

■ 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.

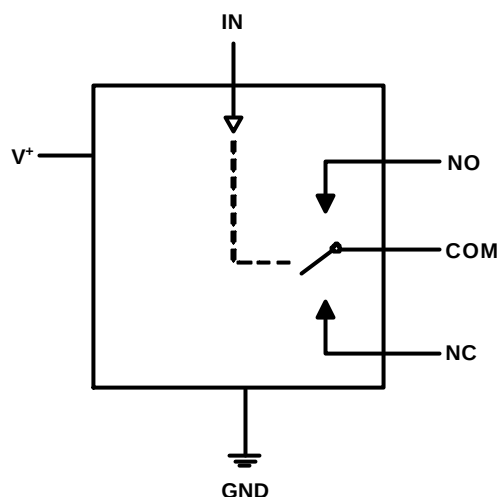
■ Features

- 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
- 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

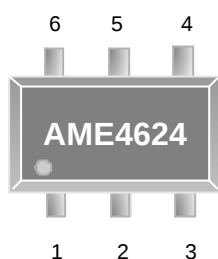
■ Functional Block Diagram



In Logic	NC	NO
0	ON	OFF
1	OFF	ON

■ Pin Configuration

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

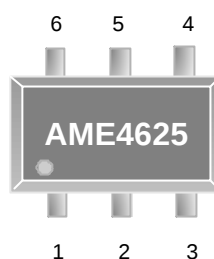


AME4624AEEY

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

***Die Attach
Non-Conductive Epoxy**

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



AME4625AEEY

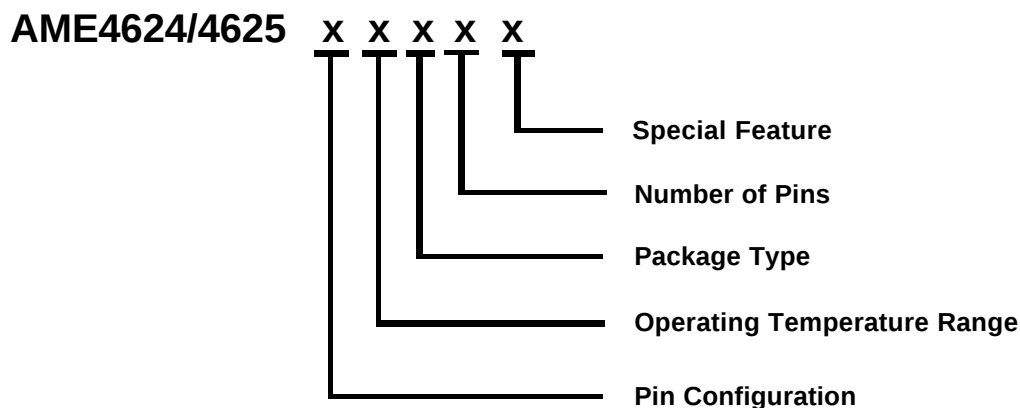
1. IN
2. V+
3. GND
4. NC
5. COM
6. NO

***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 $\overline{\text{A}}\text{ZL}$

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

■ Absolute Maximum Ratings

Parameter	Maximum	Unit
V^+ , 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^+

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_A	- 40 to +85	°C
Junction Temperature Range	T_J	- 40 to +125	°C
Storage Temperature Range	T_{STG}	- 65 to +150	°C
V^+	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_{JC}	140	°C / W
Thermal Resistance (Junction to Ambient)			θ_{JA}	280	°C / W
Internal Power Dissipation			P_D	400	mW
Maximum Junction Temperature				150	°C
Solder Iron(10 Sec)**				350	°C

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

** MIL-STD-202G 210F

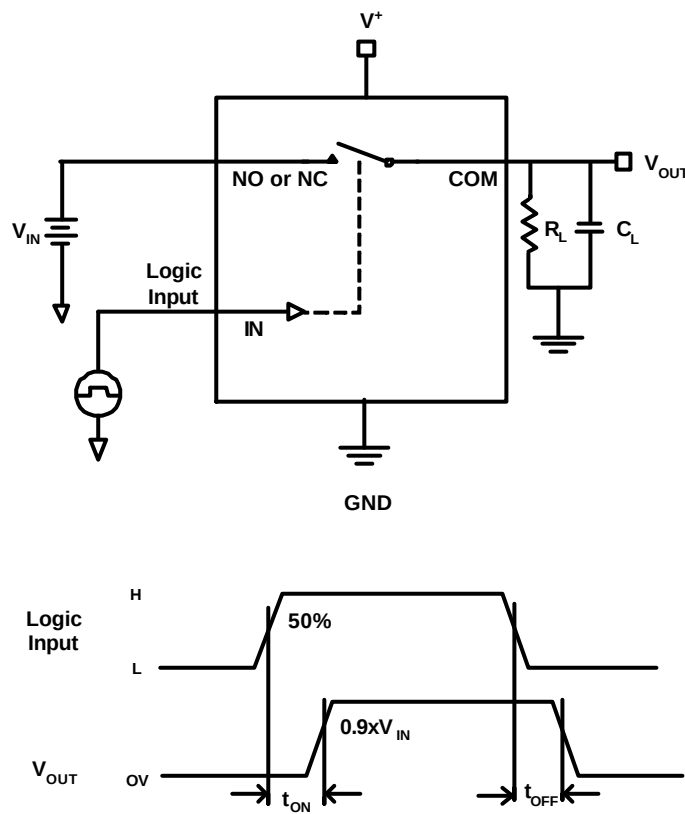
■ Electrical Specifications

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Units	
ANALOG SWITCH							
On-Resistance	R _{ON}	V ⁺ = 4.5V I _{COM} = 100mA	T _A = +25 °C			1.0	Ω
			T _A = T _{MIN} to T _{MAX}			1.2	
On-Resistance Match between channels	ΔRon	V ⁺ = 4.5V I _{COM} = 100mA V _{NO} or V _{NC} = 3.5V	T _A = +25 °C			0.12	Ω
			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 °C		0.15	0.2	Ω
			T _A = T _{MIN} to T _{MAX}			0.2	
NC or NO Off-Capaitance	C _{OFF}	f=1MHz, T _A =+25 °C, Figure4		30		pF	
COM On-Capacitance	C _{COM(ON)}	f=1MHz, T _A =+25 °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 °C	-0.1	0.05	0.1	μA
			T _A = T _{MIN} to T _{MAX}	-1.0		1.0	
DIGITAL I/O							
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	μA	
SWITCH DYNAMIC CHARACTERISTICS							
Turn-On Time	t _{ON}	Figure 2	T _A = +25 °C			50	ns
			T _A = T _{MIN} to T _{MAX}			60	
Turn-Off Time	t _{OFF}	Figure 2	T _A = +25 °C			50	ns
			T _A = T _{MIN} to T _{MAX}			60	
-3dB Bandwidth	BW	R _L =50Ω	T _A =+25°C		220		MHz
POWER SUPPLY							
Power Supply Range	V ⁺		T _A = T _{MIN} to T _{MAX}	1.8		5.5	V
V ⁺ Supply Current	I ⁺	V ⁺ = 5.5V, I _N = 0V or V ⁺	T _A = T _{MIN} to T _{MAX}			10.0	μA

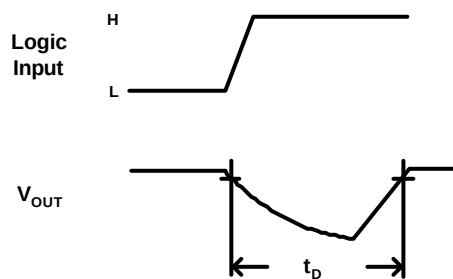
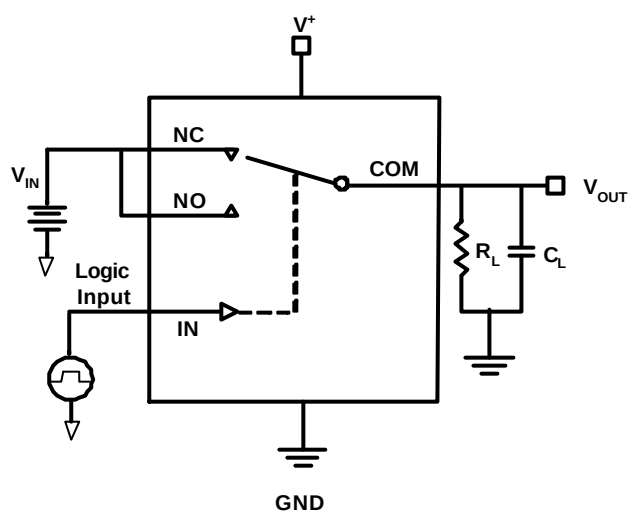
■ Timing Diagrams

Figure 1. Switching Time (AME4624 / AME4625)



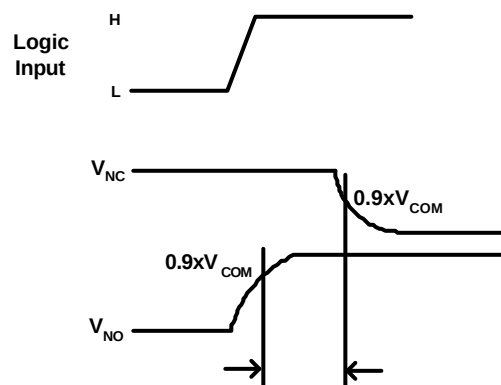
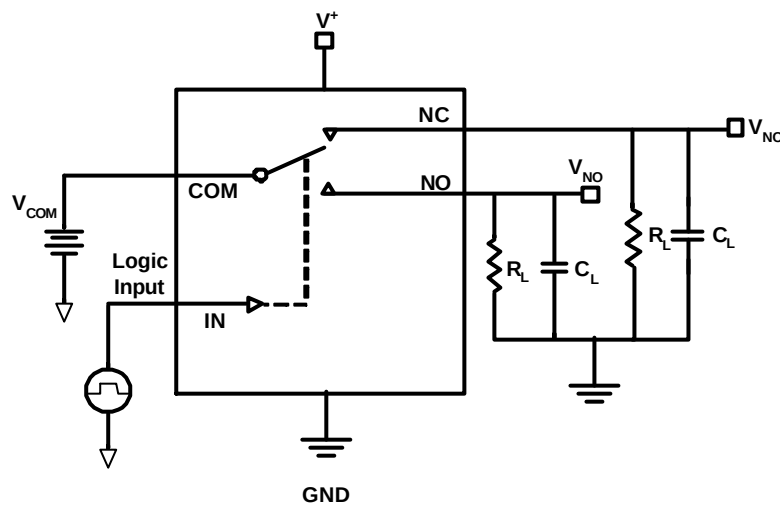
■ Timing Diagrams (contd.)

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



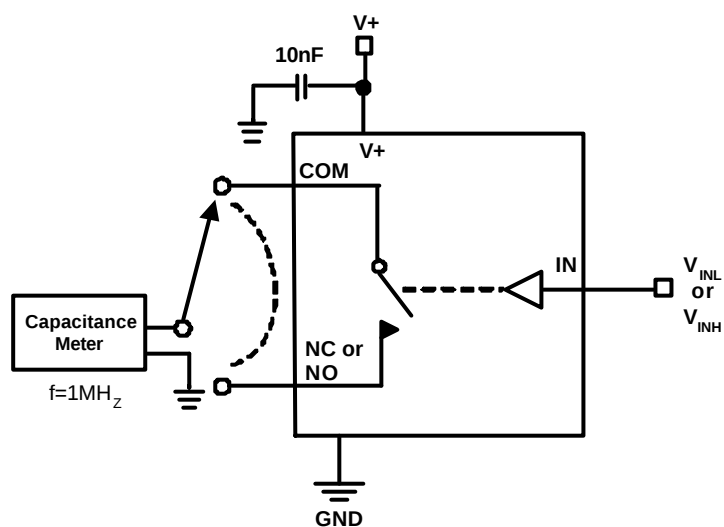
■ Timing Diagrams (contd.)

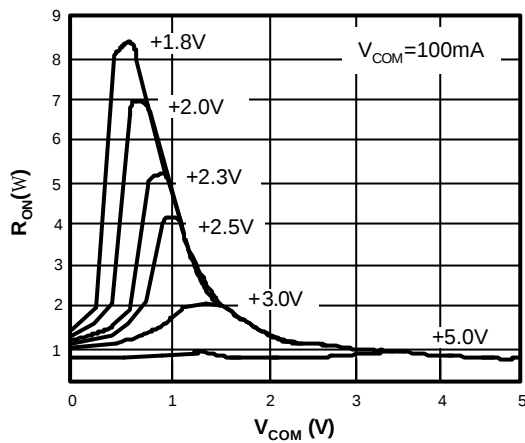
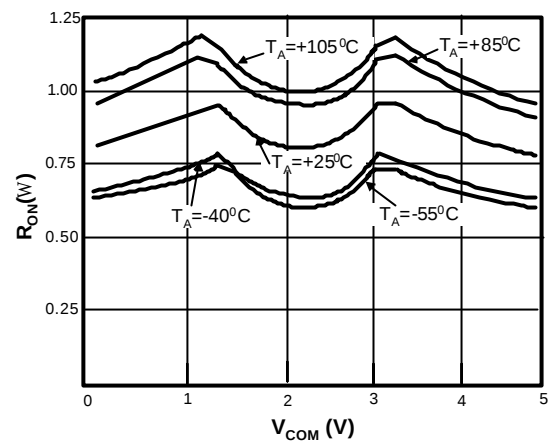
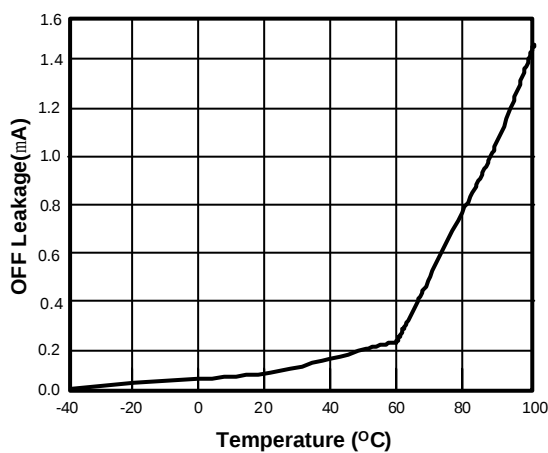
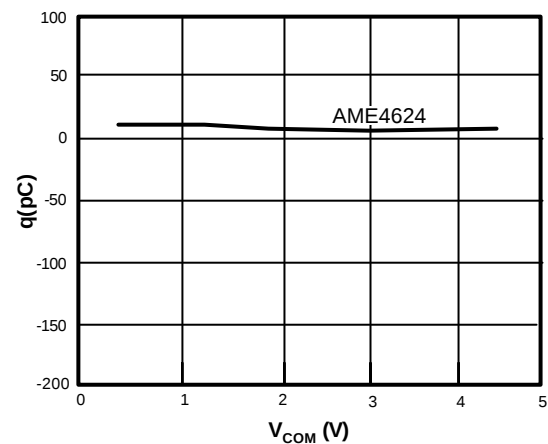
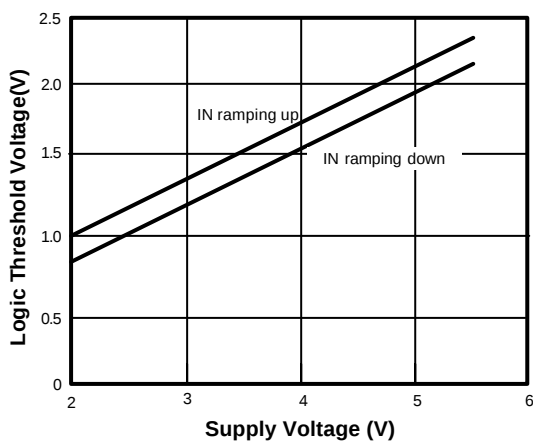
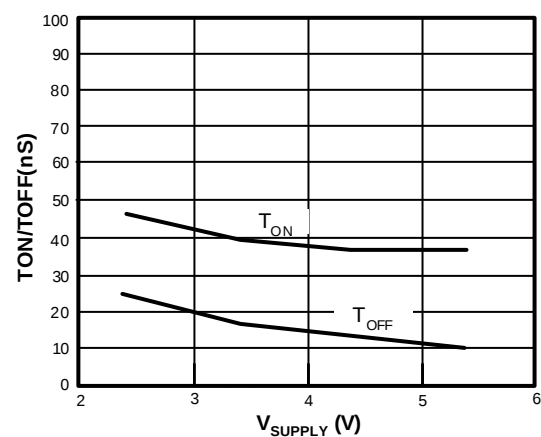
Figure 3. Make-Before-Break Interval (AME4625)

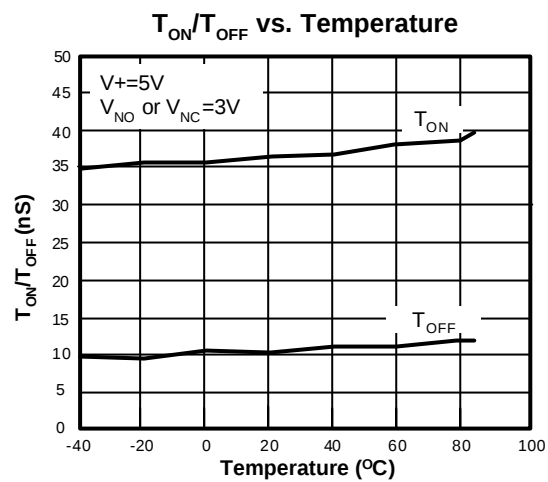


■ Timing Diagrams

Figure 4. Channel Off / On Capacitance



R_{on} vs. COM Voltage over Supply Voltage

R_{on} 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


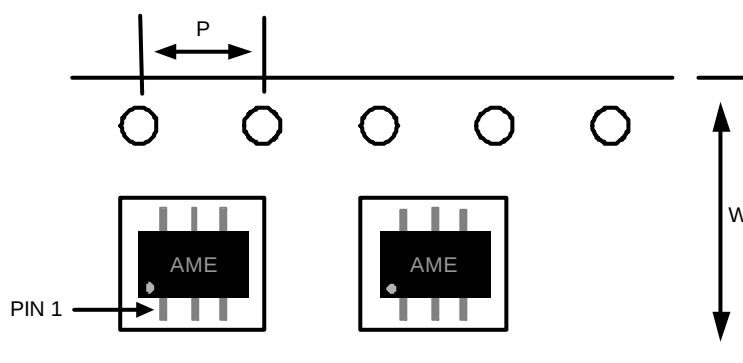


■ Date Code Rule

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

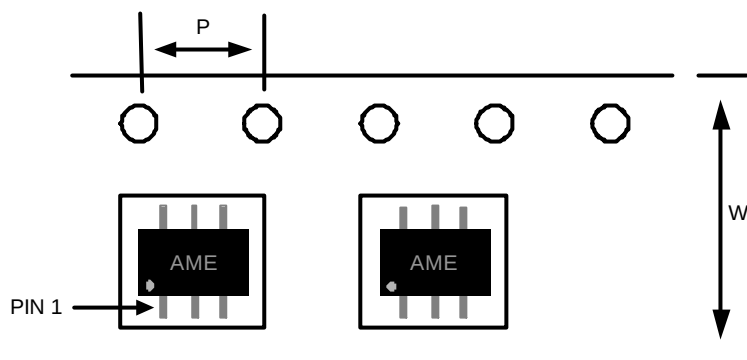


Carrier Tape, Number of Components Per Reel and Reel Size

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

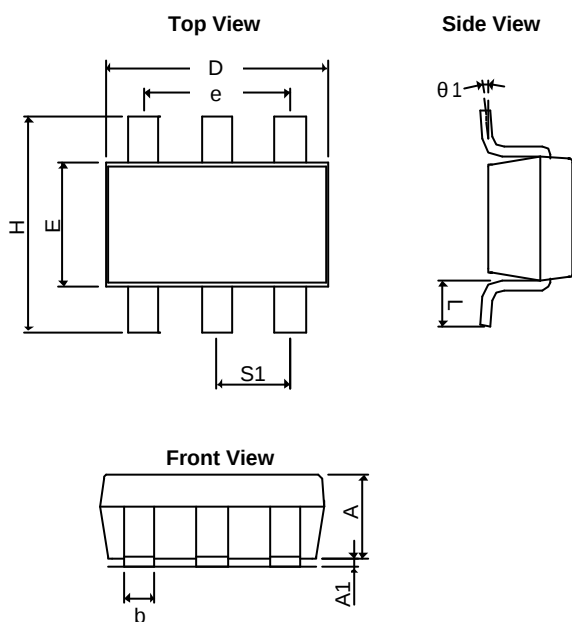


Carrier Tape, Number of Components Per Reel and Reel Size

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

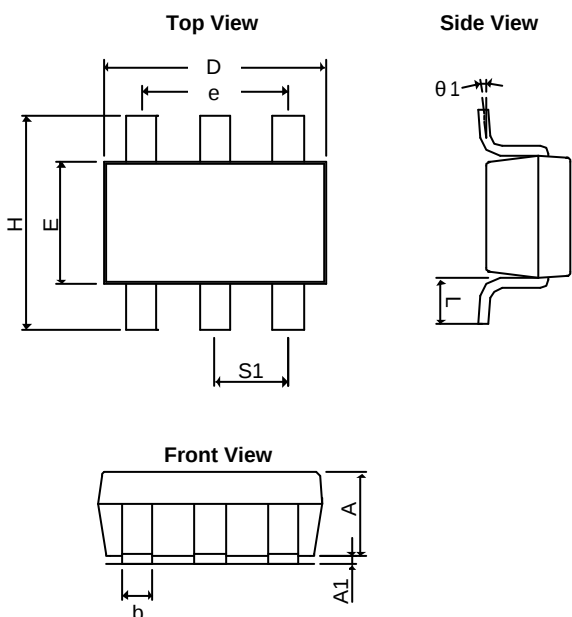
■ Package Dimension

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°	10°	0°	10°
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°	10°	0°	10°
S_1	0.95REF		0.0374REF	



www.ame.com.tw
E-Mail: sales@ame.com.tw

Life Support Policy:

These products of AME, Inc. are not authorized for use as critical components in life-support devices or systems, without the express written approval of the president of AME, Inc.

AME, Inc. reserves the right to make changes in the circuitry and specifications of its devices and advises its customers to obtain the latest version of relevant information.

© AME, Inc. , November 2008

Document: 2079-DS4624/4625-H.03

Corporate Headquarter

AME, Inc.

2F, 302 Rui-Guang Road, Nei-Hu District

Taipei 114, Taiwan .

Tel: 886 2 2627-8687

Fax: 886 2 2659-2989