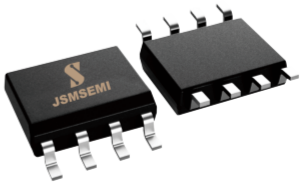
Description：

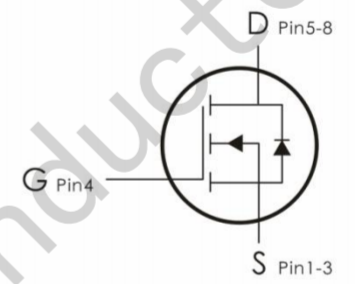
This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features：

1) V_{DS}=30V,I_D=12A,$R_{DS(ON)}$<8mΩ @V_{GS}=10 V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.



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Absolute Maximum Ratings：(T_a=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current- T_A=25℃	12	A
	Continuous Drain Current- T_A=100℃	9	
I_{DM}	Drain Current-Pulsed note1	60	A
E_{AS}	Single Pulsed Avalanche Energy note2	39	mJ
P_D	Power Dissipation	3	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	41	℃/W

Electrical Characteristics: (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=30V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1	1.5	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance[note3]	V_{GS}=10V,I_D=15A	---	6.5	8	mΩ
		V_{GS}=4.5V,I_D=10A	---	10	14	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	1110	---	pF
C_{oss}	Output Capacitance		---	180	---	
C_{rss}	Reverse Transfer Capacitance		---	150	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=15V, I_D=12A R_{GEN}=3Ω. V_{GS}=10V,	---	15	---	ns
t_r	Rise Time		---	19	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	35	---	ns
t_f	Fall Time		---	21	---	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=15V, I_D=8A	---	21	---	nC
Q_{gs}	Gate-Source Charge		---	2.35	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	5.9	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=12A	---	---	1.2	V
I_S	Continuous Drain to Source Diode Forward Current		---	---	12	A

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I_{SM}	Pulsed Drain to Source Diode Forward Current		---	---	60	A
trr	Reverse Recovery Time	I_F=12A,dI/dt=100A/μs	---	14	---	ns
Qrr	Reverse Recovery Charge		---	4.1	---	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T_J=25℃, V_{GS}=15V, R_G=25Ω, L=0.5mH, I_{AS}=12.6A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics: (T_C=25℃ unless otherwise noted)

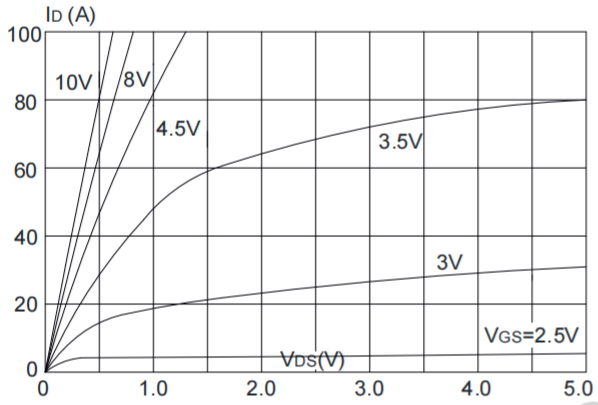

Figure1: Output Characteristics

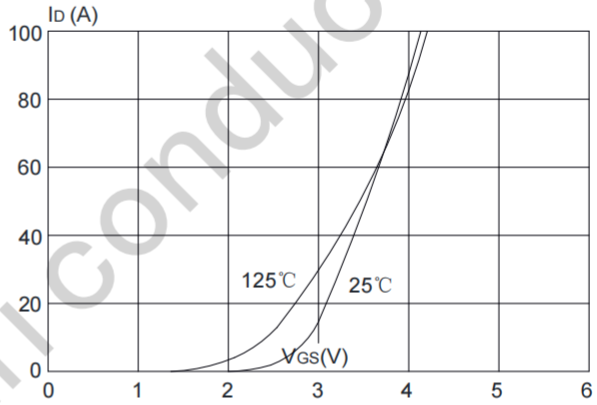

Figure 2: Typical Transfer Characteristics

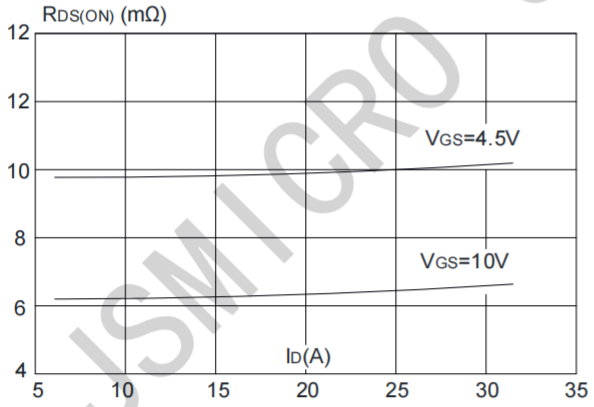

Figure 3: On-resistance vs. Drain Current

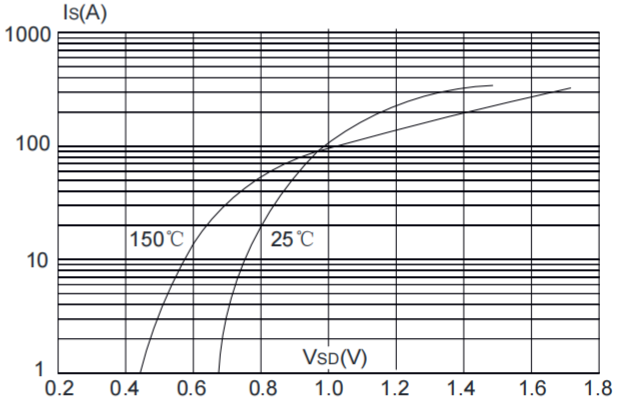

Figure 4: Body Diode Characteristics

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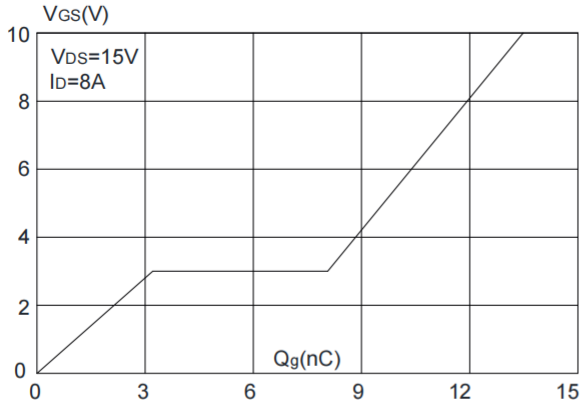

Figure 5: Gate Charge Characteristics

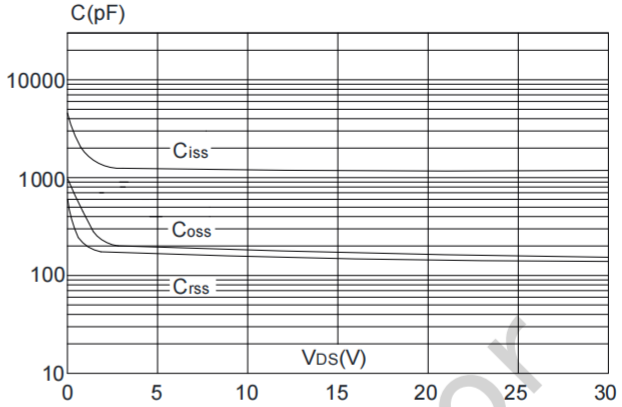

Figure 6: Capacitance Characteristics

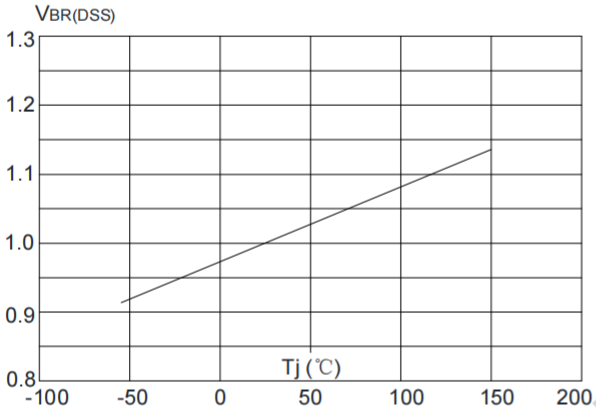

Figure 7: Normalized Breakdown Voltage vs.

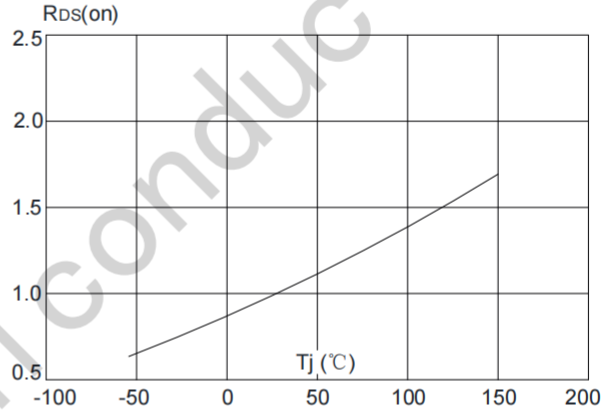

Figure 8: Normalized on Resistance vs. Junction Temperature

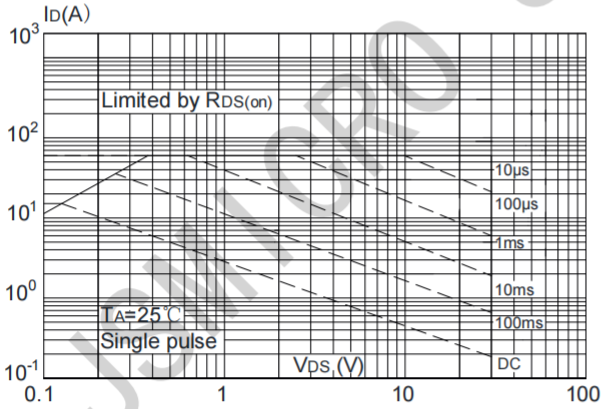

Figure 9: Maximum Safe Operating Area

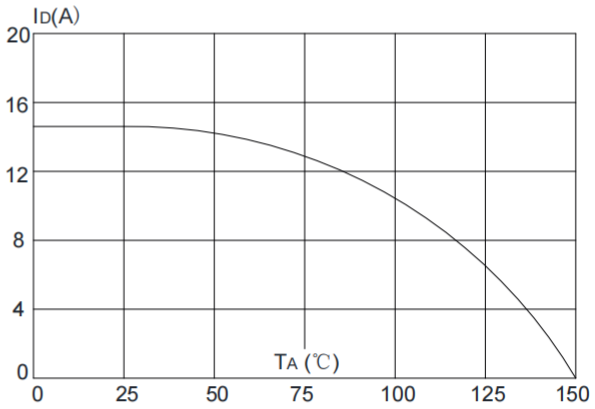

Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

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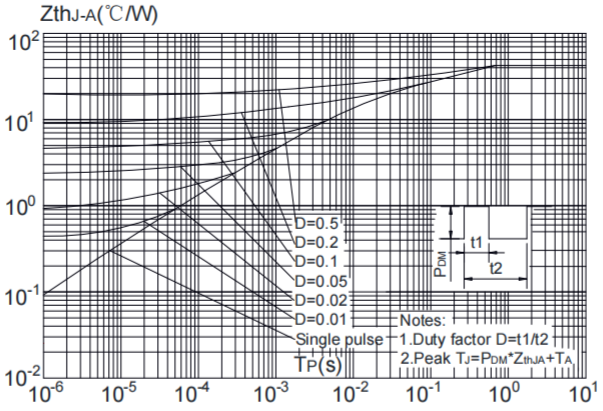

Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

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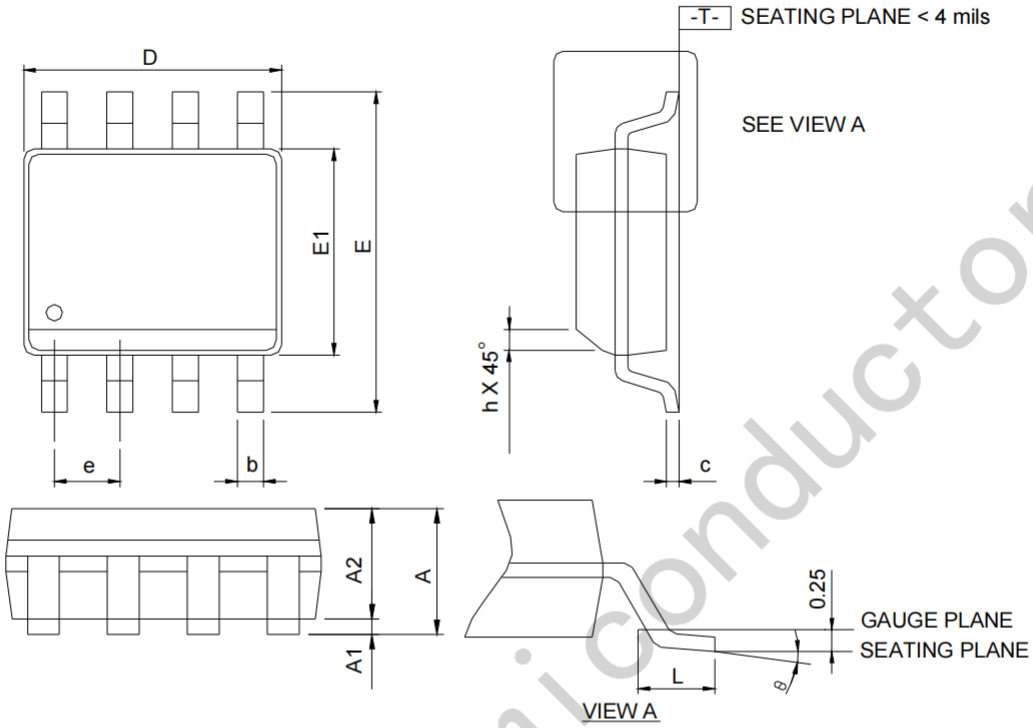
Package Information

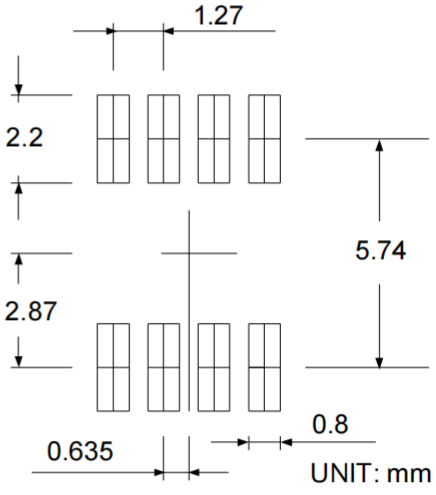
SOP-8



SYMBOL	SOP-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	-	1.75	-	0.069
A1	0.10	0.25	0.004	0.010
A2	1.25	-	0.049	-
b	0.31	0.51	0.012	0.020
c	0.17	0.25	0.007	0.010
D	4.80	5.00	0.189	0.197
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
h	0.25	0.50	0.010	0.020
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

Note: 1. Follow JEDEC MS-012 AA.
2. Dimension "D" does not include mold flash, protrusions or gate burrs. Mold flash, protrusion or gate burrs shall not exceed 6 mil per side.
3. Dimension "E" does not include inter-lead flash or protrusions. Inter-lead flash and protrusions shall not exceed 10 mil per side.

RECOMMENDED LAND PATTERN



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