

## ■ 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,  $t_{ON} = t_{OFF} = 50nS$  max.

AME4624/AME4625 are available in SOT-26 & TSOT-26.

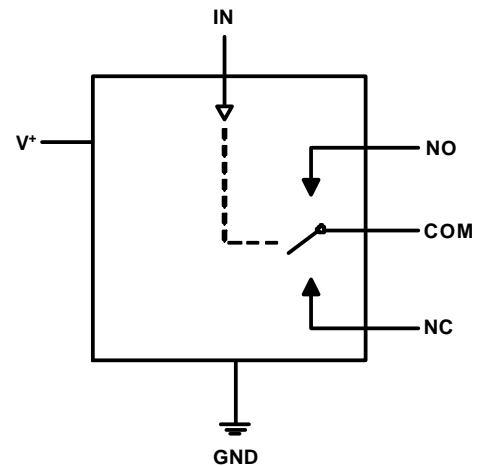
## ■ Features

- Low  $R_{ON}$
- Wide Operation Supply Voltage: 1.8V to 5.5V
- Fast Switching Time:  $t_{ON} = t_{OFF} = 50nS$  max.
- TTL-Logic Compatible
- Pin Compatible with MAX4624/MAX4625
- High Bandwidth: 220 MHz(typ.)
- Guaranteed Break-Before-Make(AME4624)
- Guaranteed Make-Before-Break(AME4625)
- All AME's Lead Free Products Meet RoHS Standards

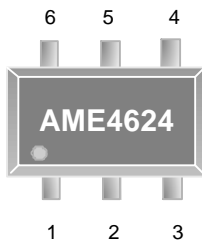
## ■ Applications

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

## ■ Functional Block Diagram

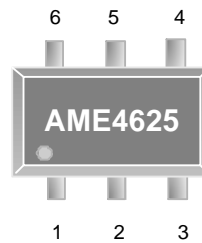


In Logic	NC	NO
0	ON	OFF
1	OFF	ON

**AME4624/4625**
**■ Pin Configuration**
**SOT-26/TSOT-26  
Top View**

**AME4624AEEY**

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

**\*Die Attach  
Non-Conductive Epoxy**

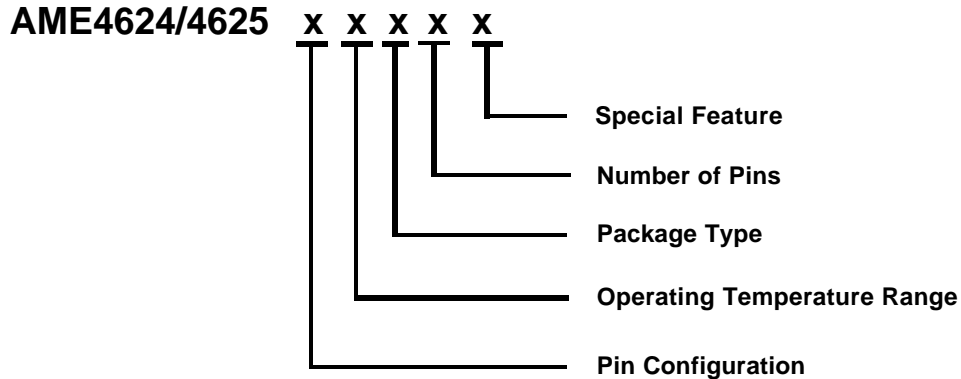
**SOT-26/TSOT-26  
Top View**

**AME4625AEEY**

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

**\*Die Attach  
Non-Conductive Epoxy**

**■ 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**


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

**■ Ordering Information**

Part Number	Marking*	Activity Mode	Package	Operating Ambient Temperature 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 on Package Dimension.

\* A line on top of the first letter represents lead free plating such as  $\bar{A}$ ZL

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

### ■ 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.

\* HBM B:2000~3999V

### ■ Recommended Operating Conditions

Parameter	Symbol	Rating	Unit
Ambient Temperature Range	T <sub>A</sub>	- 40 to 85	°C
Junction Temperature Range	T <sub>J</sub>	- 40 to 125	°C
Storage Temperature Range	T <sub>STG</sub>	- 65 to 150	°C
V <sup>+</sup>		1.8 to 5.5	V
IN		CMOS, TTL Logic	V

### ■ Thermal Information

Parameter	Package	Die Attach	Symbol	Maximum	Unit
Thermal Resistance* (Junction to Case)	SOT-26 TSOT-26	Non-Conductive Epoxy	θ <sub>JC</sub>	140	°C / W
Thermal Resistance (Junction to Ambient)			θ <sub>JA</sub>	280	°C / W
Internal Power Dissipation			P <sub>D</sub>	400	mW
Maximum Junction Temperature				150	°C
Solder Iron(10 Sec)**				350	°C

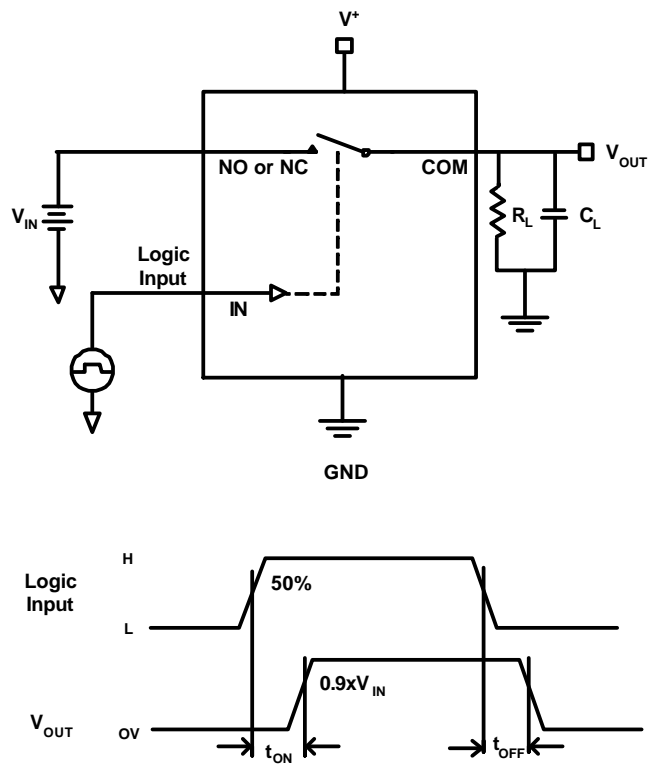
\* Measure θ<sub>JC</sub> on center of molding compound if IC has no tab.

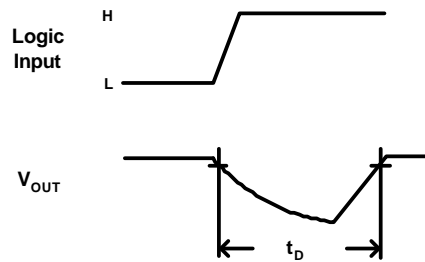
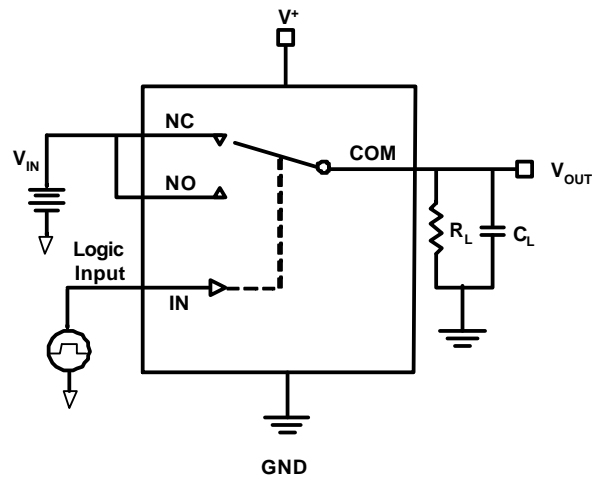
\*\* MIL-STD-202G 210F

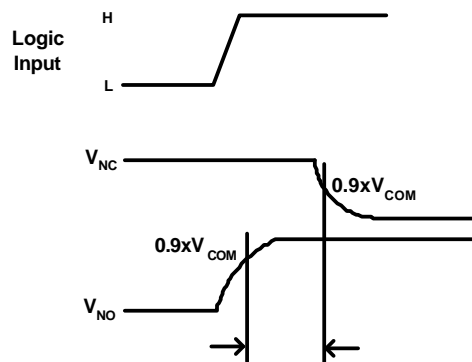
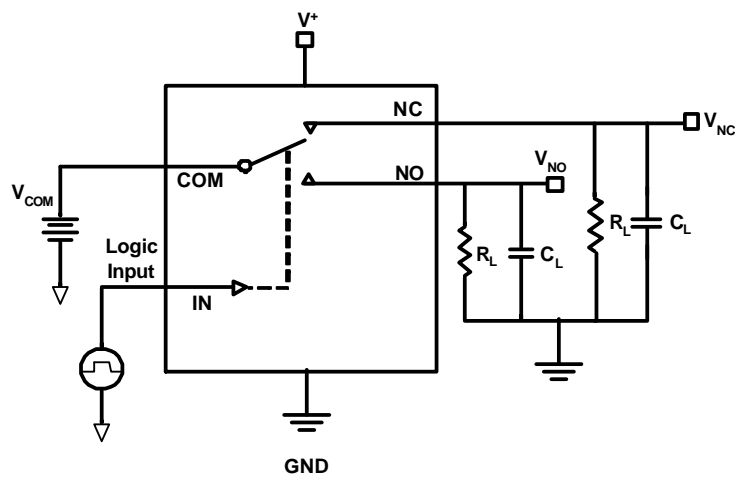
## ■ Electrical Specifications

$V^+ = +5V \pm 10\%$ ,  $GND = 0V$ ,  $IN_H = 2.4V$ ,  $IN_L = 0.8V$ ,  $T_A = T_{MIN}$  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		pF	
COM On-Capacitance	$C_{COM(ON)}$	$f=1MHz$ , $T_A=+25^\circ C$ , Figure4		87		pF	
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		1.0	$\mu A$	
<b>SWITCH DYNAMIC CHARACTERISTICS</b>							
Turn-On Time	$t_{ON}$	Figure 2	$T_A = +25^\circ C$		50	ns	
			$T_A = T_{MIN}$ to $T_{MAX}$		60		
Turn-Off Time	$t_{OFF}$	Figure 2	$T_A = +25^\circ C$		50	ns	
			$T_A = T_{MIN}$ to $T_{MAX}$		60		
-3dB Bandwidth	BW	$R_L=50\Omega$	$T_A=+25^\circ C$	220		MHz	
<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)**


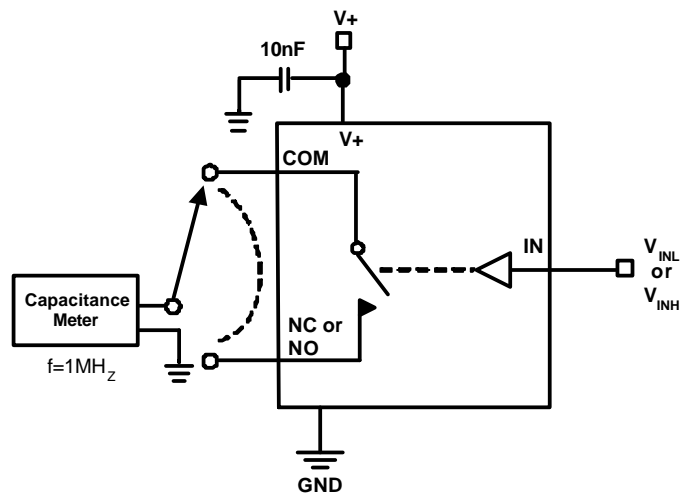
**■ Timing Diagrams (contd.)**
**Figure 2. Break-Before-Make Interval (AME4624)**


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




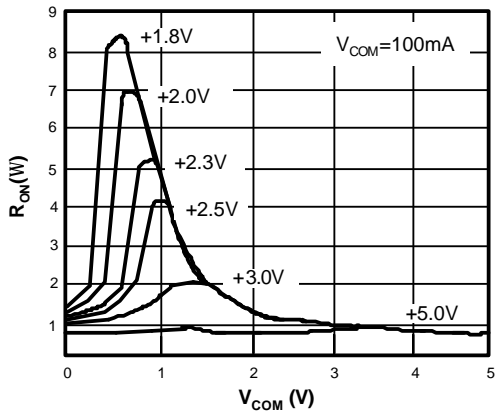
■ Timing Diagrams

Figure 4. Channel Off / On Capacitance

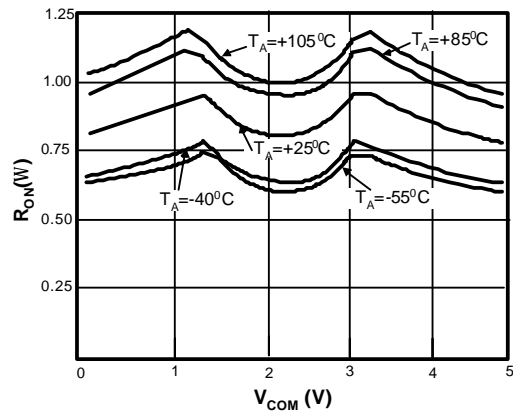


## AME4624/4625

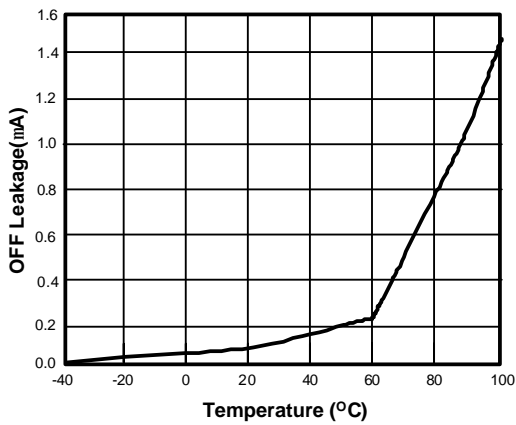
**R<sub>on</sub> vs. COM Voltage over Supply Voltage**



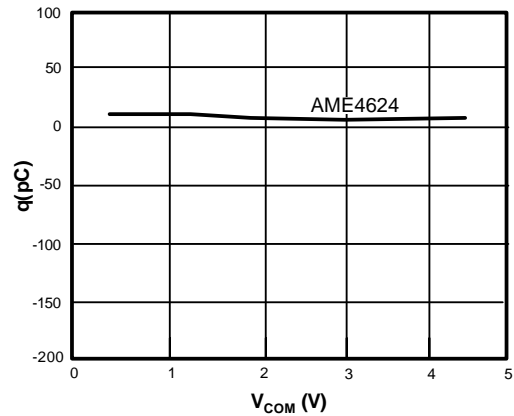
**R<sub>on</sub> vs. COM Voltage over Temperature**



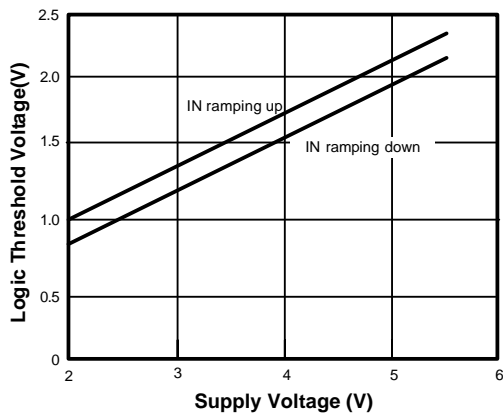
**OFF Leakage vs. Temperature**



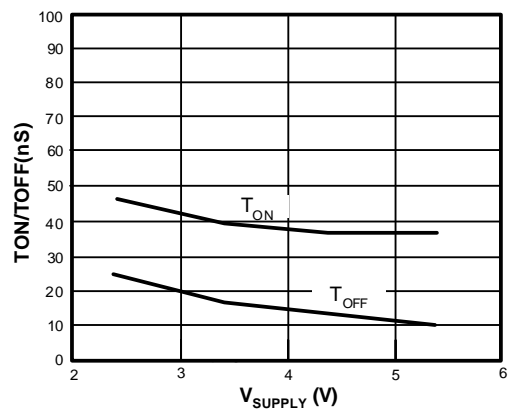
**Charge Injection vs. COM Voltage (NC pin)**

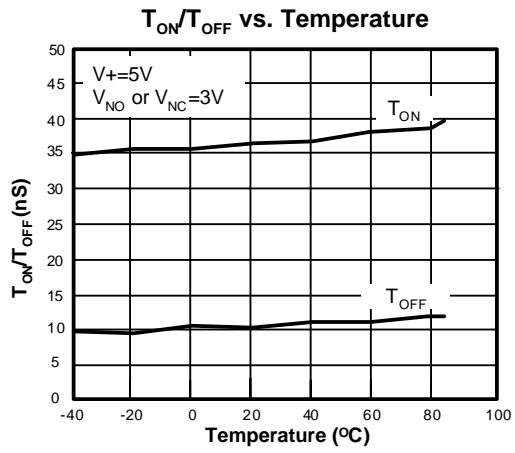


**Logic Threshold Voltage vs. Supply Voltage**



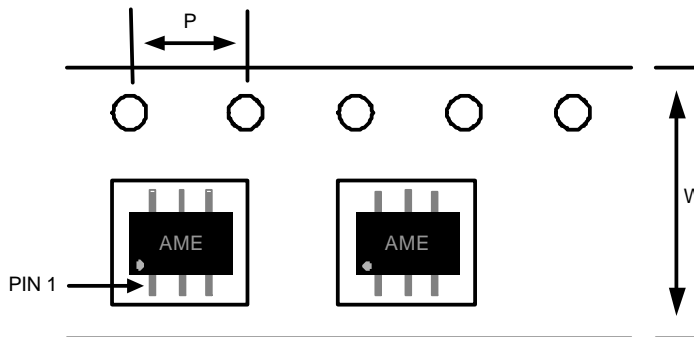
**TURN-ON/OFF Time vs. Supply Voltage**



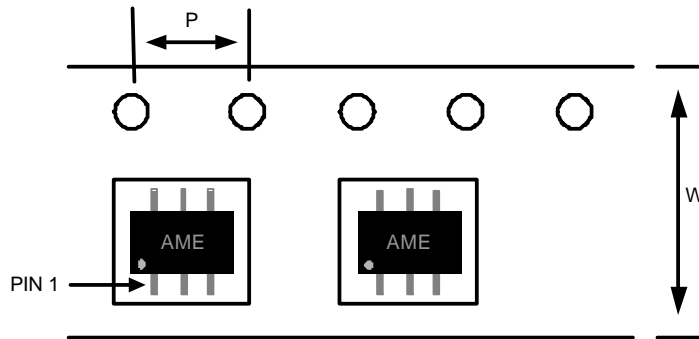


**AME4624/4625**
**■ Date Code Rule**

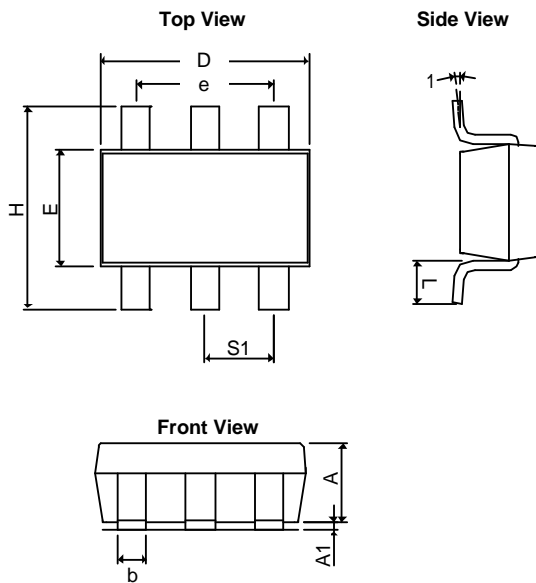
Marking			Date Code		Year
A	A	A	W	W	xxx0
A	A	A	W	<u>W</u>	xxx1
A	A	A	<u>W</u>	W	xxx2
A	A	A	<u>W</u>	<u>W</u>	xxx3
A	A	<u>A</u>	W	W	xxx4
A	A	<u>A</u>	W	<u>W</u>	xxx5
A	A	<u>A</u>	<u>W</u>	W	xxx6
A	A	<u>A</u>	<u>W</u>	<u>W</u>	xxx7
A	<u>A</u>	A	W	W	xxx8
A	<u>A</u>	A	W	<u>W</u>	xxx9

**■ Tape & Reel Dimension**
**SOT-26**

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

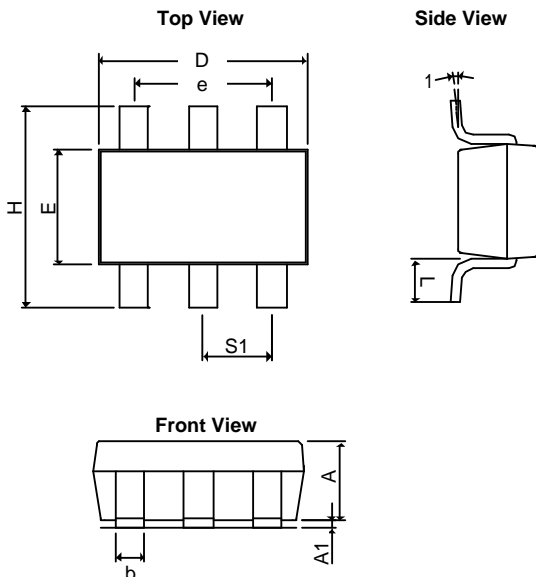
Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
SOT-26	8.0±0.1 mm	4.0±0.1 mm	3000pcs	180±1 mm

**■ Tape & Reel Dimension**
**TSOT-26**

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

Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
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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