



DESCRIPTION

The AM8205 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

AM8205 is available in a TSSOP8 and SOT-26 packages.

ORDERING INFORMATION

Package Type	Part Number	
TSSOP8	TMX8	AM8205TMX8R
		AM8205TMX8VR
SOT-26	E6	AM8205E6R
		AM8205E6VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		
Suffix “ V “ means Halogen free Package		

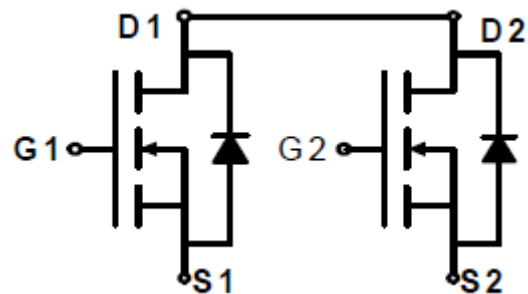
FEATURES

- $V_{DS} = 20V$, $I_D = 6A$
 $R_{DS(ON)} < 22m\Omega$ @ $V_{GS} = 4.5V$
 $R_{DS(ON)} < 27m\Omega$ @ $V_{GS} = 2.5V$
- High Power and current handling capability
- Lead free product is acquired
- Surface Mount Package
- Available in a TSSOP8 and SOT-26 packages.

APPLICATION

- Battery protection
- Load switch
- Power management

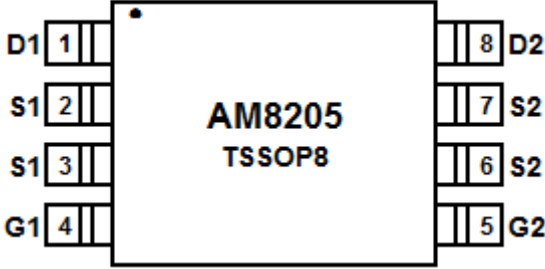
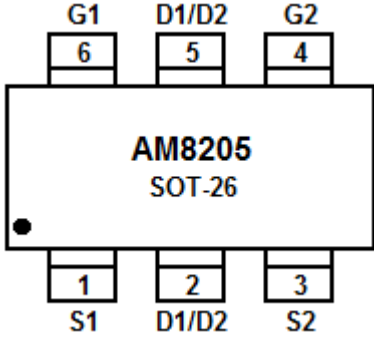
PIN DESCRIPTION



Schematic diagram



PIN DESCRIPTION

 <p>Top View</p>		 <p>Top View</p>	
Pin #		Symbol	Function
TSSOP8	SOT-26		
1	2	D1/D2	Drain
2	1	S1	Source
3		S1	Source
4	6	G1	Gate
5	4	G2	Gate
6	3	S2	Source
7		S2	Source
8	5	D1/D2	Drain



ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise noted

V _{DS} , Drain-Source Voltage	20V
V _{GS} , Gate-Source Voltage	±12V
I _D , Drain Current-Continuous	6A
I _{DM} , Drain Current-Pulsed ^{NOTE1}	25A
P _D , Maximum Power Dissipation	1.5W
T _J , T _{STG} , Operating Junction and Storage Temperature Range	-55°C~150°C

Stress beyond above listed "Absolute Maximum Ratings" may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL CHARACTERISTICS

Parameter	Symbol	Limit	Units
Thermal Resistance, Junction-to-Ambient ^{NOTE2}	R _{θJA}	83	°C/W



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise noted

Parameter	Symbol	Conditions	Min	Typ.	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
On Characteristics ^{NOTE3}						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	1.2	V
Drain-Source On-state Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =4.5A	-	16	22	mΩ
		V _{GS} =2.5V, I _D =3.5A	-	19	27	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =4.5A	-	10	-	S
Dynamic Characteristics ^{NOTE4}						
Input Capacitance	C _{ISS}	V _{DS} =10V, V _{GS} =0V, F=1.0MHz	-	900	-	pF
Output Capacitance	C _{OSS}		-	220	-	
Reverse Transfer Capacitance	C _{RSS}		-	100	-	
Switching Characteristics ^{NOTE4}						
Turn-on Delay Time	t _{D(ON)}	V _{DD} =10V, I _D =1A, V _{GS} =4.5V, R _{GEN} =6Ω	-	10	20	ns
Turn-on Rise Time	t _R		-	11	25	
Turn-off Delay Time	t _{D(OFF)}		-	35	70	
Turn-off Fall Time	t _F		-	30	60	
Total Gate Charge	Q _G	V _{DS} =10V, I _D =6A , V _{GS} =4.5V	-	12	15	nC
Gate-Source Charge	Q _{GS}		-	2.3	-	
Gate-Drain Charge	Q _{GD}		-	1	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage ^{NOTE3}	V _{SD}	V _{GS} =0V, I _S =1.7A	-	0.75	1.2	V
Diode Forward Current ^{NOTE2}	I _S		-	-	1.7	A

NOTE1: Repetitive Rating: Pulse width limited by maximum junction temperature.

NOTE2: Surface Mounted on FR4 Board, t ≤ 10 sec.

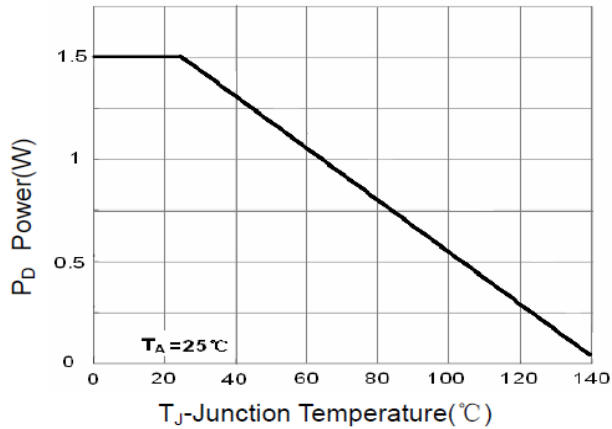
NOTE3: Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

NOTE4: Guaranteed by design, not subject to production

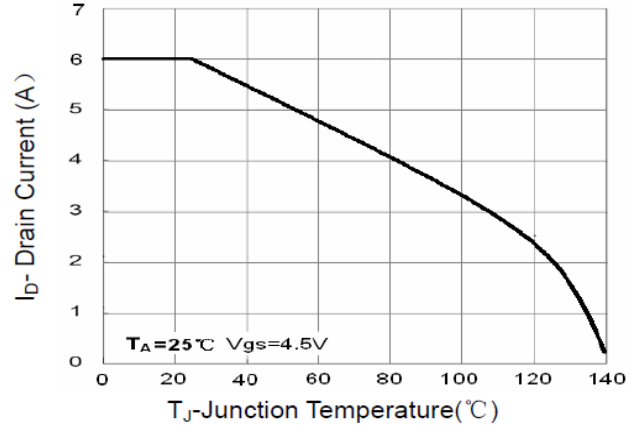


TYPICAL CHARACTERISTICS

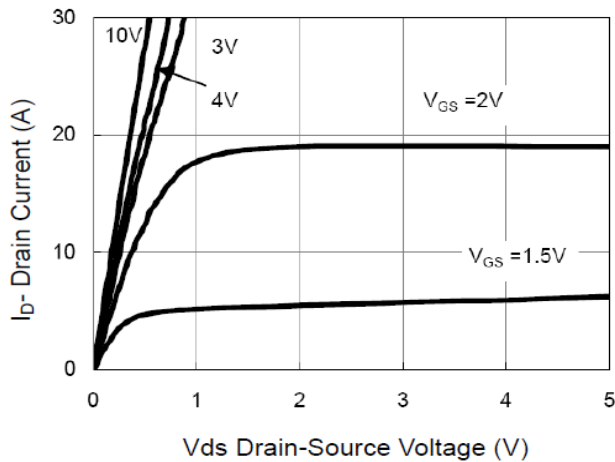
1. Power Dissipation



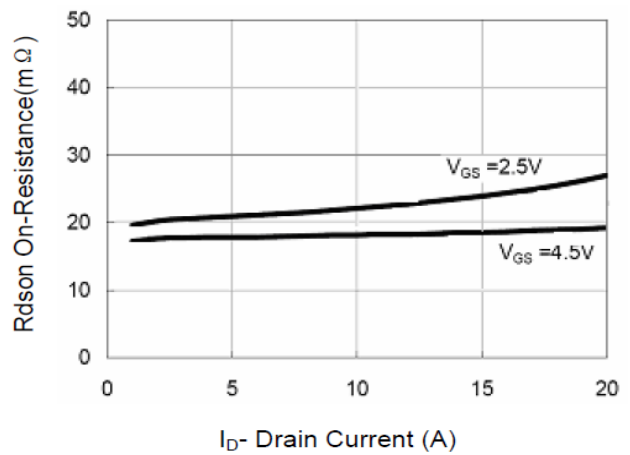
2. Drain Current



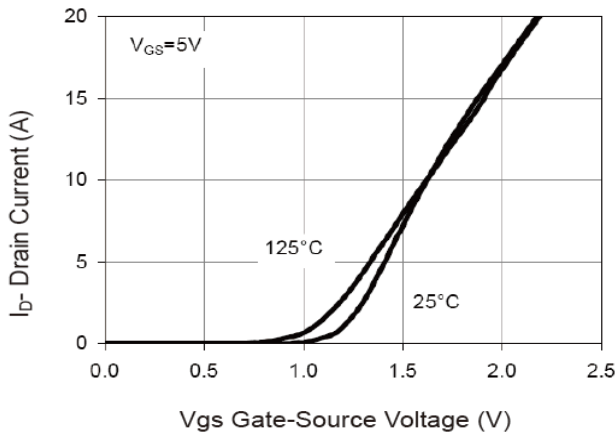
3. Output Characteristics



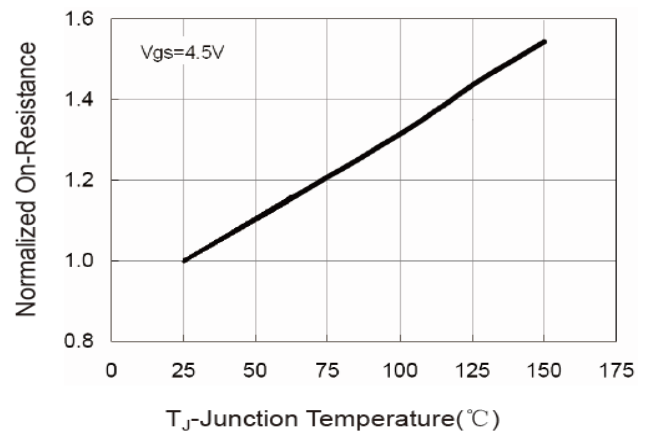
4. Drain-Source On-Resistance



5. Transfer Characteristics

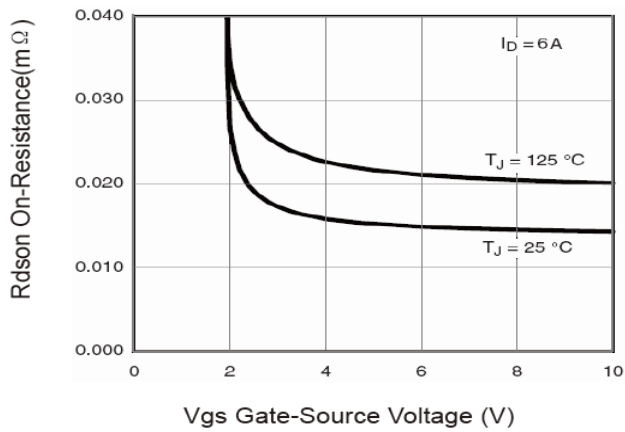


6. Drain-Source On-Resistance

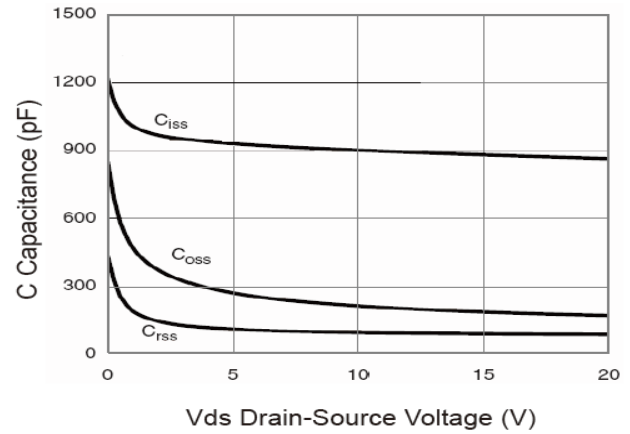




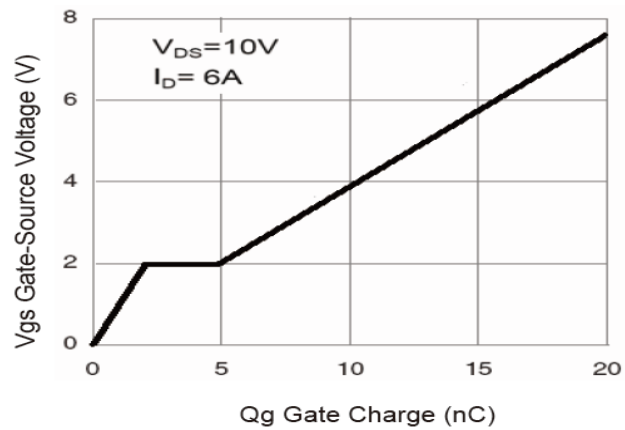
7. $R_{DS(on)}$ vs. V_{GS}



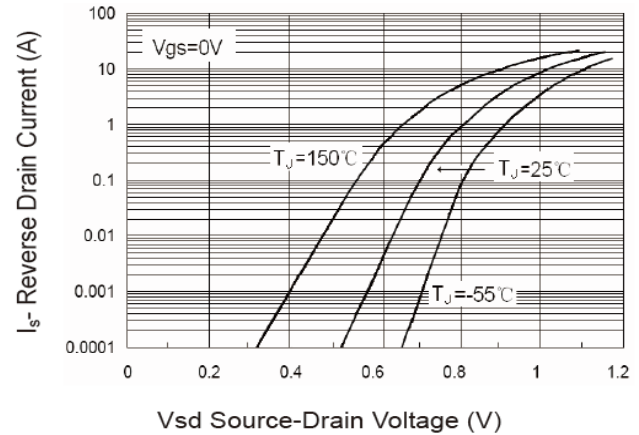
8. Capacitance vs. V_{DS}



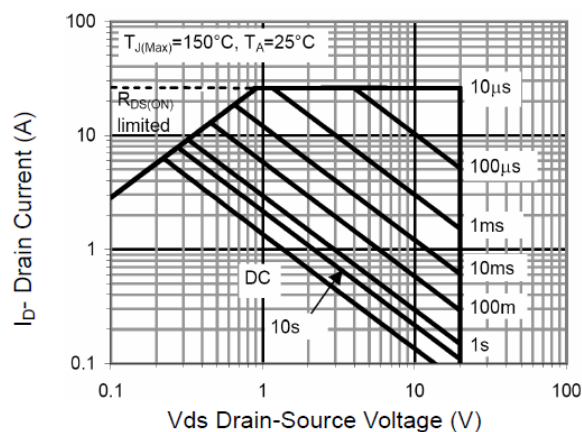
9. Gate Charge



10. Source- Drain Diode Forward

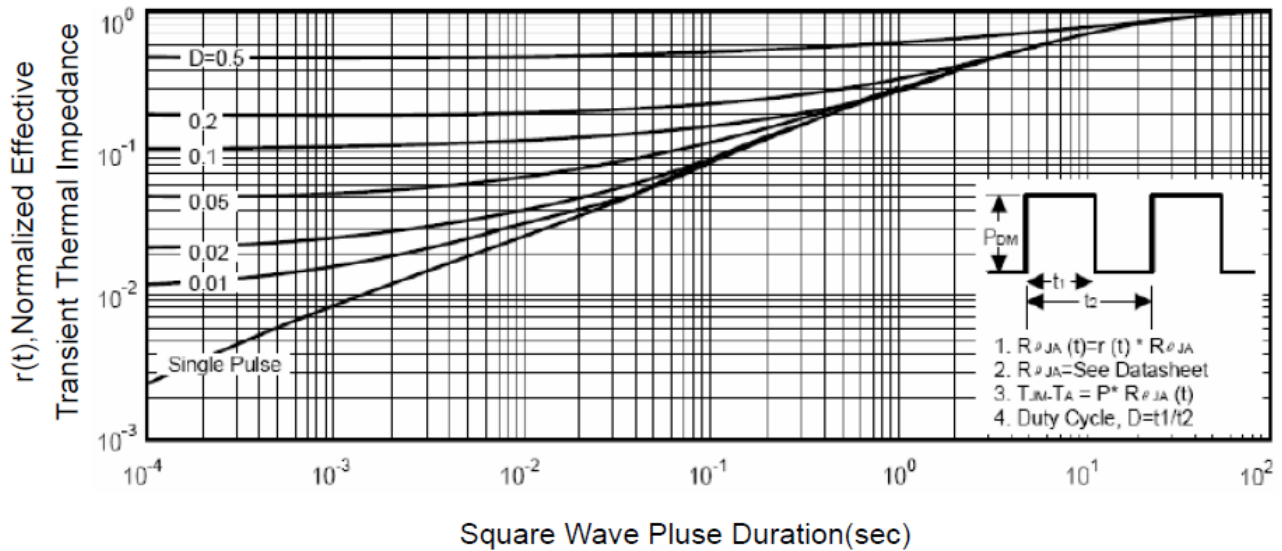


11. Safe Operation Area



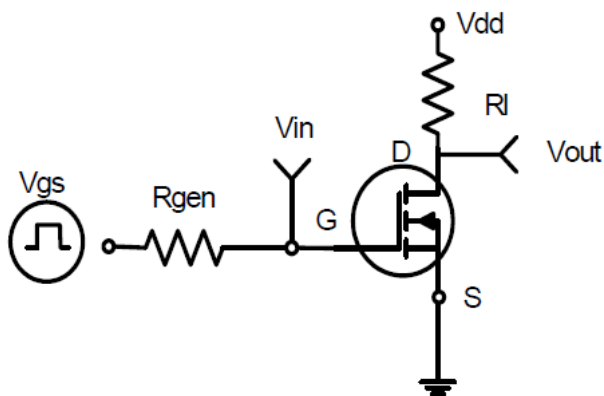


12. Normalized Maximum Transient Thermal Impedance

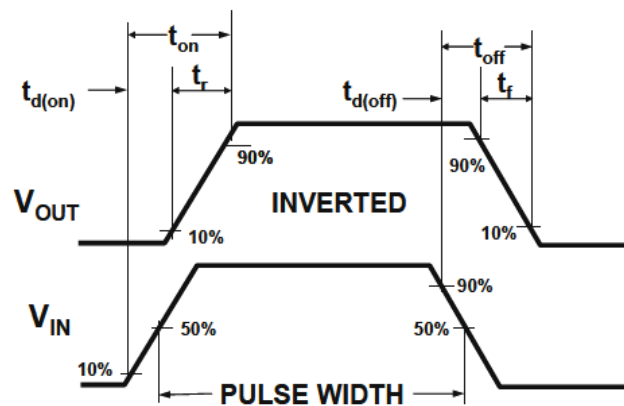


DETAILED INFORMATION

1. Switching Test Circuit



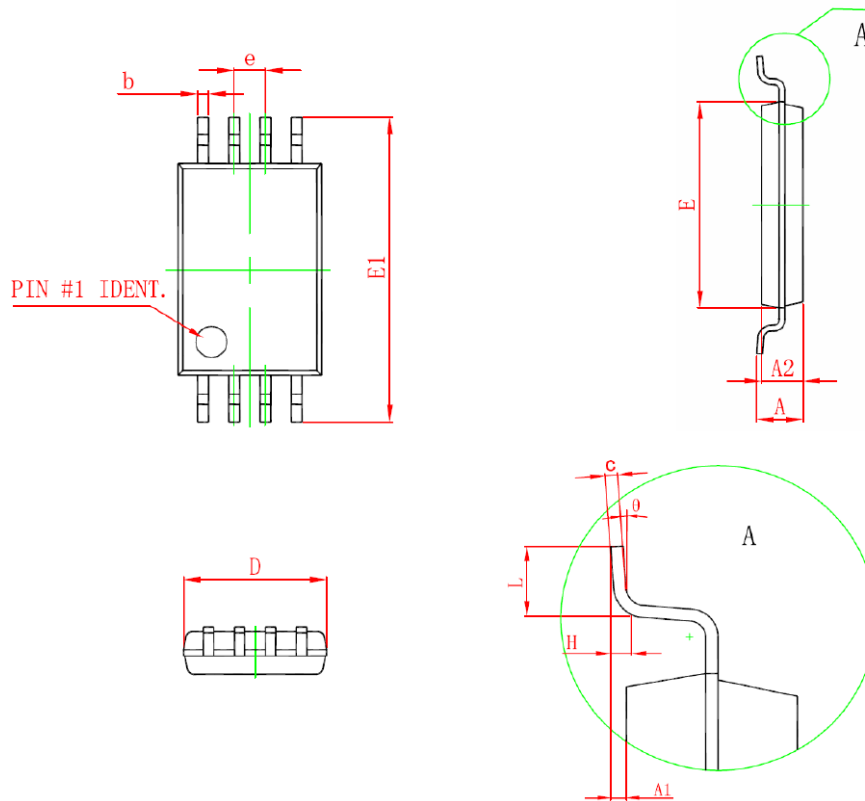
2. Switching Waveforms





PACKAGE INFORMATION

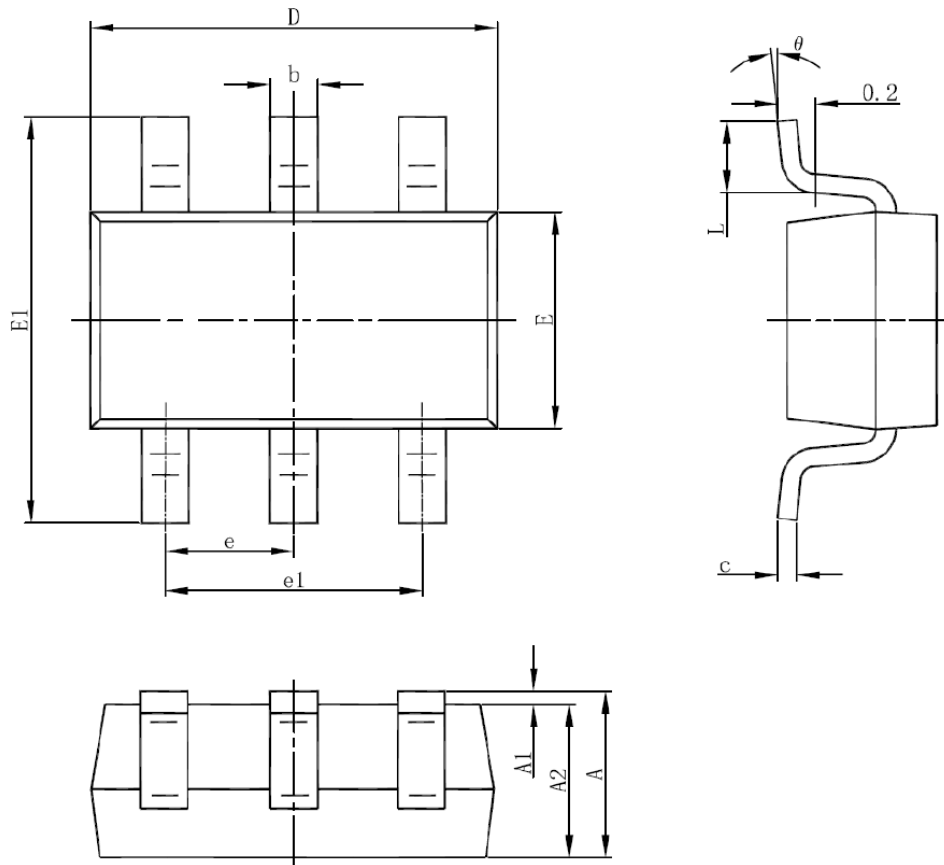
Dimension in TSSOP8 (Unit: mm)



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	0.650(BSC)	
L	0.500	0.700
H	0.250(TYP)	
θ	1°	7°



Dimension in SOT-26(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°



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