

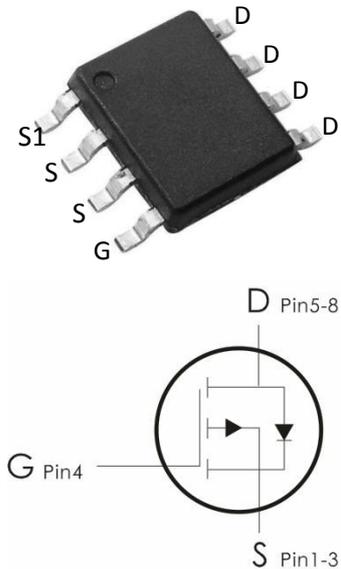
Description:

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) $V_{DS}=-60V, I_D=-3.2A, R_{DS(ON)}<105m\ \Omega$ @ $V_{GS}=-10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_C=25^\circ\text{C}$ 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- $T_C=25^\circ\text{C}$	-3.2	A
	Continuous Drain Current- $T_C=100^\circ\text{C}$	-2.56	
	Pulsed Drain Current ¹	-12.8	
E_{AS}	Single Pulse Avalanche Energy	25	mJ
P_D	Power Dissipation	2.02	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	23	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62	

Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\ \mu\text{A}$	-60	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=-60V, T_J=25^{\circ}\text{C}$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	-1.0	-1.6	-2.5	V
$R_{DS(on)}$	Drain-Source On Resistance ²	$V_{GS}=-10V, I_D=-3A$	---	87	105	$m\ \Omega$
		$V_{GS}=-4.5V, I_D=-2A$	---	120	145	
G_{FS}	Forward Transconductance	$V_{DS}=-10V, I_D=-3A$	---	5.5	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=-30V, V_{GS}=0V, f=1\text{MHz}$	---	785	1300	μF
C_{oss}	Output Capacitance		---	175	300	
C_{rss}	Reverse Transfer Capacitance		---	112	220	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time ^{2,3}	$V_{DS}=-30V, V_{GS}=-10V$ $I_D=-1A, R_{GEN}=6\ \Omega$	---	8	16	ns
t_r	Rise Time ^{2,3}		---	15.4	30	ns
$t_{d(off)}$	Turn-Off Delay Time ^{2,3}		---	42.8	80	ns
t_f	Fall Time ^{2,3}		---	8.4	16	ns
Q_g	Total Gate Charge ^{2,3}	$V_{DS}=-30V, V_{GS}=-4.5V,$ $I_D=-2A$	---	10	15	nC
Q_{gs}	Gate-Source Charge ^{2,3}		---	1.6	3.2	nC
Q_{gd}	Gate-Drain "Miller" Charge ^{2,3}		---	3	6	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage ²	$V_{GS}=0V, I_S=-1A, T_J=25^{\circ}\text{C}$	---	---	-1	V

LS	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	-3.2	A
LSM	Pulsed Source Current		---	-6.4	A

Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. $V_{DD}=-25V, V_{GS}=-10V, L=0.1mH, I_{AS}=-18A., R_G=25\Omega$. Starting $T_J=25^\circ C$.
3. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operating temperature.

Typical Characteristics: ($T_C=25^\circ C$ unless otherwise noted)

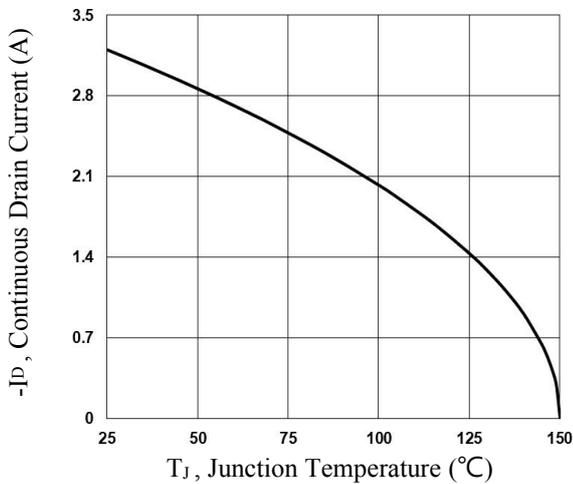


Fig.1 Continuous Drain Current vs. T_J

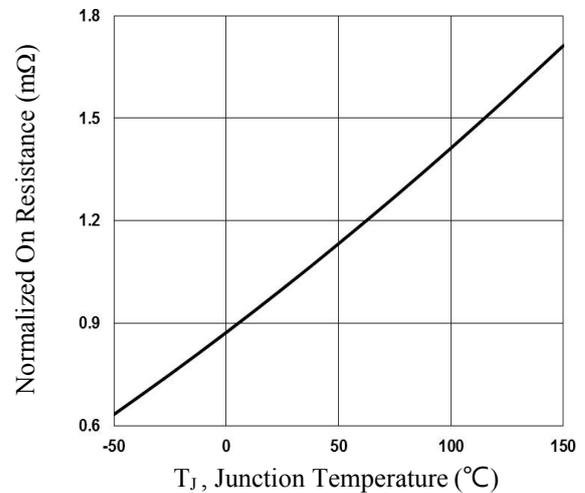


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

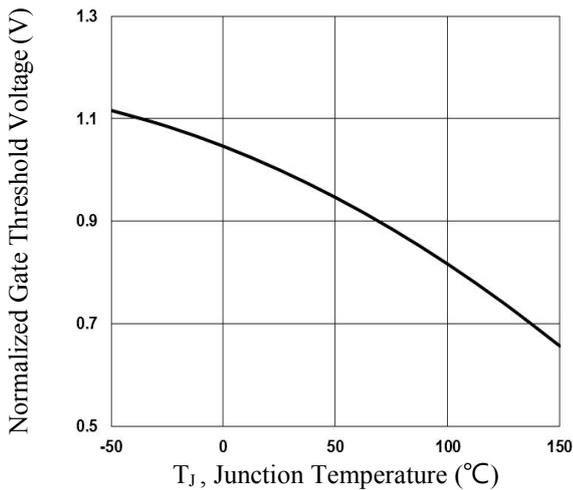


Fig.3 Normalized V_{th} vs. T_J

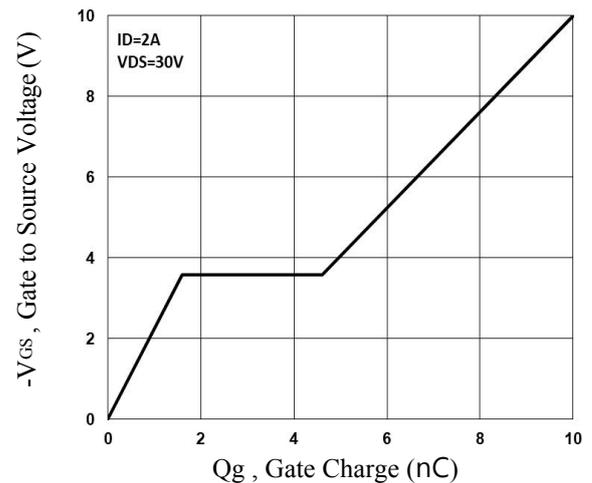


Fig.4 Gate Charge Waveform

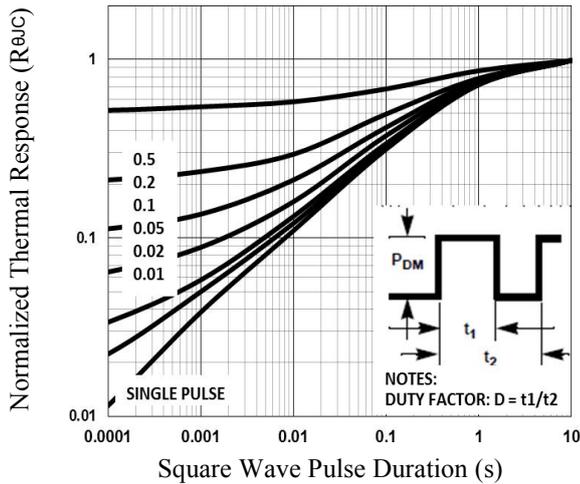


Fig.5 Normalized Transient Impedance

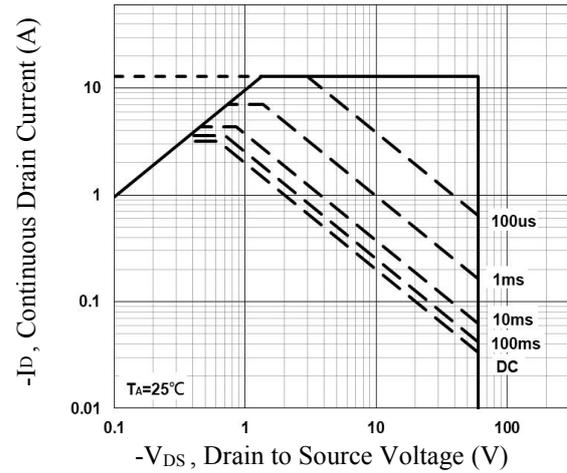


Fig.6 Maximum Safe Operation Area

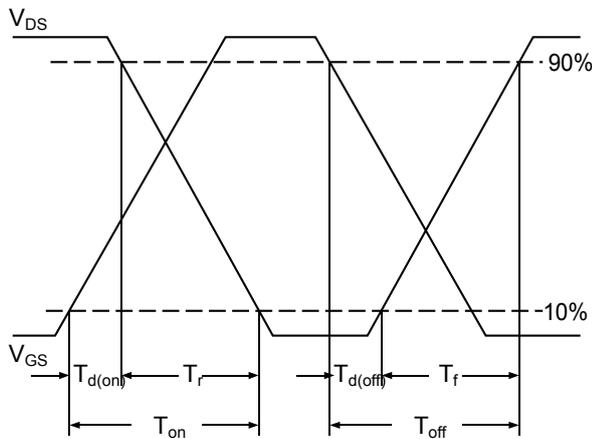


Fig.7 Switching Time Waveform

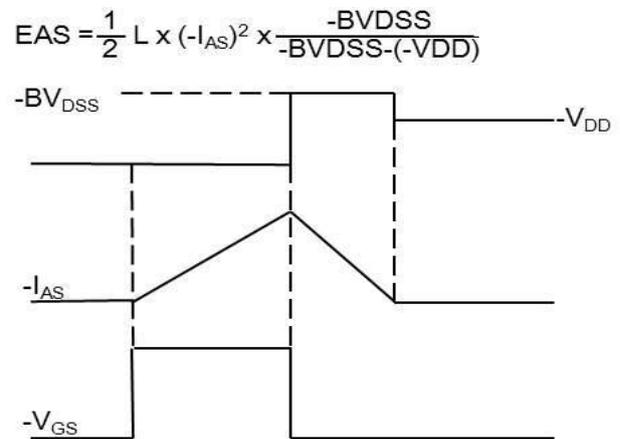


Fig.8 EAS Waveform



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