



DESCRIPTION

The AM8205 is the Dual N-Channel logic enhancement mode power field effect transistor which is produced using high cell density. Advanced trench technology to provide excellent $R_{DS(ON)}$.

This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, and low in-line power loss are needed in a very small outline surface mount package.

The AM8205 is available in TSSOP8 and SOT-26 Packages

ORDERING INFORMATION

Package Type	Part Number	
TSSOP-8	TMX8	AM8205TMX8R
		AM8205TMX8VR
SOT-26	E6	AM8205E6R
		AM8205E6VR
Note	R: Tape & Reel V: Green Package	
AiT provides all Pb free products Suffix " V " means Green Package		

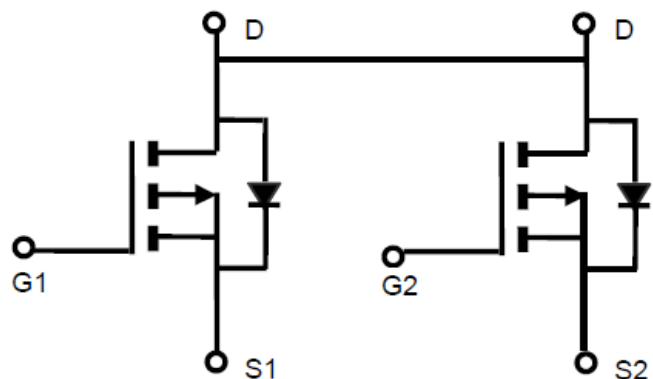
FEATURES

- TSSOP8 Package
20V / 6.0A, $R_{DS(ON)} = 20m\Omega (typ.) @ V_{GS} = 4.5V$
20V / 5.2A, $R_{DS(ON)} = 27m\Omega (typ.) @ V_{GS} = 2.5V$
- SOT-26 Package
20V / 6.0A, $R_{DS(ON)} = 22m\Omega (typ.) @ V_{GS} = 4.5V$
20V / 5.2A, $R_{DS(ON)} = 25m\Omega (typ.) @ V_{GS} = 2.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and Maximum DC current capability
- Available in TSSOP8 and SOT-26 packages.

APPLICATION

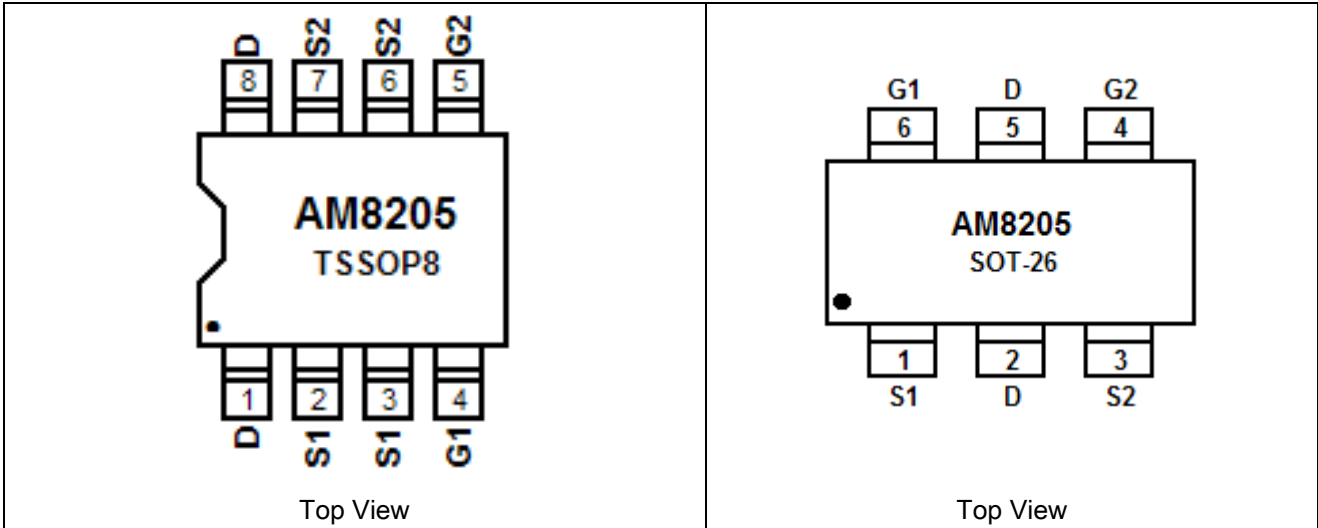
- Power Management in Note book
- Portable Equipment
- Battery Powered System

DUAL N-CHANNEL MOSFET





PIN DESCRIPTION



Pin #		Symbol	Function
TSSOP8	SOT-26		
1	2	D	Drain
2	1	S1	Source1
3		S1	Source1
4	6	G1	Gate1
5	4	G2	Gate2
6	3	S2	Source2
7		S2	Source2
8	5	D	Drain



ABSOLUTE MAXIMUM RATINGS

T_A = 25°C Unless otherwise specified

V _{DSS} , Drain-Source Voltage		20V
V _{GSS} , Gate-Source Voltage		±12V
I _D , Continuous Drain Current (T _J =150°C)	V _{GS} =4.5V	6A
I _{DM} , Pulsed Drain Current		20A
I _S , Continuous Source Current (Diode Conduction)		1A
P _D , Power Dissipation		
T _A =25°C	TSSOP8	1.5W
	SOT-26	1.25W
T _A =100°C	TSSOP8	0.9W
	SOT-26	0.8W
T _J , Operation Junction Temperature		150°C
T _{STG} , Storage Temperature Range		-55/150°C

Stresses above may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL INFORMATION

Symbol	Max	Unit
θ _{JA}	62.5	°C/W



ELECTRICAL CHARACTERISTICS

T_A = 25°C Unless otherwise noted

Parameter	Symbol	Conditions	Min	Typ	Max	Unit	
Static Parameters							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	-	1.0	V	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V	-	-	±100	nA	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V	-	-	1	μA	
		V _{DS} =16V, V _{GS} =0V T _J =85°C	-	-	30		
On-State Drain Current	I _{D(ON)}	V _{DS} ≥5V, V _{GS} =4.5V	6	-	-	A	
Drain-source On-Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =6.0A	TSSOP8	-	21	26	mΩ
			SOT-26	-	22	25	
		V _{GS} =2.5V, I _D =5.2A	TSSOP8	-	25	32	
			SOT-26	-	27	33	
Forward Transconductance	G _{fs}	V _{DS} =5V, I _D =3.6A	-	10	-	S	
Source-Drain Diode							
Diode Forward Voltage	V _{SD}	I _S =1.7A, V _{GS} =0V	-	0.8	1.3	V	
Dynamic Parameters							
Total Gate Charge	Q _g	V _{DS} =10V	-	21	29	nC	
Gate-Source Charge	Q _{gs}	V _{GS} =4.5V	-	1.3	-		
Gate-Drain Charge	Q _{gd}	I _D =6A	-	3.3	-		
Input Capacitance	C _{iss}	V _{DS} =10V	-	595	-	pF	
Output Capacitance	C _{oss}	V _{GS} =0V	-	140	-		
Reverse Transfer Capacitance	C _{rss}	f=1MHz	-	125	-		
Turn-On Time	t _{d(on)}	V _{DD} =10V	-	3.5	7	nS	
	t _r	R _L =10Ω	-	13.5	25		
Turn-Off Time	t _{d(off)}	I _D =1.0A	-	32	58		
	T _f	V _{GEN} =4.5V R _G =6Ω	-	6.6	13		

NOTE: 1. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%

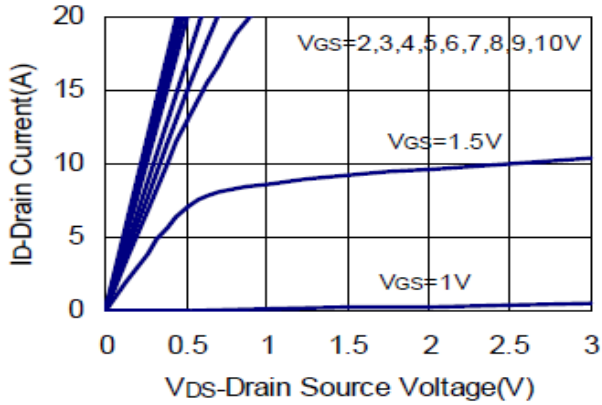
2. Static parameters are based on package level with recommended wire-bonding



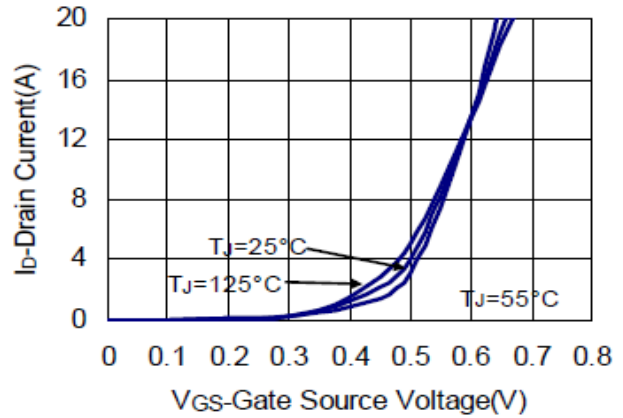
TYPICAL CHARACTERISTICS

$T_A=25^\circ\text{C}$ Unless specified

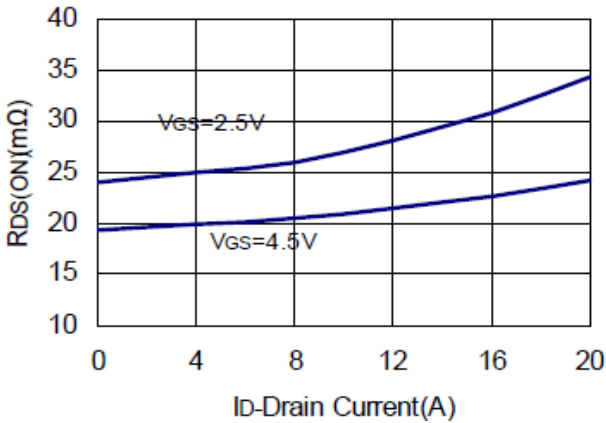
1. Output Characteristics



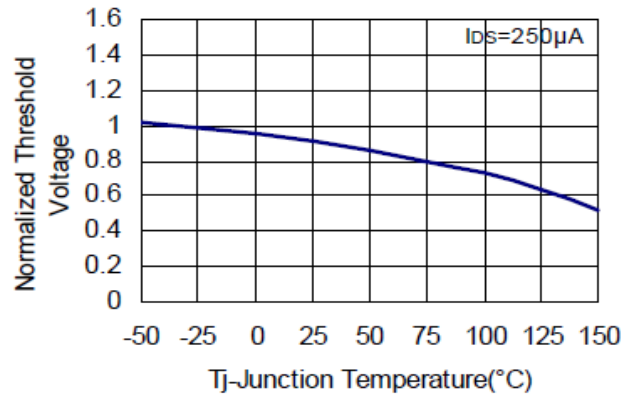
2. Drain Current vs. VGS Voltage



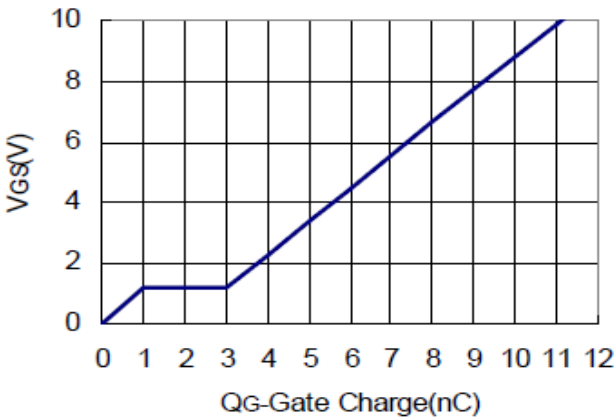
3. Transfer Characteristics



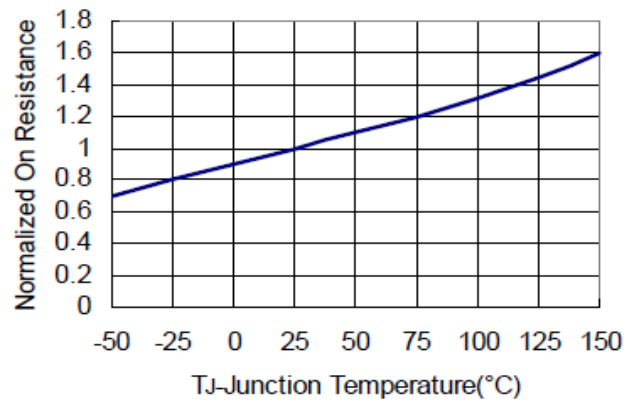
4. Gate Threshold Voltage



5. Gate Charge

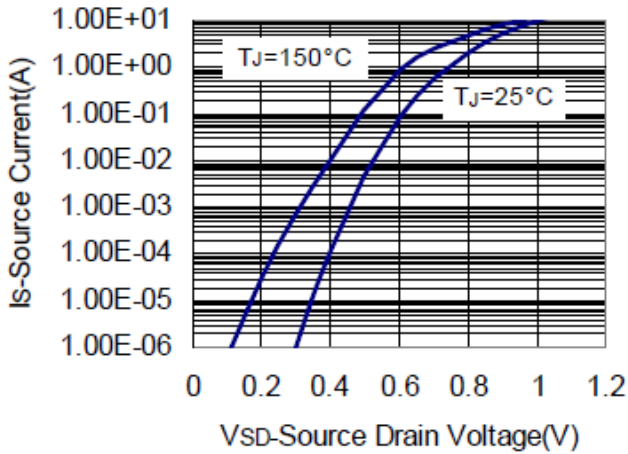


6. On Resistance vs. Junction Temperature

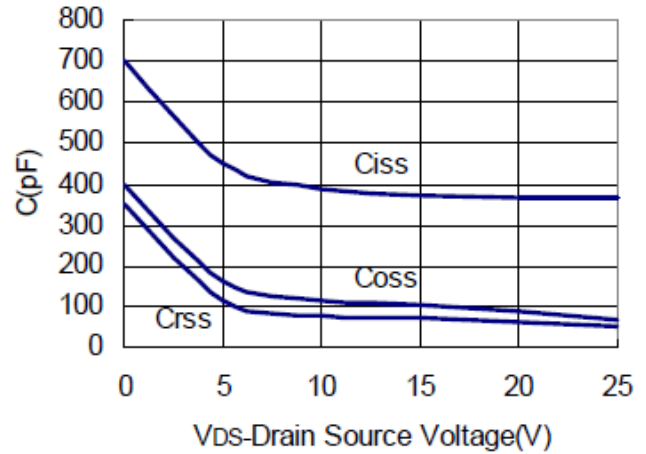




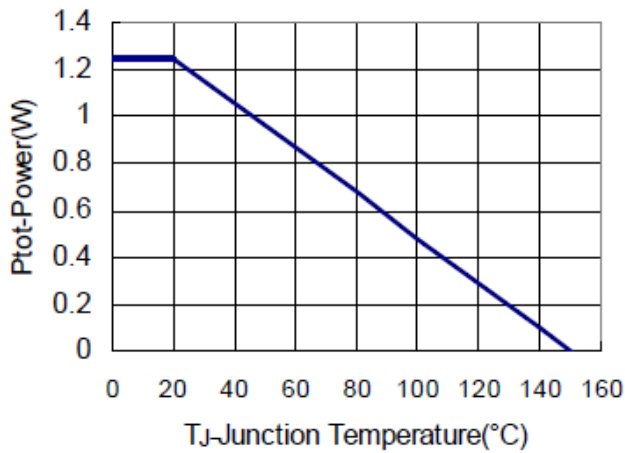
7. Source Drain Diode Forward



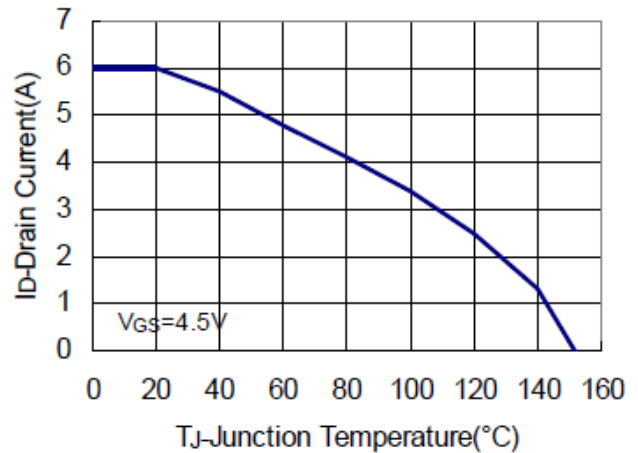
8. Capacitance Characteristics



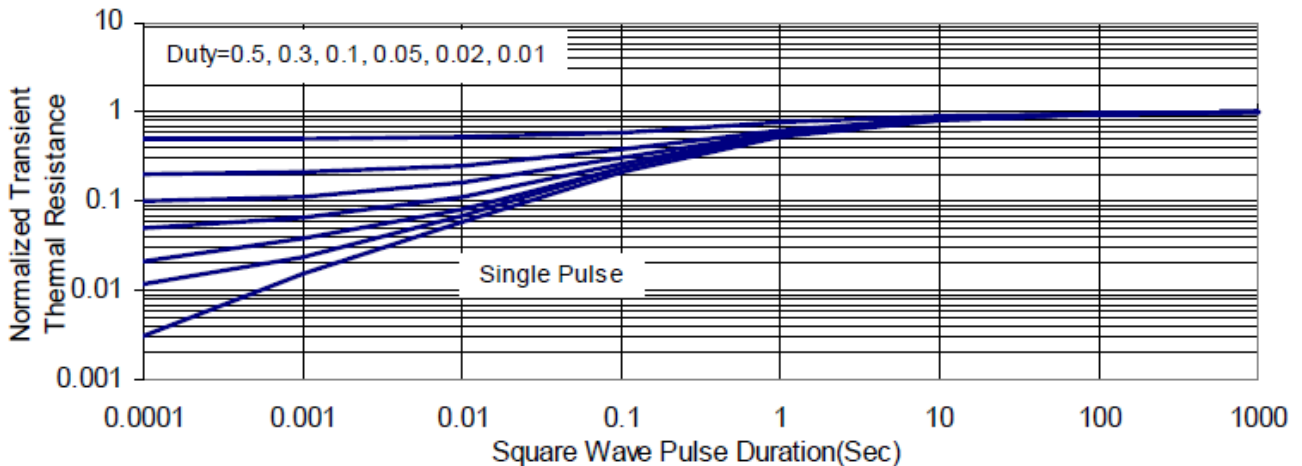
9. Power Dissipation



10. Drain Current vs. Junction Temperature



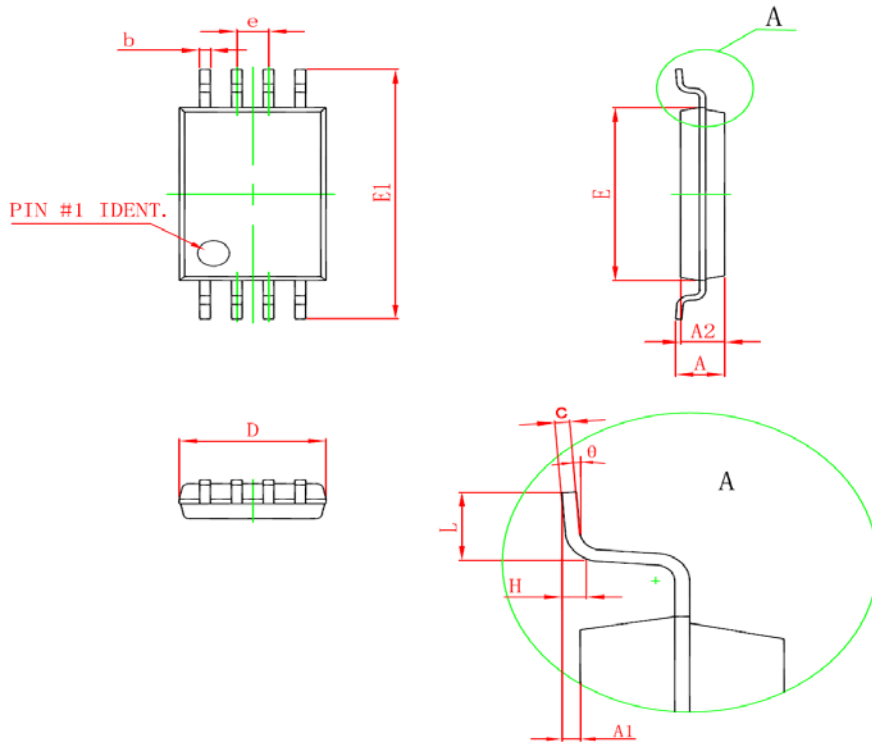
11. Thermal Transient Impedance





PACKAGE INFORMATION

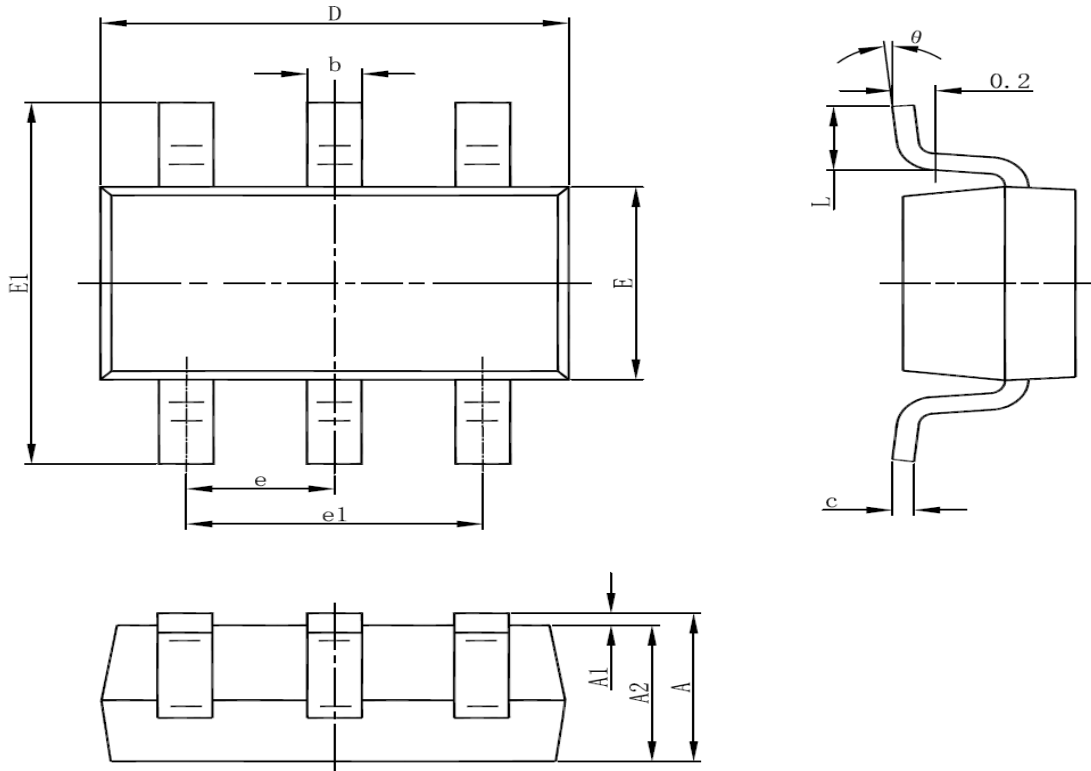
Dimension in TSSOP8 Package (Unit: mm)



Symbol	Min	Max
D	2.900	3.100
E	4.300	4.500
b	0.190	0.300
c	0.090	0.200
E1	6.250	6.550
A	-	1.100
A2	0.800	1.000
A1	0.020	0.150
e	0.65 (BSC)	
L	0.500	0.700
H	0.25(TYP)	
θ	1°	7°



Dimension in SOT-26 Package (Unit: mm)



SYMBOL	MIN	MAX
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.820	3.020
E	1.500	1.700
E1	2.650	2.950
e	0.950(BSC)	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°



IMPORTANT NOTICE

AiT Semiconductor Inc. (AiT) reserves the right to make changes to any its product, specifications, to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

AiT Semiconductor Inc.'s integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life support applications, devices or systems or other critical applications. Use of AiT products in such applications is understood to be fully at the risk of the customer. As used herein may involve potential risks of death, personal injury, or severe property, or environmental damage. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

AiT Semiconductor Inc. assumes to no liability to customer product design or application support. AiT warrants the performance of its products of the specifications applicable at the time of sale.