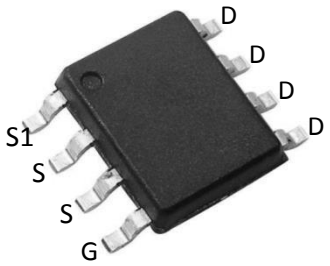
Description：

This P-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：

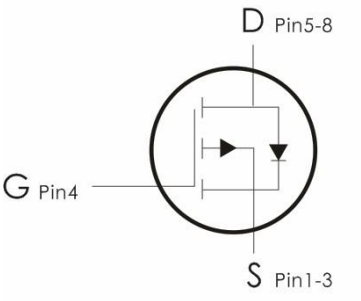
1) V_{DS}=-40V,I_D=-10A,$R_{DS(ON)}$<15m Ω @V_{GS}=-10V

2) Low gate charge.

3) Green device available.

4) Advanced high cell denity trench technology for ultra $R_{DS(ON)}$.

5) Excellent package for good heat dissipation.



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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current-TC=25℃	-10	A
	Continuous Drain Current-TC=100℃	-6.3	
	Pulsed Drain Current[1]	-40	
E_{AS}	Single Pulse Avalanche Energy	---	mJ
P_D	Power Dissipation	4.2	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	30	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	60	

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	-40	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-40V, TJ=25℃	---	---	-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	-1.0	-1.6	-2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance[2]	V_{GS}=-10V,I_D=-10A	---	11.5	15	mΩ
		V_{GS}=-4.5V,I_D=-8A	---	16	22	
G_{FS}	Forward Transconductance	V_{DS}=-10V, I_D=-10A	---	13	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-25V, V_{GS}=0V, f=1MHz	---	2757	4000	pF
C_{oss}	Output Capacitance		---	240	360	
C_{rss}	Reverse Transfer Capacitance		---	137	200	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time[2,3]	V_{DS}=-20V, V_{GS}=-10V I_D=-1A,R_{GEN}=6Ω	---	23	40	ns
t_r	Rise Time[2,3]		---	10	20	ns
$t_{d(off)}$	Turn-Off Delay Time[2,3]		---	135	250	ns
t_f	Fall Time[2,3]		---	46	90	ns
Q_g	Total Gate Charge[2,3]	V_{DS}=-32V , V_{GS}=-4.5V , I_D=-10A	---	22.2	40	nC
Q_{gs}	Gate-Source Charge[2,3]		---	8.2	16	nC
Q_{gd}	Gate-Drain “Miller” Charge[2,3]		---	8.8	16	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage[2]	V_{GS}=0V,I_S=-1A, T_J=25℃	---	---	-1	V

LS	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	-10	A
LSM	Pulsed Source Current		---	-20	A

Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
3. Essentially independent of operating temperature.

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

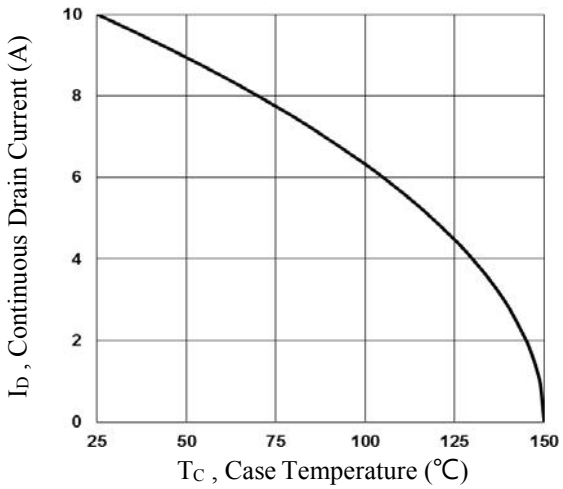


Fig.1 Continuous Drain Current vs. T_C

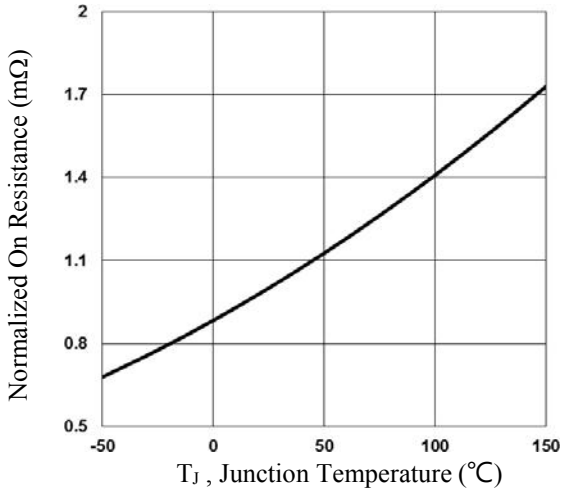


Fig.2 Normalized RDSON vs. T_J

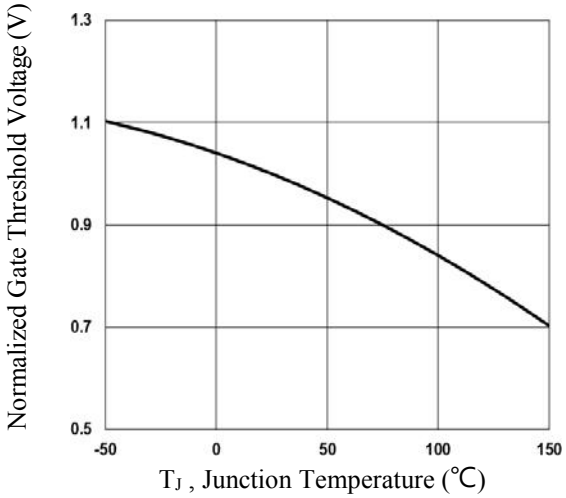


Fig.3 Normalized V_{th} vs. T_J

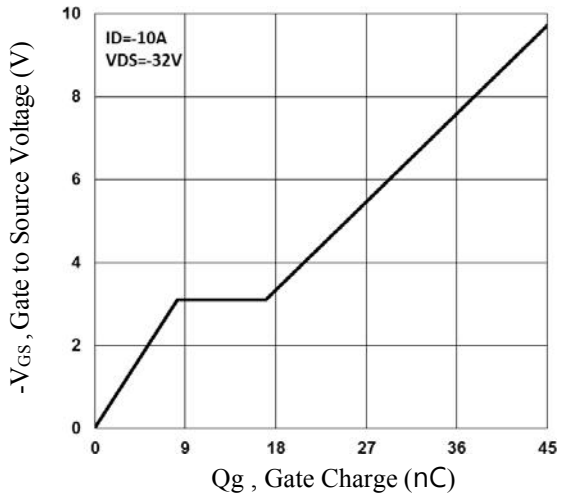


Fig.4 Gate Charge Waveform

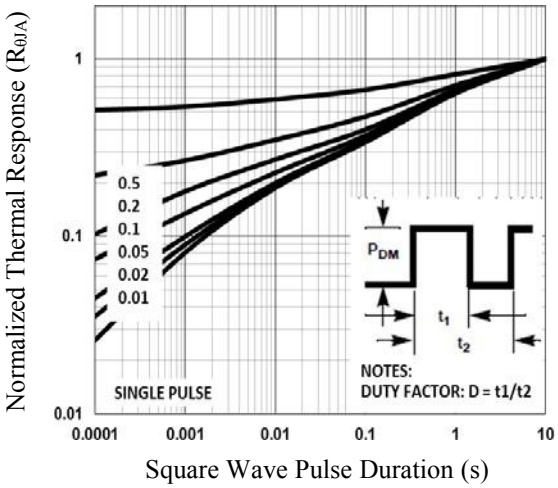


Fig.5 Normalized Transient Impedance

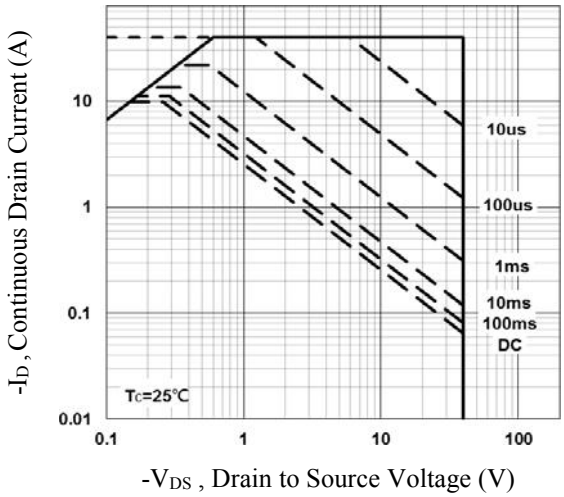


Fig.6 Maximum Safe Operation Area

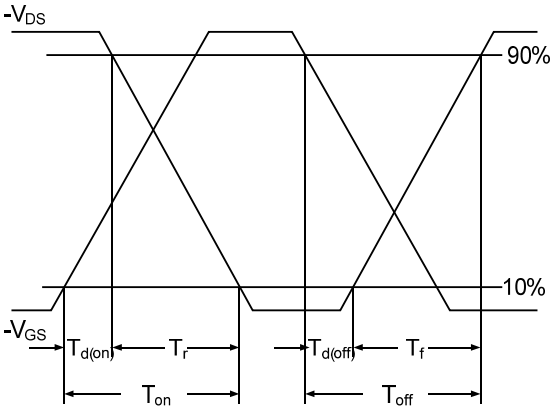


Fig.7 Switching Time Waveform

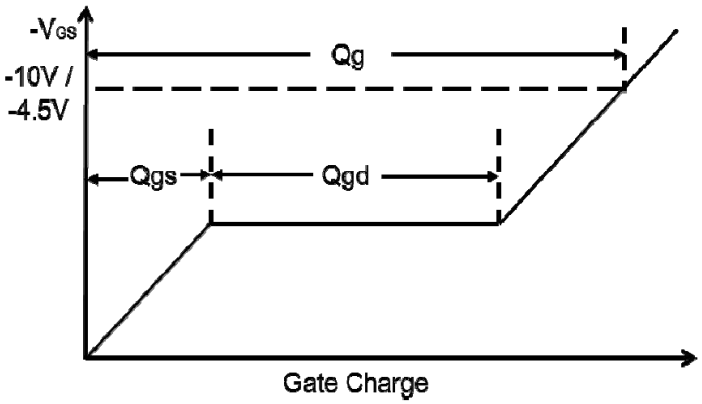
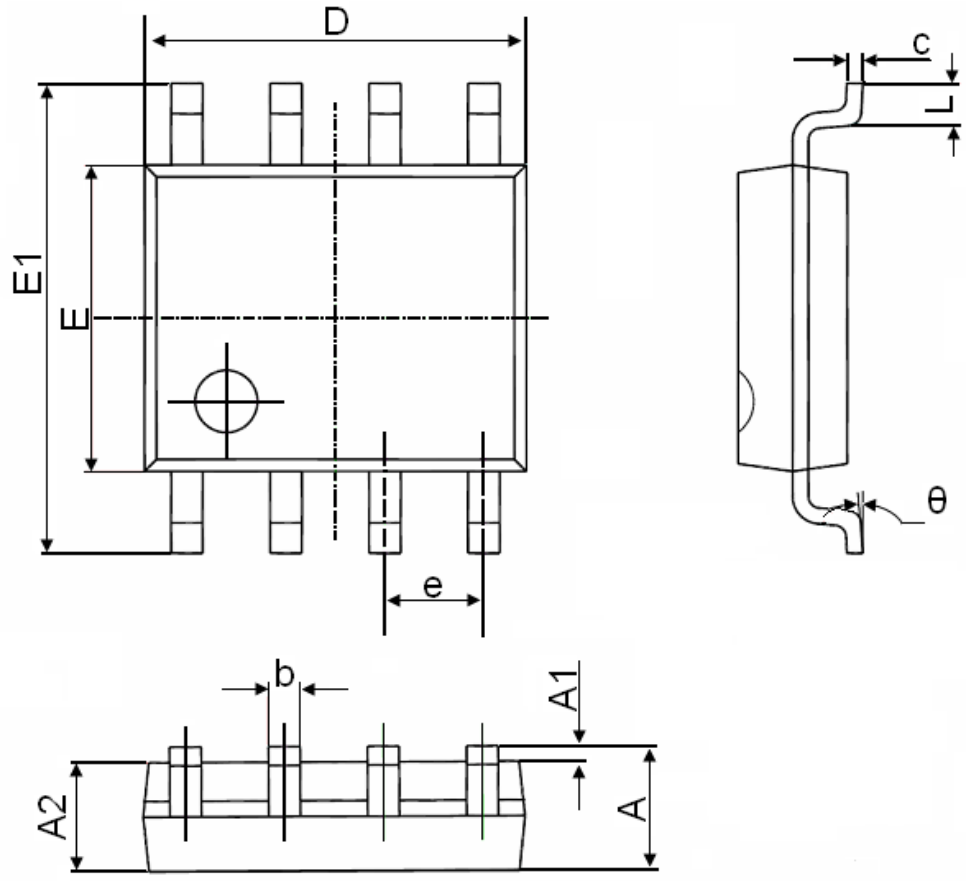


Fig.8 Gate Charge Waveform

SOP-8 Package Information



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	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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