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.

FEATURES

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

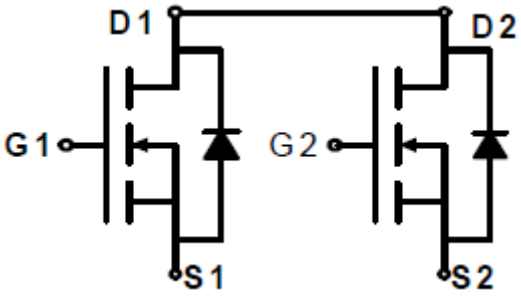
ORDERING INFORMATION

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		

APPLICATION

- Battery protection
- Load switch
- Power management

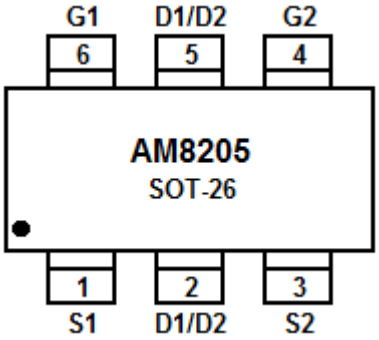
PIN DESCRIPTION



Schematic diagram

PIN DESCRIPTION

Top View



Top View

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℃, 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℃~150℃

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	$R_{\theta JA}$	83	°C/W

ELECTRICAL CHARACTERISTICS

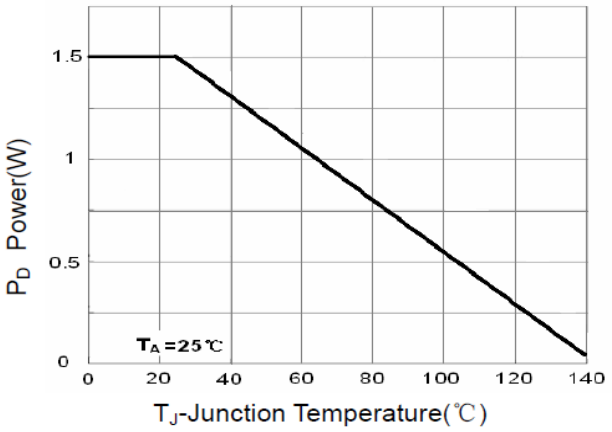
T_A = 25℃, unless otherwise noted

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 CharacteristicsNOTE4						
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

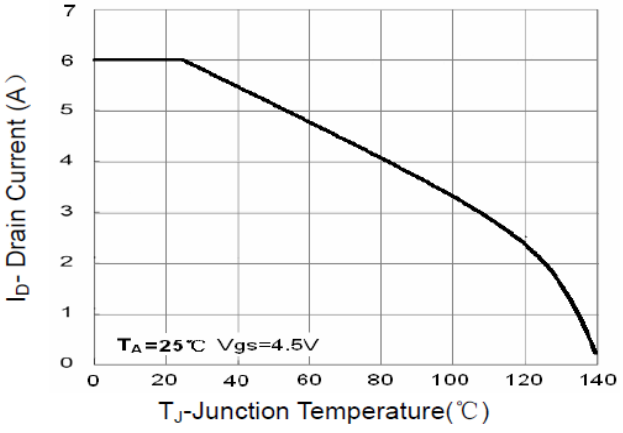
NOTE1: Repetitive Rating: Pulse width limited by maximum junction temperature.
NOTE2: Surface Mounted on FR4 Board, t ≤ 10 sec.
NOTE3: Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
NOTE4: Guaranteed by design, not subject to production

TYPICAL CHARACTERISTICS

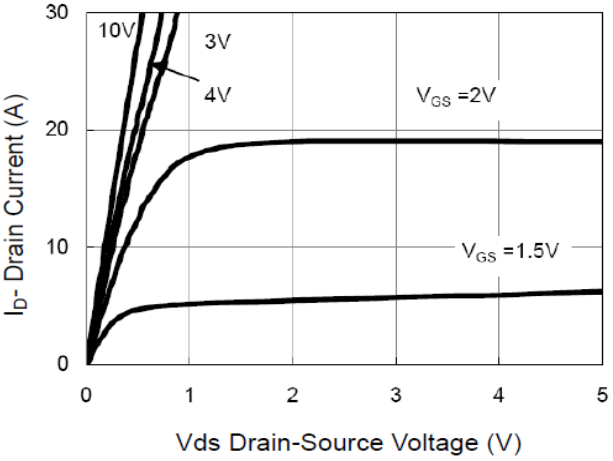
1. Power Dissipation



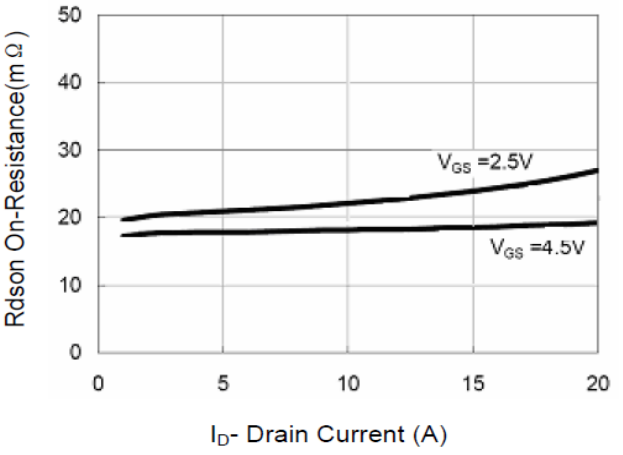
2. Drain Current



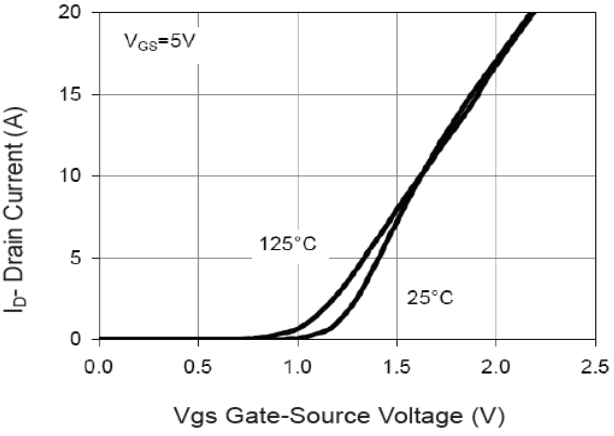
3. Output Characteristics



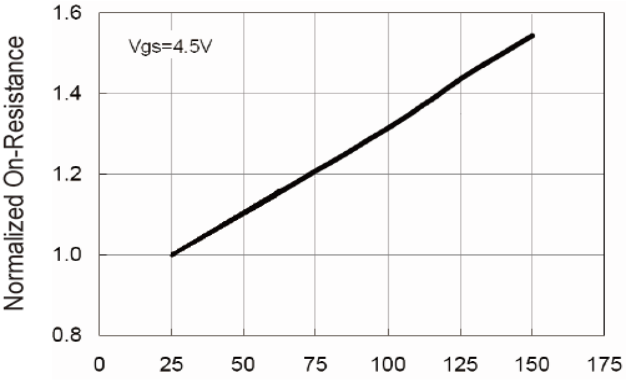
4. Drain-Source On-Resistance



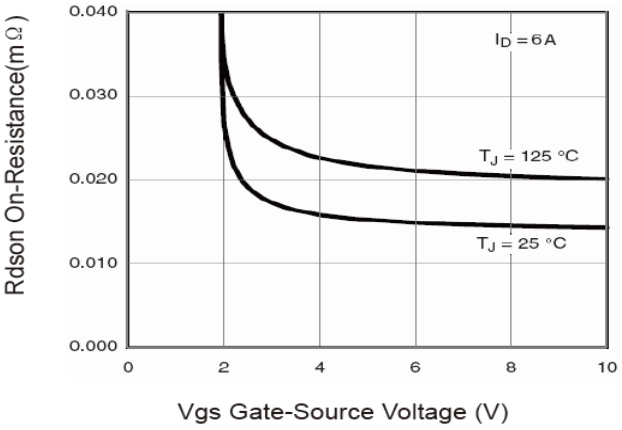
5. Transfer Characteristics



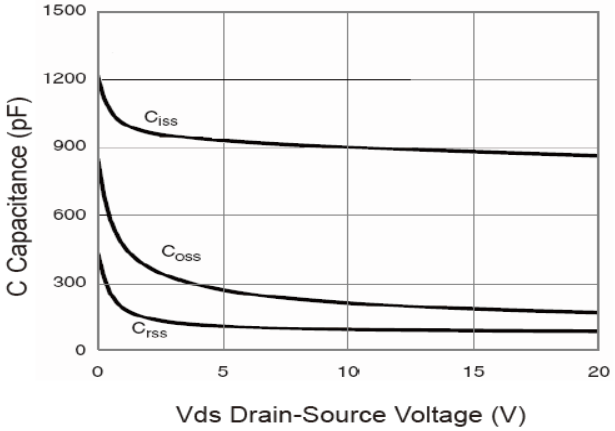
6. Drain-Source On-Resistance



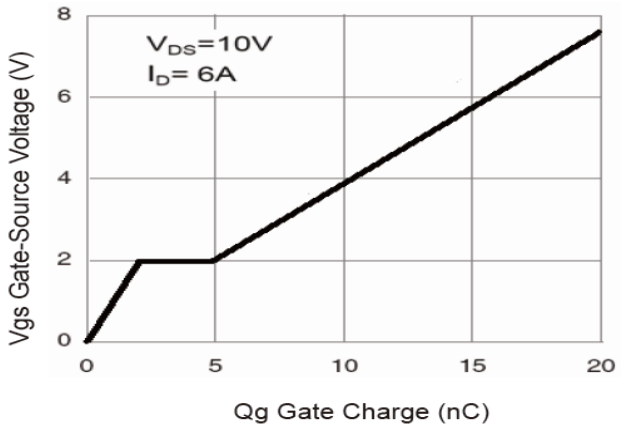
7. R_{DSON} vs. V_{GS}



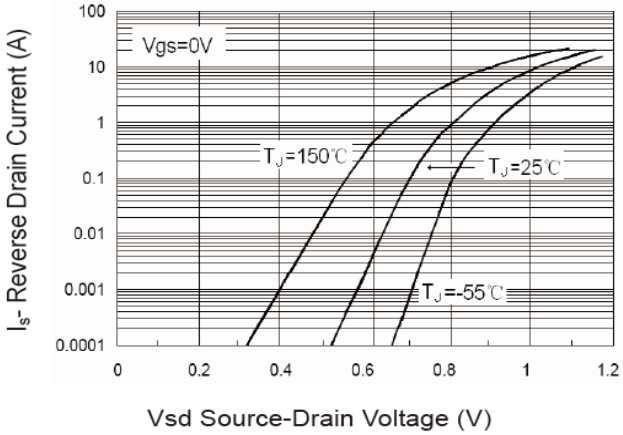
8. Capacitance vs. V_{DS}



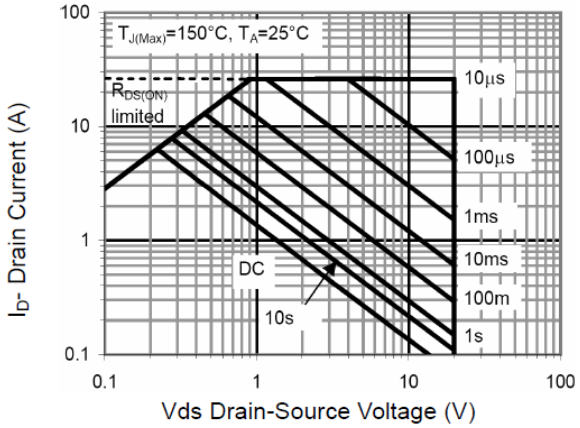
9. Gate Charge



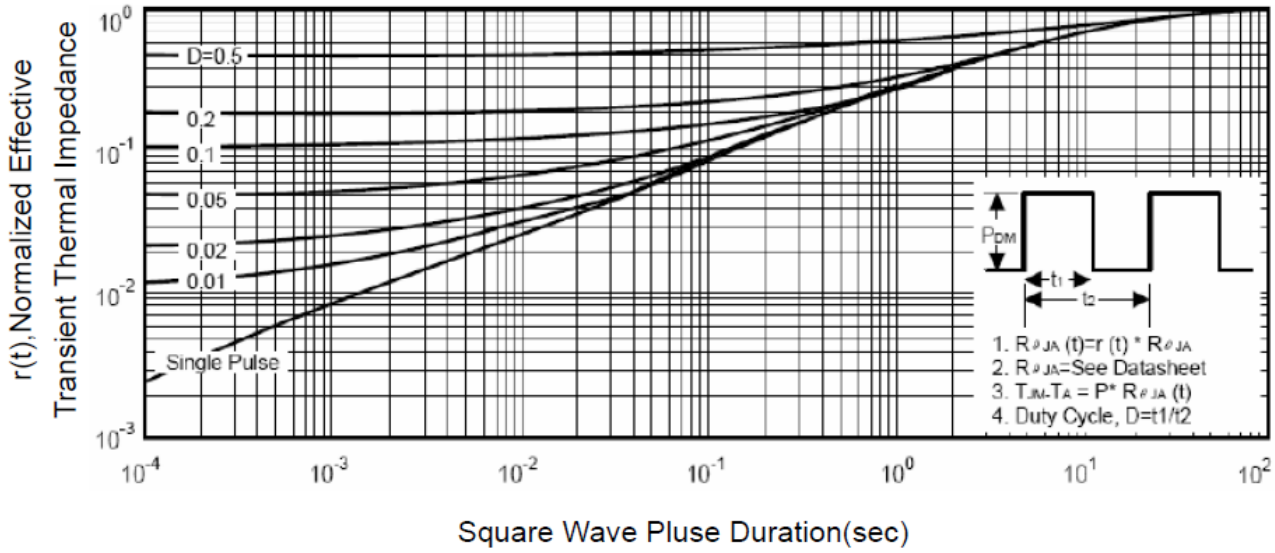
10. Source- Drain Diode Forward



11. Safe Operation Area

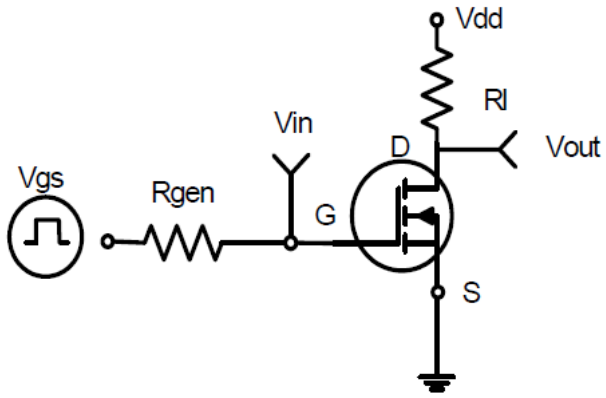


12. Normalized Maximum Transient Thermal Impedance

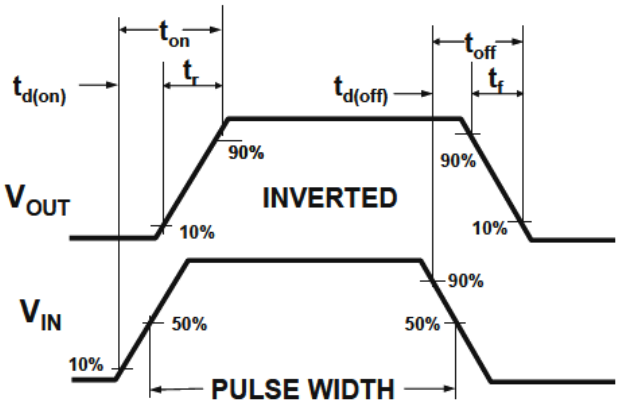


DETAILED INFORMATION

1. Switching Test Circuit

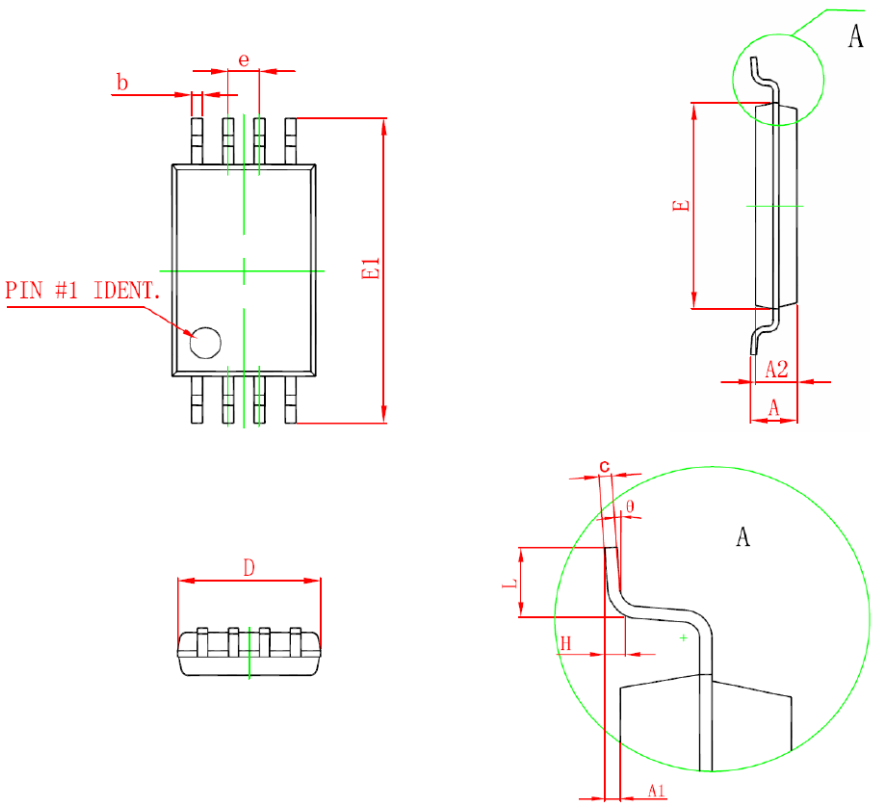


2. Switching Waveforms



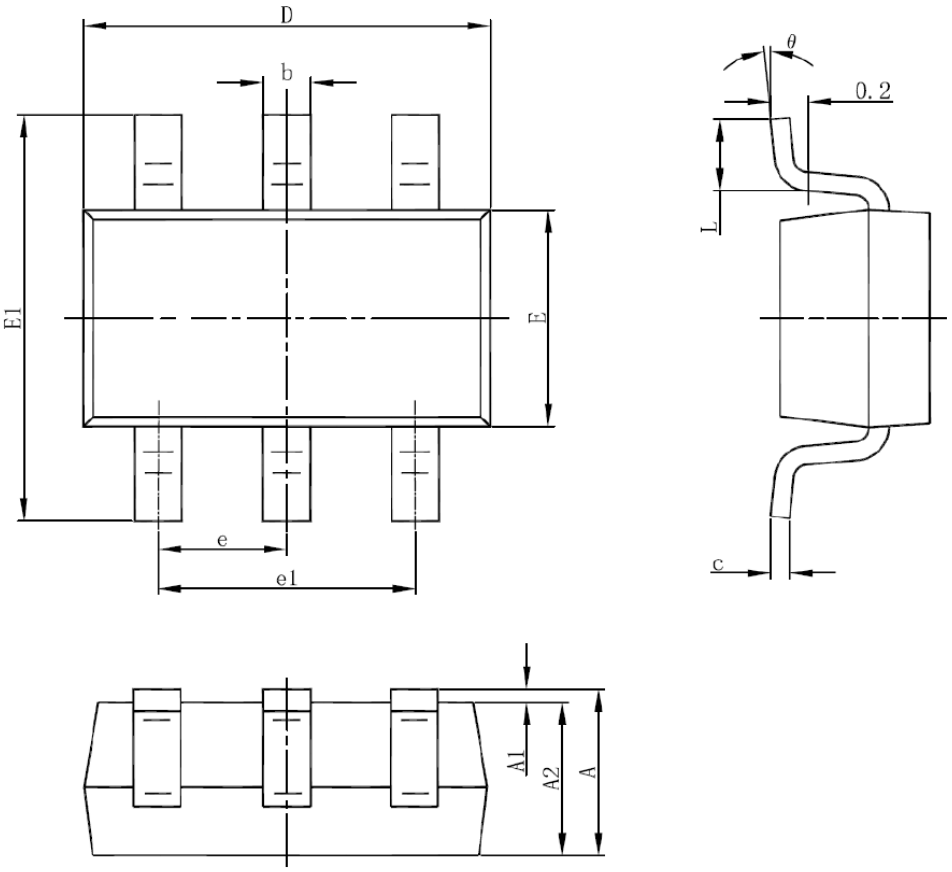
PACKAGE INFORMATION

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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