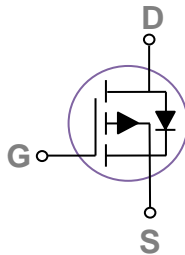
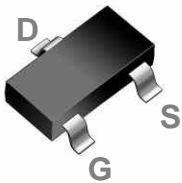


General Description

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.

SOT23-3S Pin Configuration



BVDSS	RDSON	ID
-150V	750mΩ	-1A

Features

- -150V,-1A, $R_{DS(ON)} = 750m\Omega @ V_{GS} = -10V$
- Improved dv/dt capability
- Fast switching
- 100% EAS Guaranteed
- Green Device Available

Applications

- Networking
- Load Switch
- LED applications

Absolute Maximum Ratings $T_c=25^\circ C$ unless otherwise noted

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-150	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current – Continuous ($T_A=25^\circ C$)	-1	A
	Drain Current – Continuous ($T_A=70^\circ C$)	-0.8	A
I_{DM}	Drain Current – Pulsed ¹	-4	A
P_D	Power Dissipation ($T_A=25^\circ C$)	1.56	W
	Power Dissipation – Derate above 25°C	0.012	W/°C
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	80	°C/W

Electrical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)
Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-150	---	---	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-150V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	-1	μA
		$V_{DS}=-120V, V_{GS}=0V, T_J=125^\circ\text{C}$	---	---	-10	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA

On Characteristics

$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-1A$	---	650	750	$m\Omega$
		$V_{GS}=-6V, I_D=-0.5A$	---	700	950	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-2	-3	-4	V
gfs	Forward Transconductance	$V_{DS}=-10V, I_D=-1A$	---	2	---	S

Dynamic and switching Characteristics

Q_g	Total Gate Charge ^{2,3}	$V_{DS}=-75V, V_{GS}=-10V, I_D=-1A$	---	4.4	8	nC
Q_{gs}	Gate-Source Charge ^{2,3}		---	0.7	2	
Q_{gd}	Gate-Drain Charge ^{2,3}		---	1.5	3	
$T_{d(on)}$	Turn-On Delay Time ^{2,3}	$V_{DD}=-75V, V_{GS}=-10V, R_G=10\Omega, I_D=-1A$	---	12.5	20	ns
T_r	Rise Time ^{2,3}		---	8.9	18	
$T_{d(off)}$	Turn-Off Delay Time ^{2,3}		---	17.3	36	
T_f	Fall Time ^{2,3}		---	11.5	24	
C_{iss}	Input Capacitance	$V_{DS}=-25V, V_{GS}=0V, F=1\text{MHz}$	---	430	700	pF
C_{oss}	Output Capacitance		---	38	60	
C_{rss}	Reverse Transfer Capacitance		---	28	56	
R_g	Gate resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	---	30	60	Ω

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V, \text{Force Current}$	---	---	-1	A
I_{SM}	Pulsed Source Current		---	---	-2	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=-1A, T_J=25^\circ\text{C}$	---	---	-1	V

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.

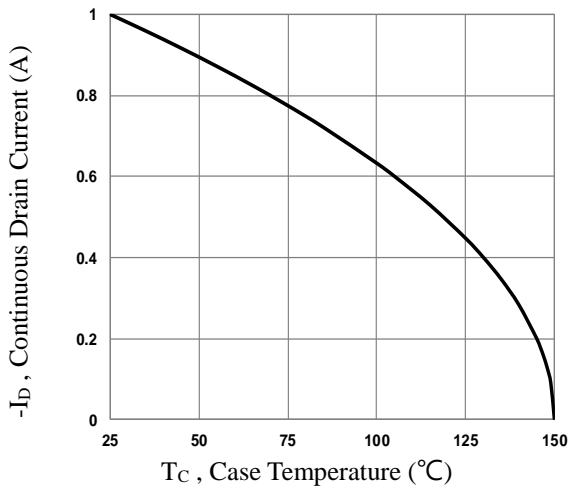


Fig.1 Continuous Drain Current vs. T_c

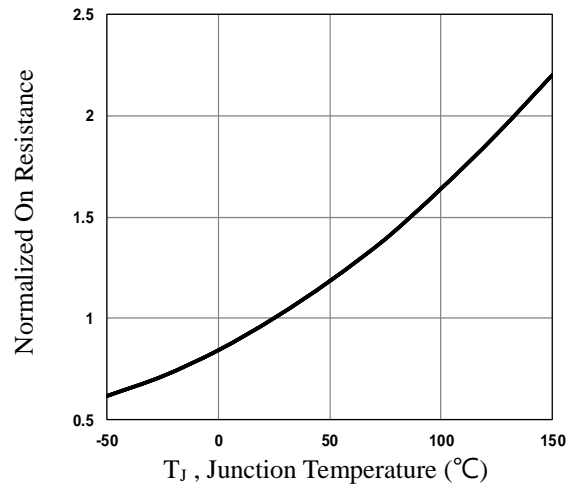


Fig.2 Normalized $R_{DS(on)}$ vs. T_j

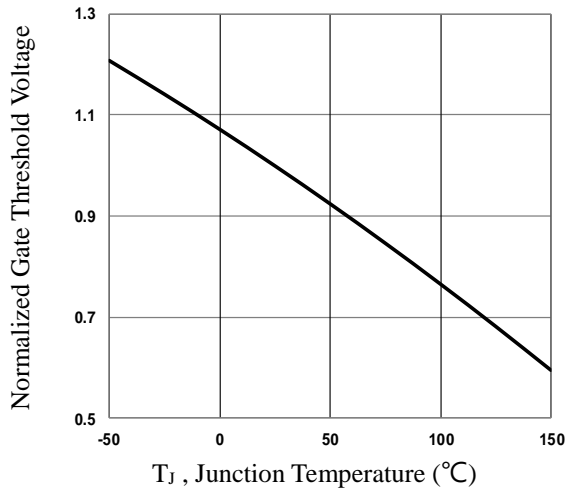


Fig.3 Normalized V_{th} vs. T_j

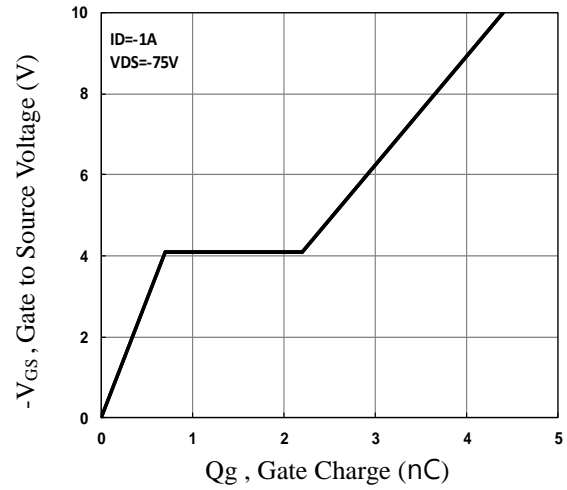


Fig.4 Gate Charge Waveform

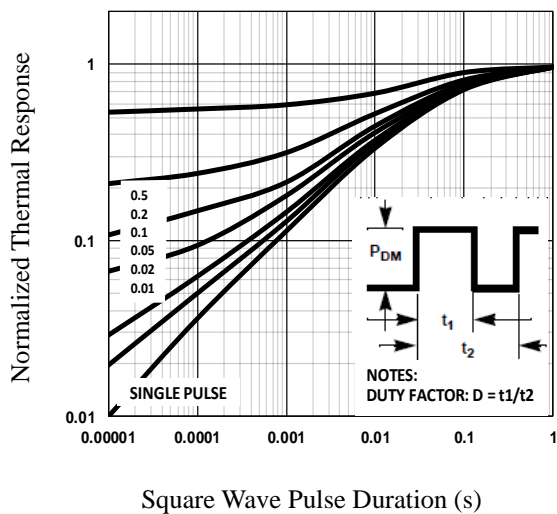


Fig.5 Normalized Transient Impedance

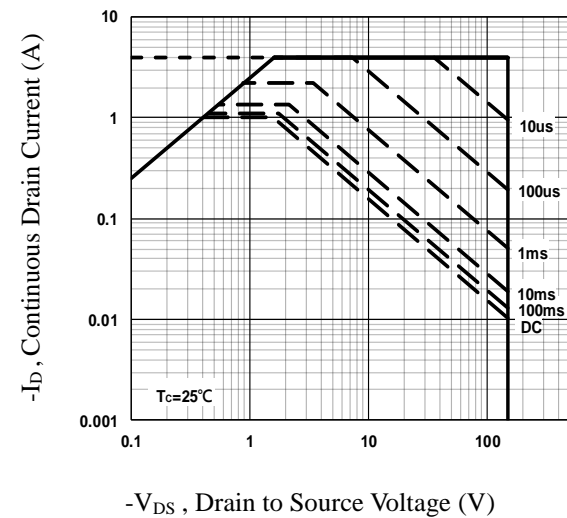


Fig.6 Maximum Safe Operation Area

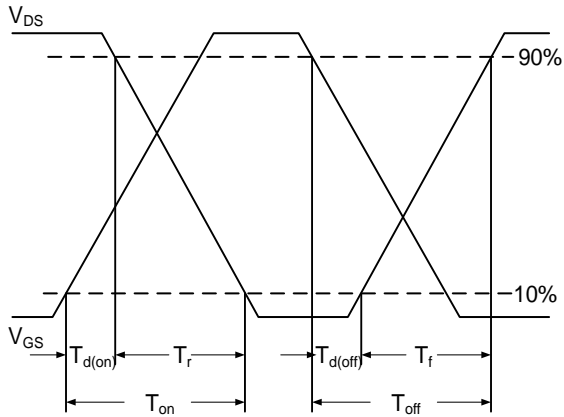


Fig.7 Switching Time Waveform

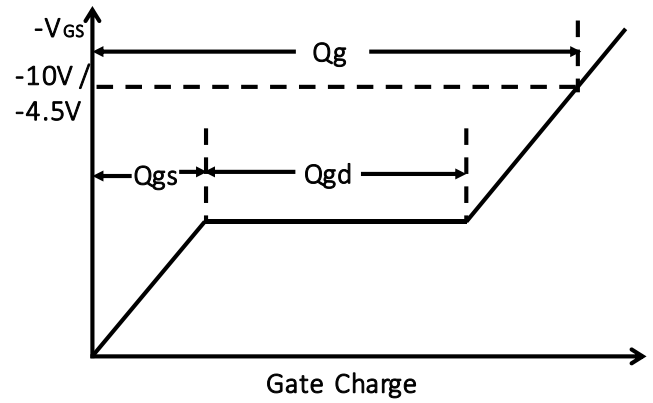
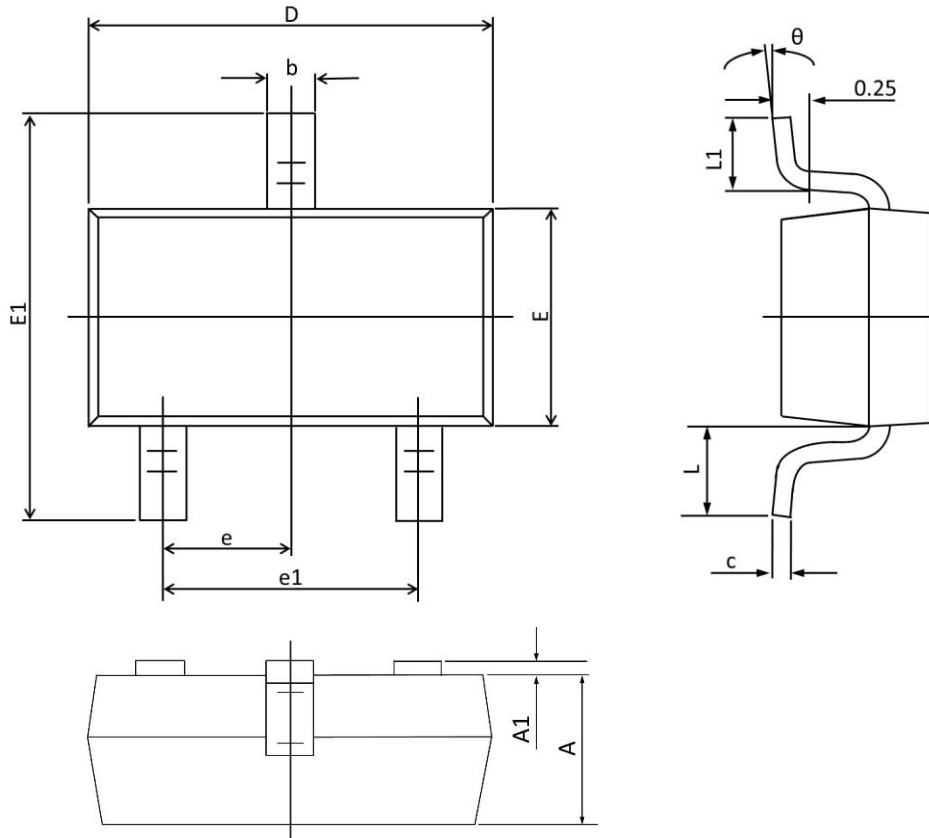


Fig.8 Gate Charge Waveform

SOT23-3S PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.001	0.100	0.000	0.004
b	0.300	0.500	0.012	0.020
c	0.080	0.180	0.003	0.008
D	2.700	3.100	0.106	0.122
E	1.100	1.500	0.043	0.059
E1	2.100	2.640	0.080	0.104
e	0.950 TYP.		0.037 TYP.	
e1	1.780	2.040	0.070	0.080
L	0.550 REF.		0.022 REF.	
L1	0.100	0.500	0.004	0.020
θ	1°	10°	1°	10°