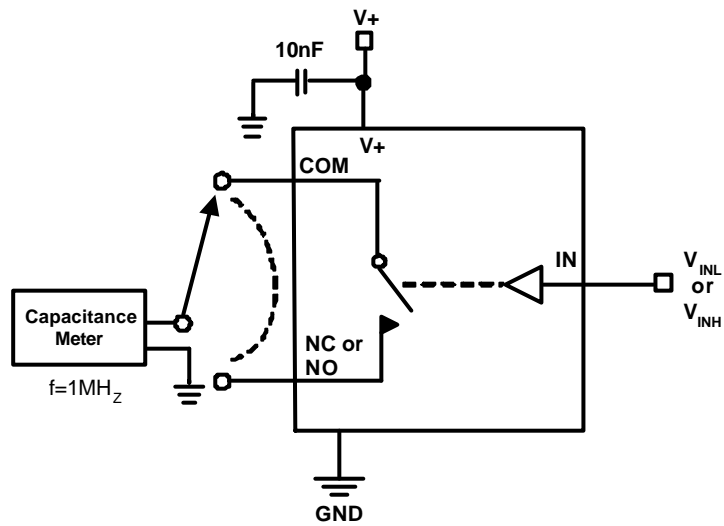
**■ Timing Diagrams (contd.)**
**Figure 3. Make-Before-Break Interval (AME4625)**






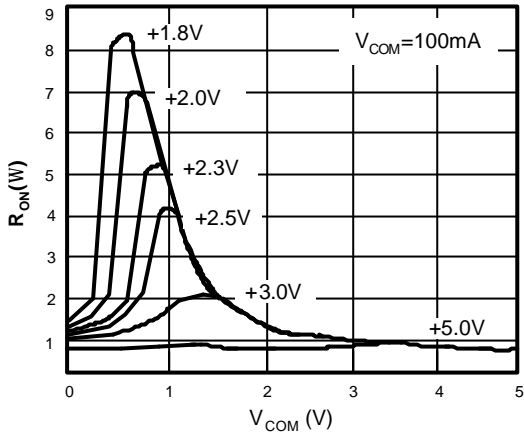
■ Timing Diagrams

Figure 4. Channel Off / On Capacitance

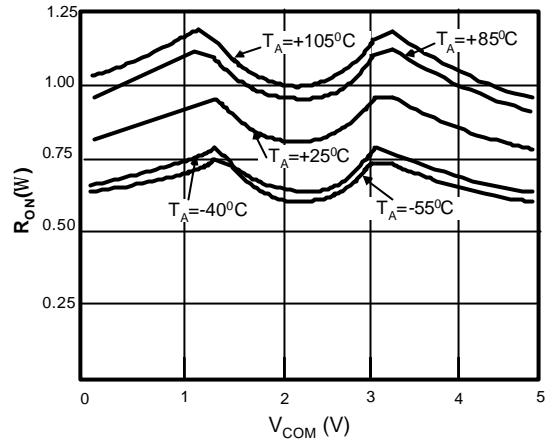




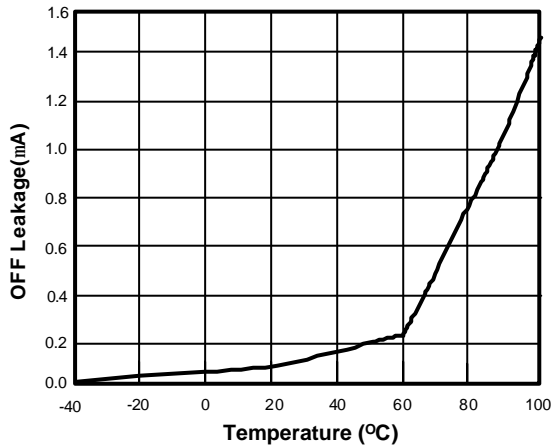
Ron vs. COM Voltage over Supply Voltage



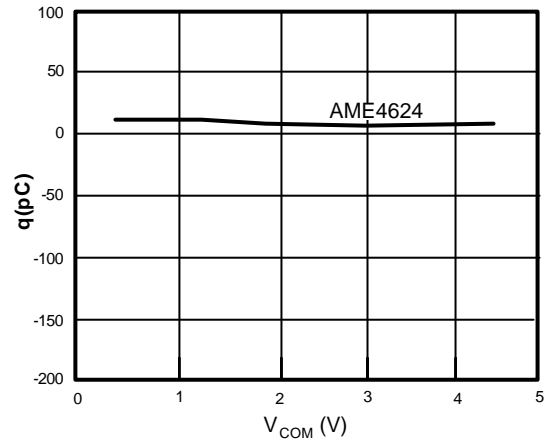
Ron vs. COM Voltage over Temperature



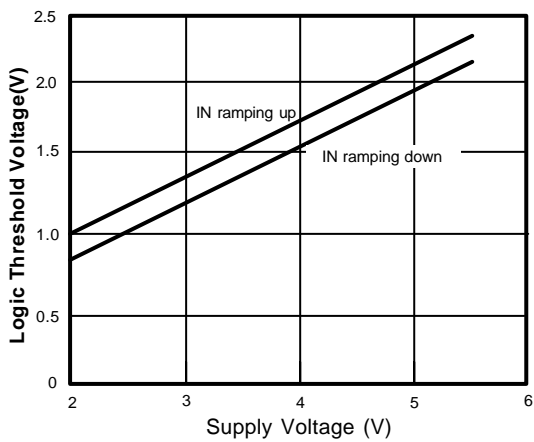
OFF Leakage vs. Temperature



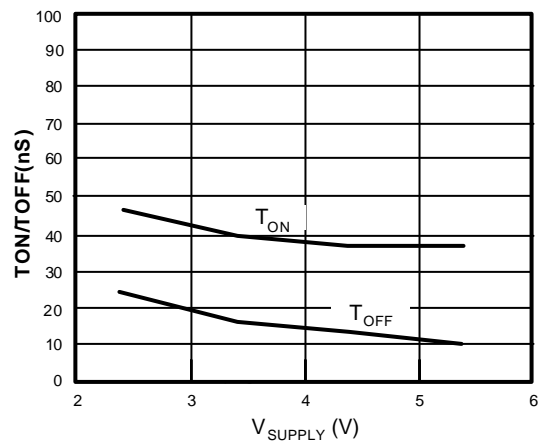
Charge Injection vs. COM Voltage (NC pin)

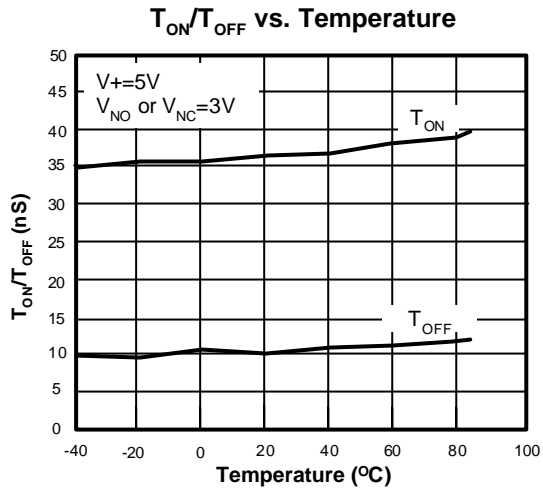


Logic Threshold Voltage vs. Supply Voltage



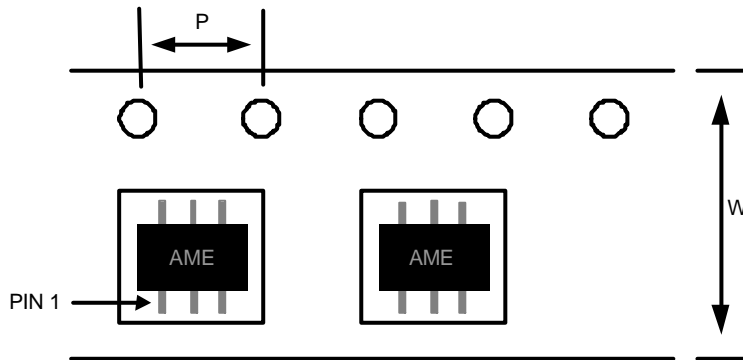
TURN-ON/OFF Time vs. Supply Voltage





**AME4624/4625**
**■ Date Code Rule**

Marking			Date Code		Year
A	A	A	W	W	xxx0
A	A	A	W	<u>W</u>	xxx1
A	A	A	<u>W</u>	W	xxx2
A	A	A	<u>W</u>	<u>W</u>	xxx3
A	A	<u>A</u>	W	W	xxx4
A	A	<u>A</u>	W	<u>W</u>	xxx5
A	A	<u>A</u>	<u>W</u>	W	xxx6
A	A	<u>A</u>	<u>W</u>	<u>W</u>	xxx7
A	<u>A</u>	A	W	W	xxx8
A	<u>A</u>	A	W	<u>W</u>	xxx9

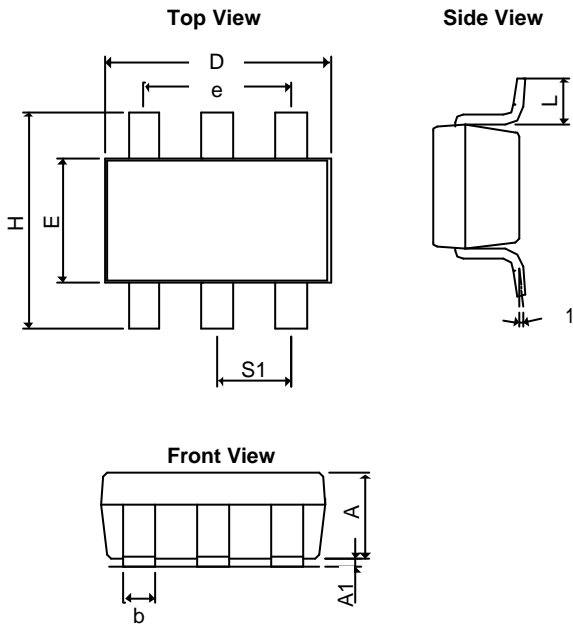
**■ Tape & Reel Dimension**

**Carrier Tape, Number of Components Per Reel and Reel Size**

Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
SOT-26	8.0±0.1 mm	4.0±0.1 mm	3000pcs	180±1 mm
TSOT-26	8.0±0.1 mm	4.0±0.1 mm	3000pcs	180±1 mm



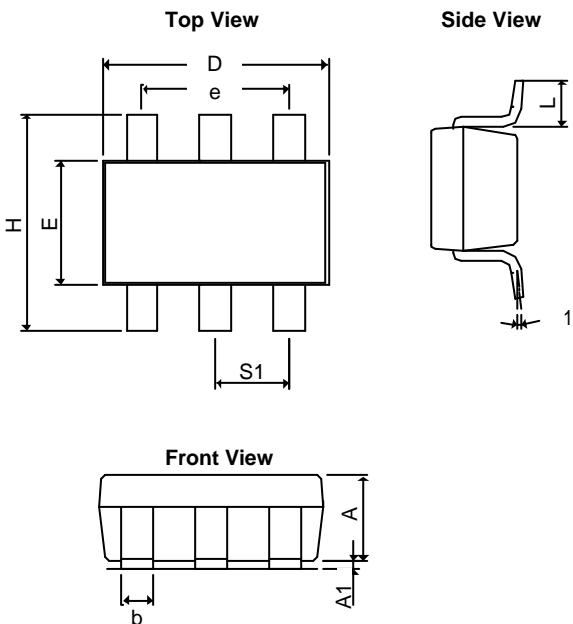
■ Package Dimension

TSOT-26



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
$A+A_1$	0.90	1.25	0.0354	0.0492
$b$	0.30	0.50	0.0118	0.0197
$c$	0.09	0.25	0.0035	0.0098
$D$	2.70	3.10	0.1063	0.1220
$E$	1.40	1.80	0.0551	0.0709
$e$	1.90 BSC		0.07480 BSC	
$H$	2.40	3.00	0.09449	0.11811
$L$	0.35BSC		0.0138BSC	
$q1$	$0^\circ$	$10^\circ$	$0^\circ$	$10^\circ$
$S_1$	0.95BSC		0.0374BSC	

SOT-26



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
$A$	1.20REF		0.0472REF	
$A_1$	0.00	0.15	0.0000	0.0059
$b$	0.30	0.55	0.0118	0.0217
$D$	2.70	3.10	0.1063	0.1220
$E$	1.40	1.80	0.0551	0.0709
$e$	1.90 BSC		0.0748 BSC	
$H$	2.60	3.00	0.10236	0.11811
$L$	0.37REF		0.0146REF	
$q1$	$0^\circ$	$10^\circ$	$0^\circ$	$10^\circ$
$S_1$	0.95REF		0.0374REF	



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