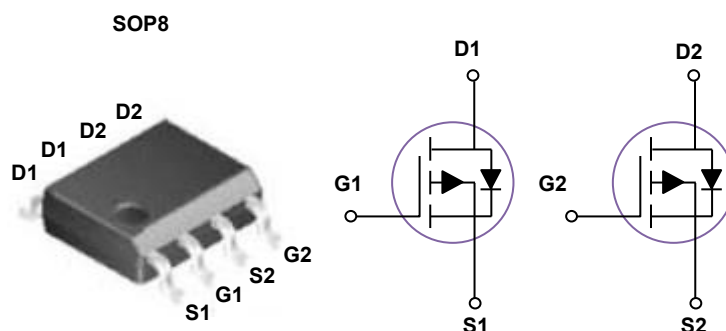


General Description

These P-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

Features

V_{DS}	-30V
I_D (at $V_{GS}=-10V$)	-5.3A
$R_{DS(ON)}$ (at $V_{GS}=-10V$)	45m Ω (Typ)



Absolute Maximum Ratings $T_A=25^{\circ}C$ unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current-Continuous	TC=25 $^{\circ}C$	I_D	-5.3	A
	TC=100 $^{\circ}C$	I_D	-3.4	A
Drain Current – Pulsed		I_{DM}	-21	A
Maximum Power Dissipation		P_D	2.1	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 To 150	$^{\circ}C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance junction-case	$R_{\theta Jc}$		45	$^{\circ}C / W$
Thermal Resistance junction-to-Ambient	$R_{\theta JA}$		60	$^{\circ}C / W$

Electrical Characteristics (TJ=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =-250μA	-30			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V,V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V,V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =-250μA	-1.0	-1.6	-2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-4.9A		45	50	mΩ
		V _{GS} =-4.5V, I _D =-3.7A		65	75	mΩ
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{DS} =-15V,V _{GS} =0V, F=1.0MHz		560		pF
C _{Oss}	Output Capacitance			55		pF
C _{rss}	Reverse Transfer Capacitance			40		pF
SWITCHING PARAMETERS						
t _{d(on)}	Turn-on Delay Time	V _{DD} =-15V,I _D =-1A, V _{GS} =-10V, R _G =6Ω		7		nS
t _r	Turn-on Rise Time			13		nS
t _{d(off)}	Turn-Off Delay Time			14		nS
t _f	Turn-Off Fall Time			9		nS
Q _g	Total Gate Charge	V _{DS} =-15V,I _D =-3A, V _{GS} =-10V		5.1		nC
Q _{gs}	Gate-Source Charge			2		nC
Q _{gd}	Gate-Drain Charge			2.2		nC
V _{SD}	Diode Forward Voltage	V _{GS} =0V,I _{SD} =-1A		0.72	1.4	V
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		5		Ω

Note:

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

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

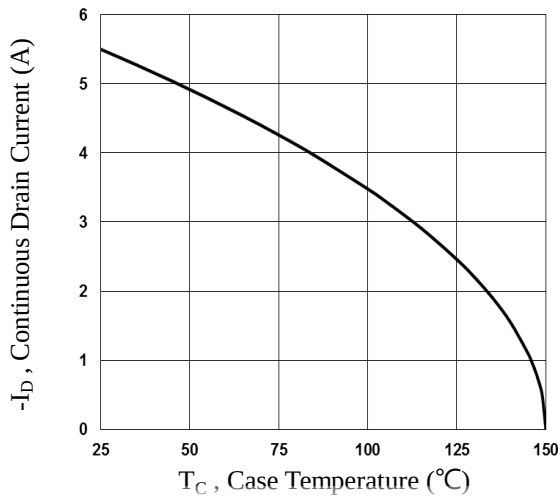


Fig.1 Continuous Drain Current vs. T_C

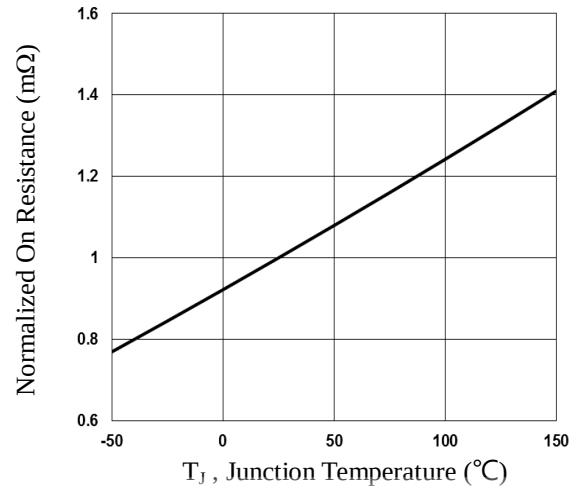


Fig.2 Normalized RDSON vs. T_J

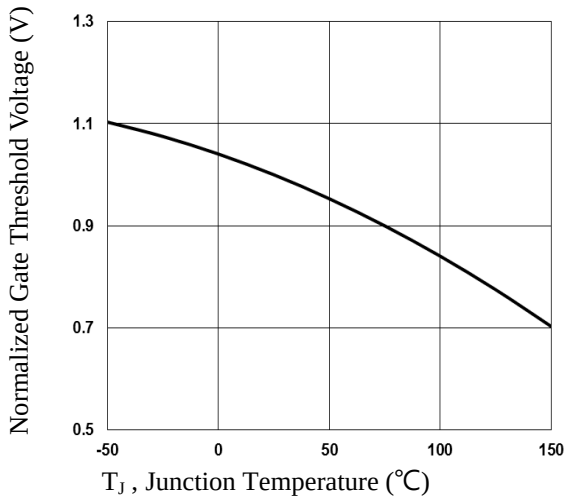


Fig.3 Normalized V_{th} vs. T_J

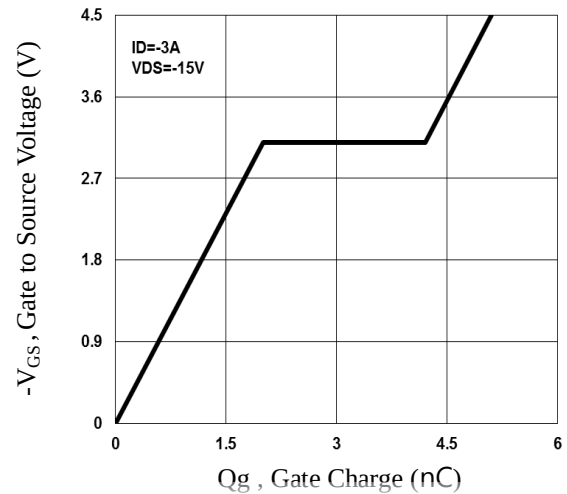


Fig.4 Gate Charge Waveform

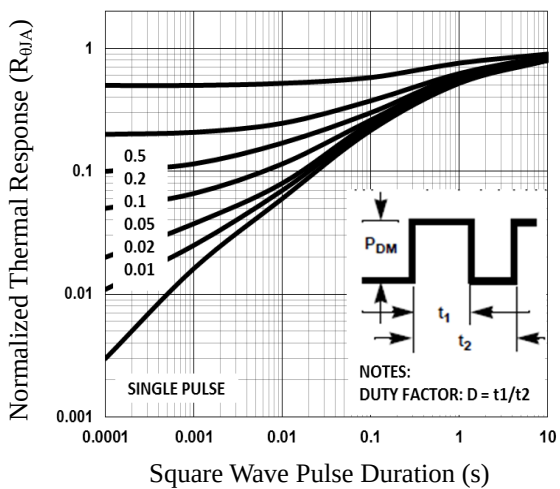


Fig.5 Normalized Transient Impedance

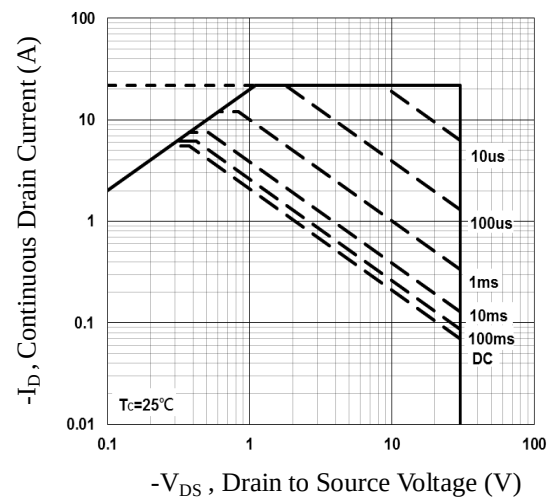


Fig.6 Maximum Safe Operation Area

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

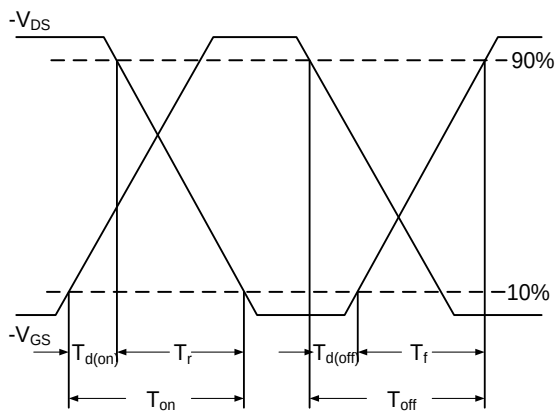


Fig.7 Switching Time Waveform

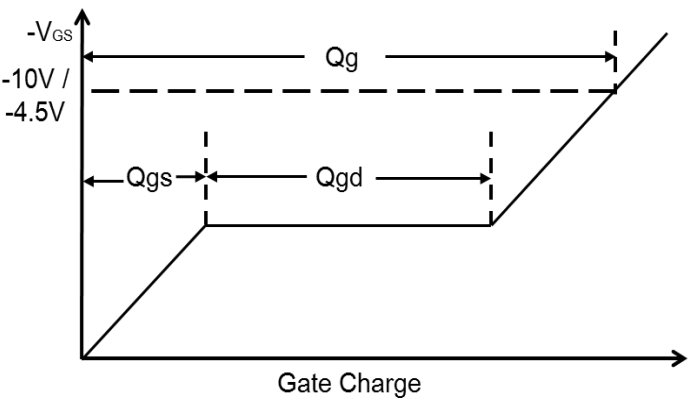
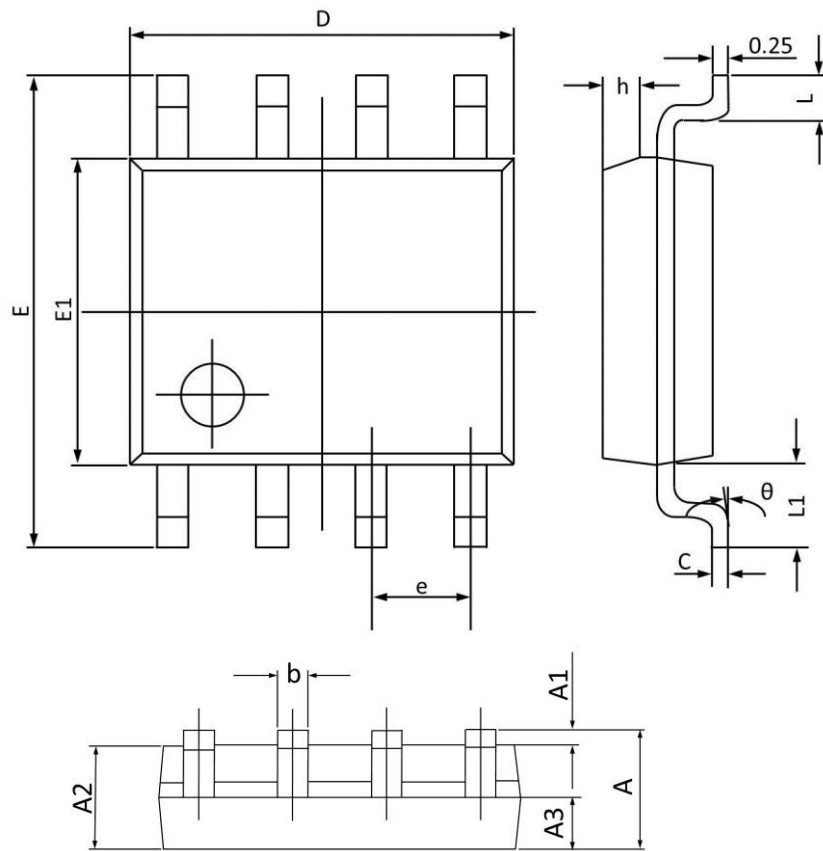


Fig.8 Gate Charge Waveform

SOP8 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.068
A1	0.100	0.250	0.004	0.009
A2	1.300	1.500	0.052	0.059
A3	0.600	0.700	0.024	0.027
b	0.390	0.480	0.016	0.018
c	0.210	0.260	0.009	0.010
D	4.700	5.100	0.186	0.200
E	5.800	6.200	0.229	0.244
E1	3.700	4.100	0.146	0.161
e	1.270(BSC)		0.050(BSC)	
h	0.250	0.500	0.010	0.019
L	0.500	0.800	0.019	0.031
L1	1.050(BSC)		0.041(BSC)	
θ	0°	8°	0°	8°