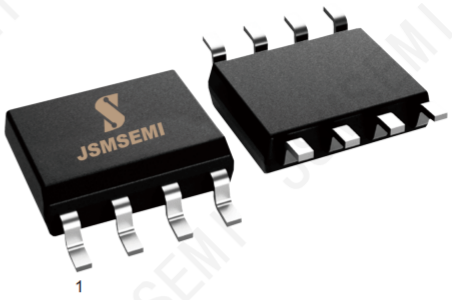
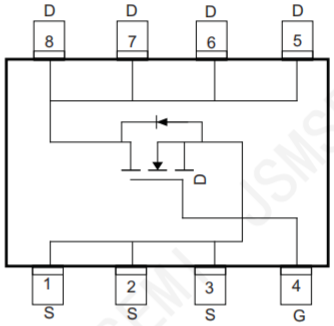
Product Summary

- V_{DS} 100V
- I_D 12A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜20mΩ
- 100% EAS Tested
- 100% ▽V_{DS} Tested



Top View



General Description

- Split gate trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Power switching application
- Uninterruptible power supply
- DC-DC convertor
- Motor drivers

■ **Absolute Maximum Ratings** (T_A=25℃ unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current (T_A=25℃)	V_{GS}=10V	12	A
	Continuous Drain Current (T_A=70℃)		8.4	A
I_{DM}	Pulsed Drain Current		45	A
I_S	Continuous Source Current (Diode Conduction)		4.0	A
P_D	Power Dissipation	T_A=25℃	3.0	W
		T_A=70℃	2.1	
T_J	Operation Junction Temperature		150	℃
T_{STG}	Storage Temperature Range		-55~+150	℃
$R_{\theta JA}$	Thermal Resistance Junction to Ambient		85	℃/W

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress rating only and functional device operation is not implied

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
SI4056ADY-T1-GE3-JSM	SOP-8	4056A	-55 to 150°C	1	T&R,3000	Rohs

■ **Electrical Characteristics** (T_J=25℃ unless otherwise noted)

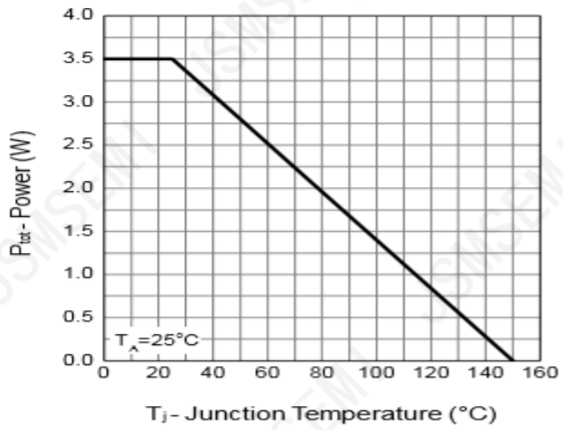
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Parameters						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	100			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	1.0	2.0	3.0	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=100V, V_{GS}=0			1	uA
		V_{DS}=100V, V_{GS}=0 T_J=55℃			5	
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=10V, I_D=10A		15	20	mΩ
		V_{GS}=4.5V, I_D=8A		18	22	
Source-Drain Diode						
V_{SD}	Diode Forward Voltage	I_S=1.0A, V_{GS}=0V		0.76	1.0	V
Dynamic Parameters						
Q_g	Total Gate Charge	V_{DS}=30V		50	65	nC
Q_{gs}	Gate-Source Charge	V_{GS}=10V		8		
Q_{gd}	Gate-Drain Charge	I_D=8A		10		
C_{iss}	Input Capacitance	V_{DS}=30V		980	1320	pF
C_{oss}	Output Capacitance	V_{GS}=0V		150		
C_{rss}	Reverse Transfer Capacitance	f=1MHz		85		
$T_{d(on)}$	Turn-On Time	V_{DS}=30V		18	33	nS
T_r		I_D=1A		9	17	
$T_{d(off)}$	Turn-Off Time	V_{GEN}=10V		56	101	
T_f		R_G=6Ω		14	26	

Note: 1. Pulse test: pulse width<=300uS, duty cycle<=2%

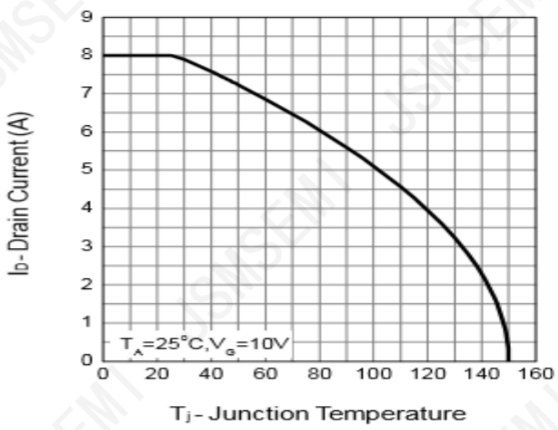
2.Static parameters are based on package level with recommended wire bonding

■Typical Electrical Characteristics Diagrams

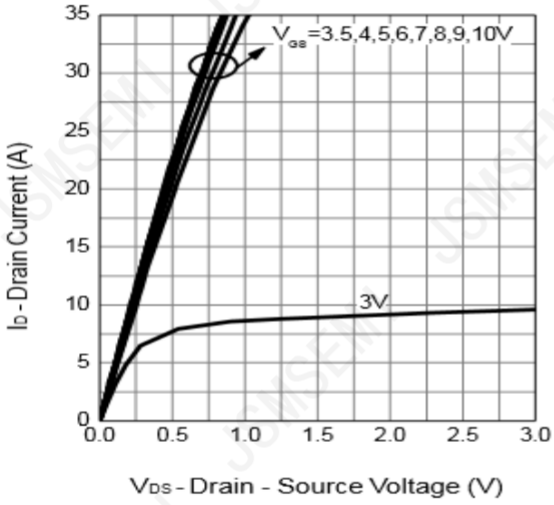
Power Dissipation



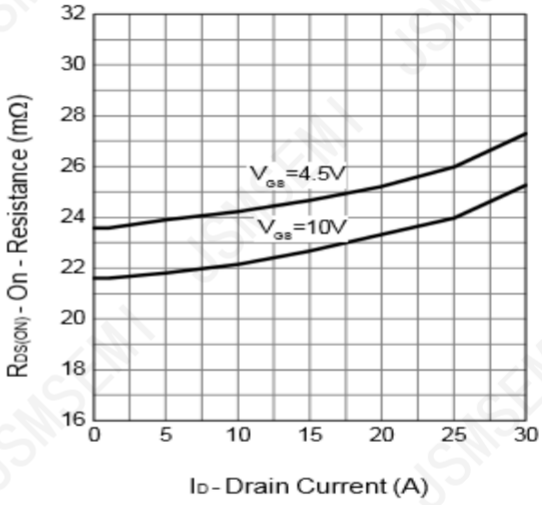
Drain Current



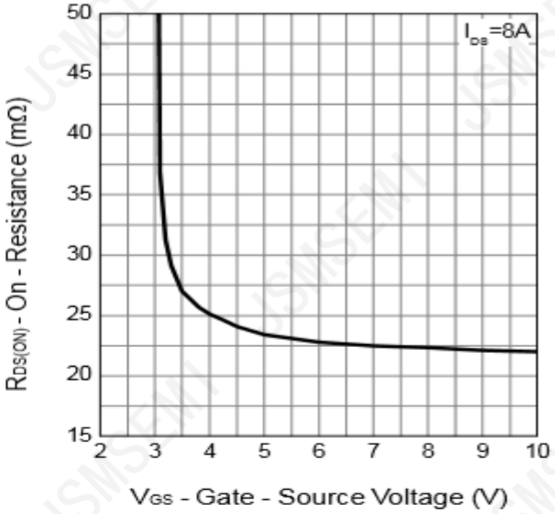
Output Characteristics



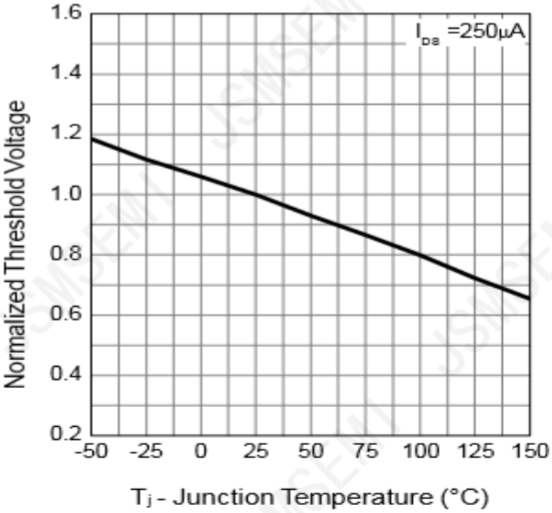
Drain-Source On Resistance



Gate-Source On Resistance

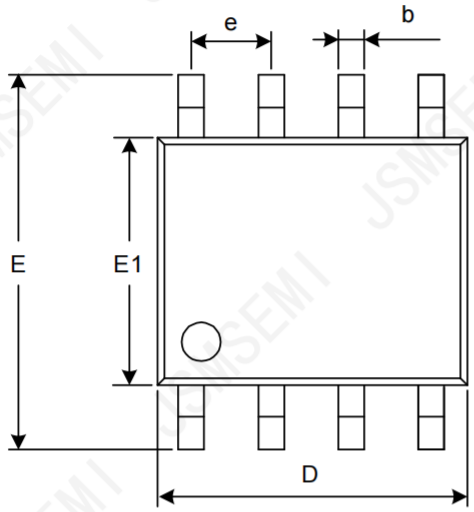


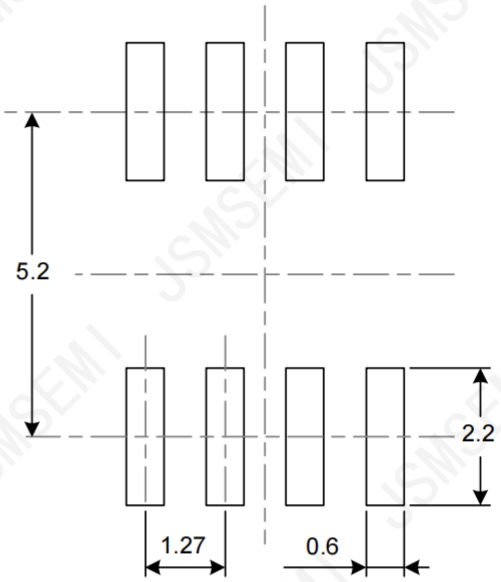
Gate Threshold Voltage



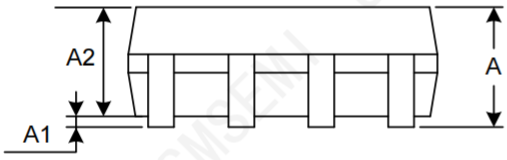
Package Information

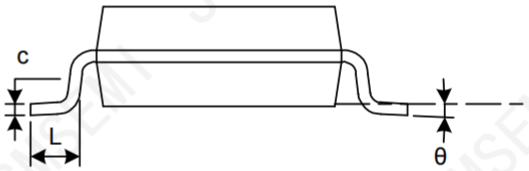
SOIC-8





RECOMMENDED LAND PATTERN (Unit: mm)





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Revision History

Rev.	Change	Date
V1.0	Initial version	6/27/2021

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