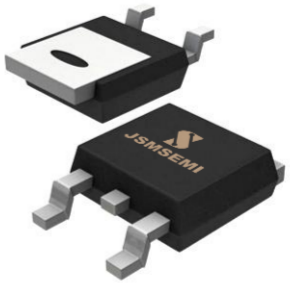
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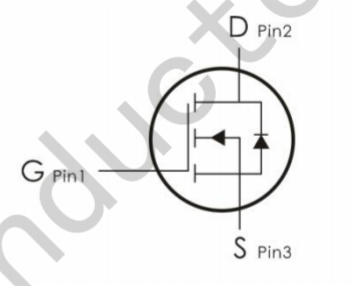


This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features：

1) V_{DS}=60V,I_D=30A,$R_{DS(ON)}$<30m Ω @V_{GS}=10V
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_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current-TC=25℃	30	A
	Continuous Drain Current-TC=100℃	16	
I_{DM}	Drain Current – Pulsed1	100	A
E_{AS}	Single Pulse Avalanche Energy (note1)	24	mJ
I_{AS}	Avalanche Current (note2)	22	A
P_D	Power Dissipation	40	W
	Power Dissipation – Derate above 25℃	0.32	W/℃
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	3.1	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	62	

Electrical Characteristics： (T_C=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	60	---	---	V
△BVDSS/△TJ	BVDSS Temperature Coefficient	Reference to 25℃ , ID=1mA	---	0.07	---	V/℃
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=650V	---	---	1	μA
		V_{GS}=0V, V_{DS}=480V,T_J=125℃	---	---	10	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±30V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1.2	1.7	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=15A	---	25	30	mΩ
		V_{GS}=4.5V,I_D=10A	---	31	40	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	1150	1700	pF
C_{oss}	Output Capacitance		---	60	90	
C_{rss}	Reverse Transfer Capacitance		---	43	65	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time[2,3]	V_{DD}=30V, I_D=1A, R_G=6Ω (Note 3,4)	---	15	40	ns
t_r	Rise Time[2,3]		---	4.5	8	ns
$t_{d(off)}$	Turn-Off Delay Time[2,3]		---	27	50	ns

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t_f	Fall Time[2,3]		---	7.5	13	ns
Q_g	Total Gate Charge[2,3]	V_{GS}=30V, V_{DS}=10V, I_D=20A(Note 3,4)	---	16	20	nC
Q_{gs}	Gate-Source Charge[2,3]		---	2	4	nC
Q_{gd}	Gate-Drain "Miller" Charge[2,3]		---	3.5	7	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V,Is=1A,	---	---	1	V
I_S	Continuous Source Current	---	---	---	25	A
I_{SM}	Pulsed Source Current	---	---	---	100	A
T_{rr}	Reverse Recovery Time	V_{GS}=0V,I_S=1A , dI/dt=100A/μs(Note 3)	---	17	---	ns
Q_{rr}	Reverse Recovery Charge		---	12	---	nC

Notes:

1.Repetitive Rating : Pulsed width limited by maximum junction temperature.

2.VDD=25V,VGS=10V,L=0.1mH,IAS=22A.,RG=25 ,Starting TJ=25℃

3.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.

4.Essentially independent of operating temperature.

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

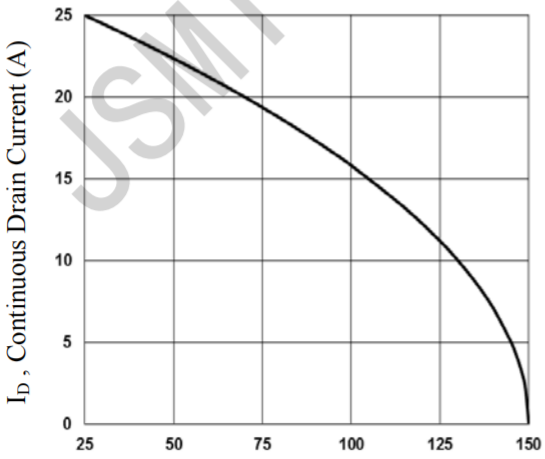


Fig.1 Continuous Drain Current vs. T_C

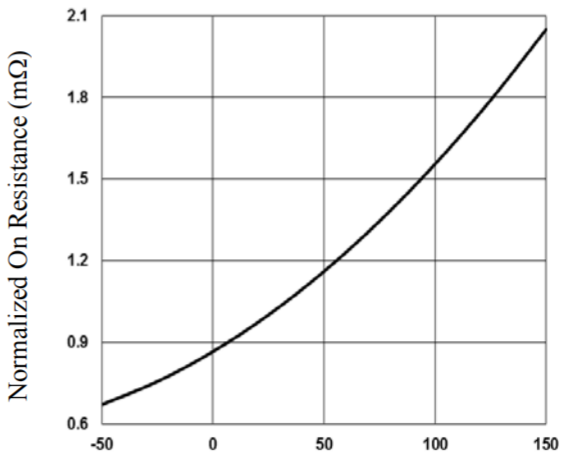


Fig.2 Normalized RDSON vs. T_J

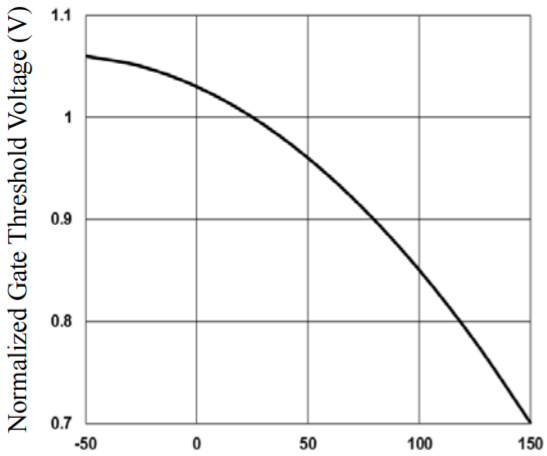


Fig.3 Normalized V_{th} vs. T_J

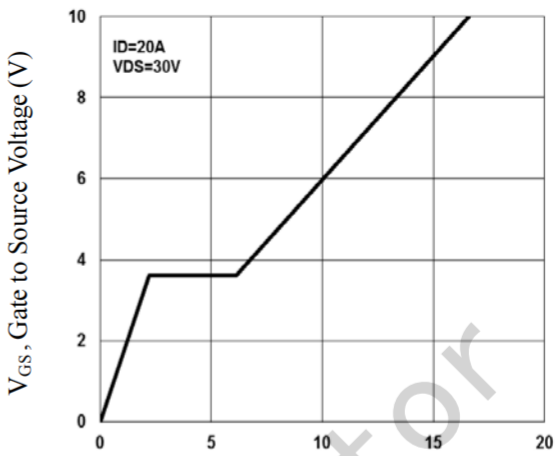


Fig.4 Gate Charge Waveform

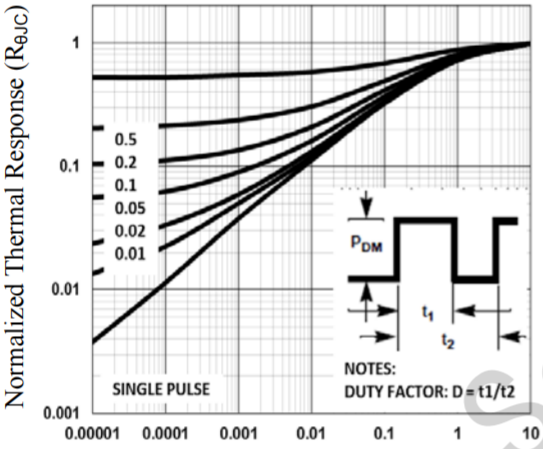


Fig.5 Normalized Transient Impedance

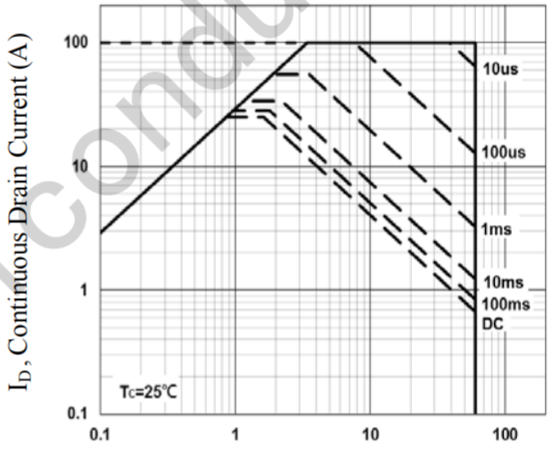


Fig.6 Maximum Safe Operation Area

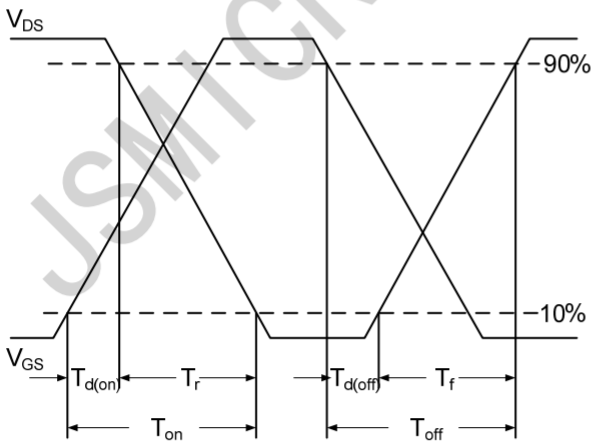


Fig.7 Switching Time Waveform

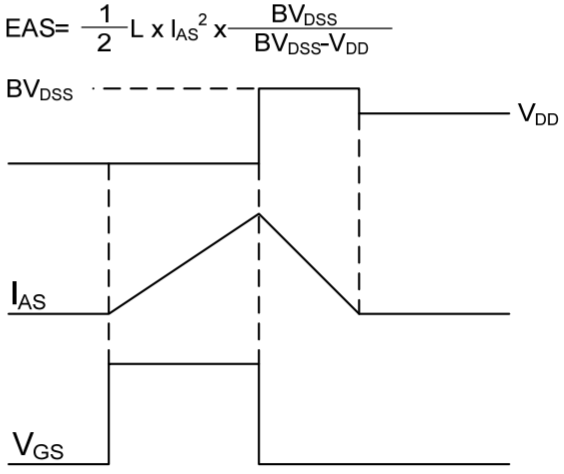
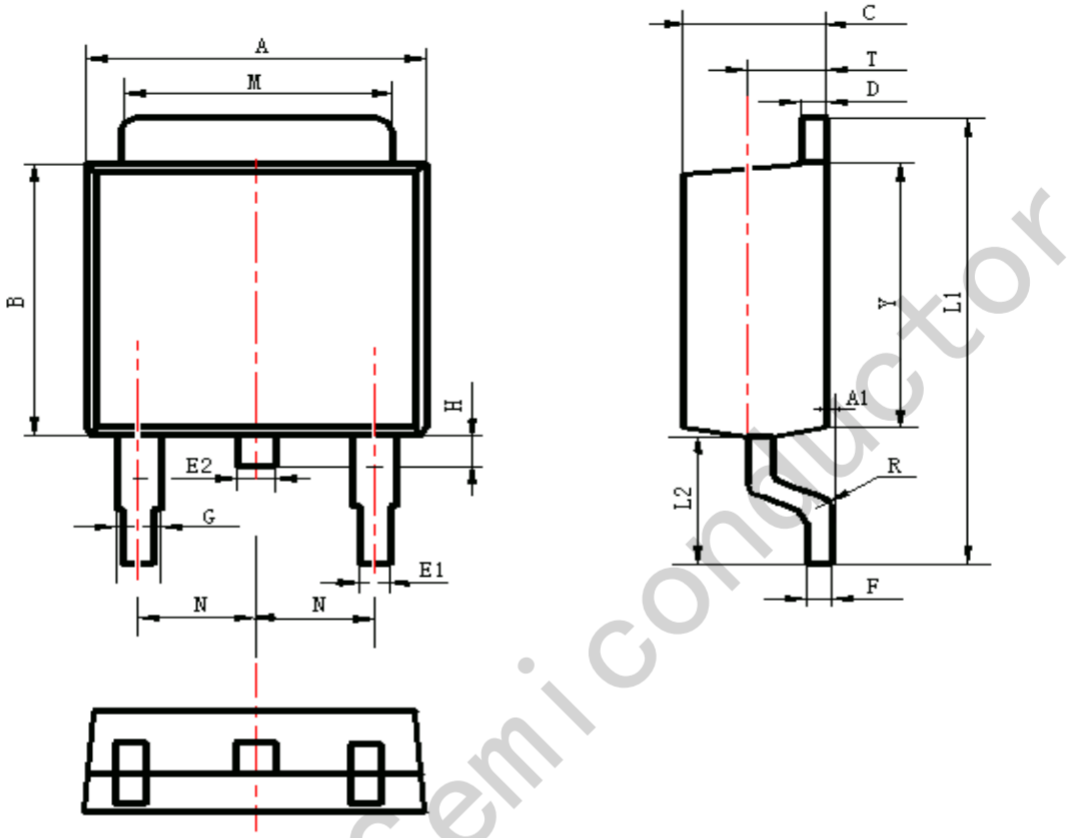


Fig.8 EAS Waveform

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Package Information

TO-252



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	6.30	6.90	0.248	0.272
A1	0.00	0.16	0.000	0.006
B	5.70	6.30	0.224	0.248
C	2.10	2.50	0.083	0.098
D	0.30	0.70	0.012	0.028
E1	0.60	0.90	0.024	0.035
E2	0.70	1.00	0.028	0.039
F	0.30	0.60	0.012	0.024
G	0.70	1.20	0.028	0.047
L1	9.60	10.50	0.378	0.413
L2	2.70	3.10	0.106	0.122
H	0.40	1.00	0.016	0.039
M	5.10	5.50	0.201	0.217
N	2.09	2.49	0.082	0.098
R	0.30		0.012	
T	1.40	1.60	0.055	0.063
Y	5.10	6.30	0.201	0.248

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