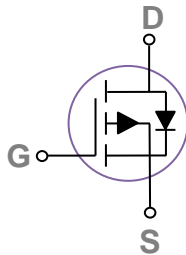
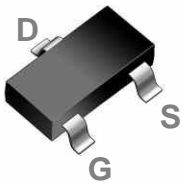


**General Description**

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.

**SOT23-3 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	$\pm 20$	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 <sup>1</sup>	-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 ( $T_J=25\text{ }^\circ\text{C}$ , 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	$V_{DS}=-150V, V_{GS}=0V, T_J=25^\circ C$	---	---	-1	$\mu A$
		$V_{DS}=-120V, V_{GS}=0V, T_J=125^\circ C$	---	---	-10	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	$\pm 100$	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**

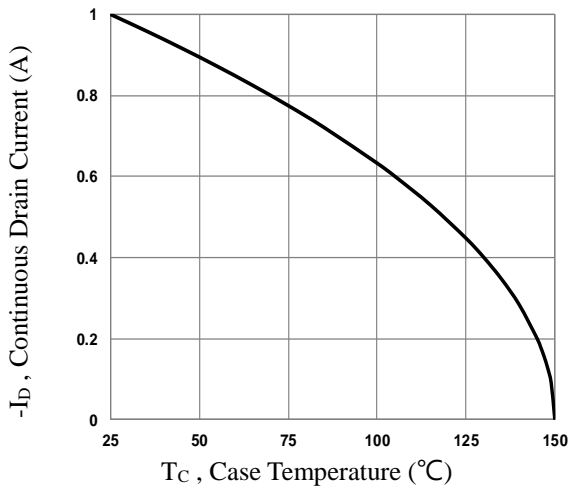
$Q_g$	Total Gate Charge <sup>2,3</sup>	$V_{DS}=-75V, V_{GS}=-10V, I_D=-1A$	---	4.4	8	nC
$Q_{gs}$	Gate-Source Charge <sup>2,3</sup>		---	0.7	2	
$Q_{gd}$	Gate-Drain Charge <sup>2,3</sup>		---	1.5	3	
$T_{d(on)}$	Turn-On Delay Time <sup>2,3</sup>	$V_{DD}=-75V, V_{GS}=-10V, R_G=10\Omega, I_D=-1A$	---	12.5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

**Drain-Source Diode Characteristics and Maximum Ratings**

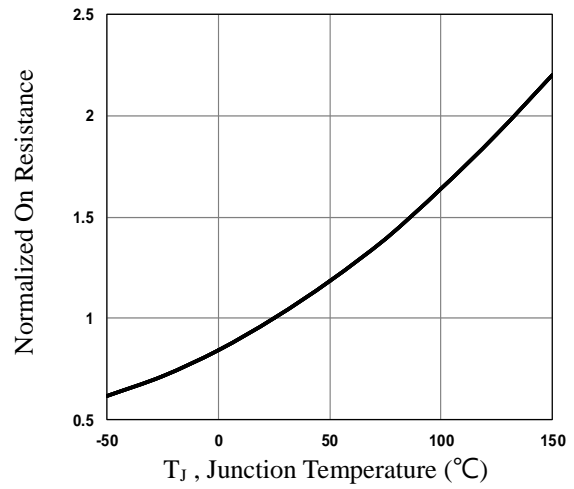
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_S$	Continuous Source Current	$V_G=V_D=0V, \text{ Force Current}$	---	---	-1	A
$I_{SM}$	Pulsed Source Current		---	---	-2	A
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V, I_S=-1A, T_J=25^\circ C$	---	---	-1	V

Note :

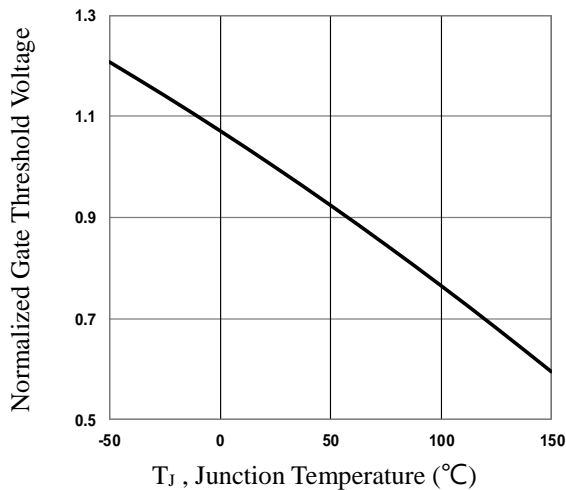
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width  $\leq 300\mu s$  , duty cycle  $\leq 2\%$ .
3. Essentially independent of operating temperature.



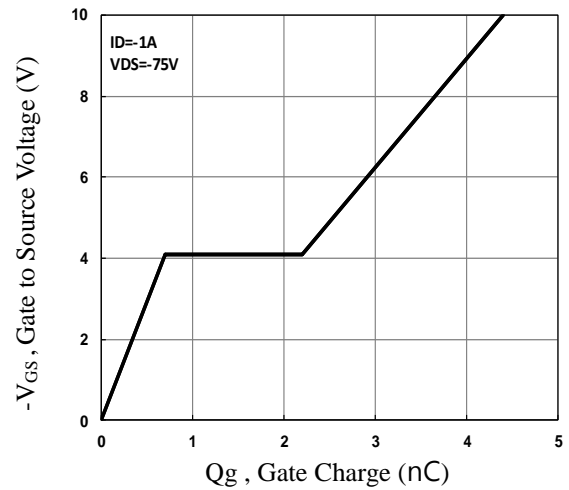
**Fig.1 Continuous Drain Current vs.  $T_c$**



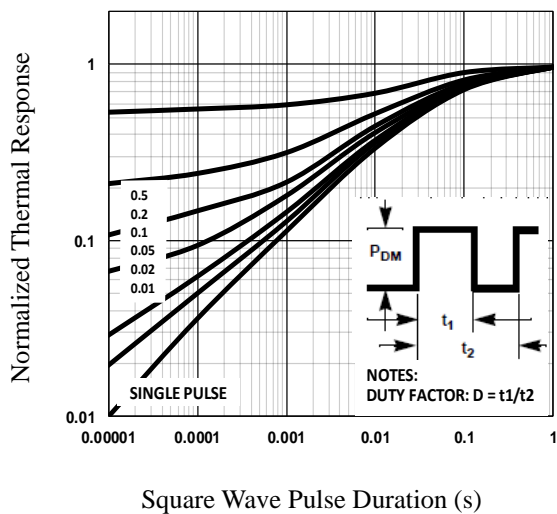
**Fig.2 Normalized  $R_{DS(on)}$  vs.  $T_j$**



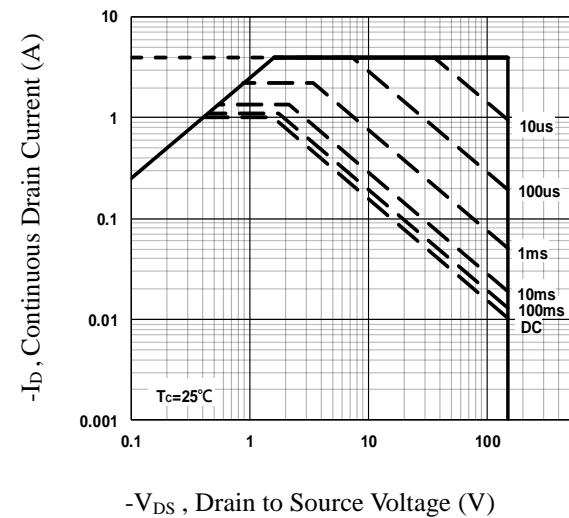
**Fig.3 Normalized  $V_{th}$  vs.  $T_j$**



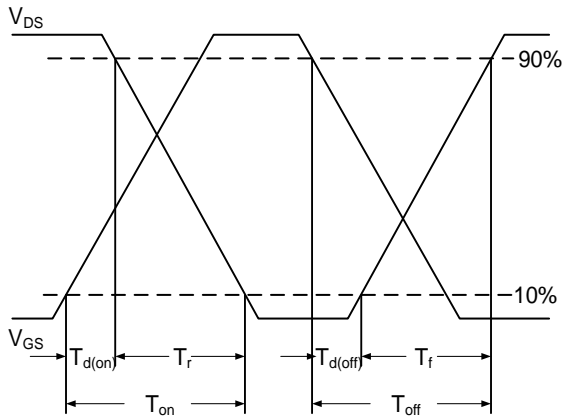
**Fig.4 Gate Charge Waveform**



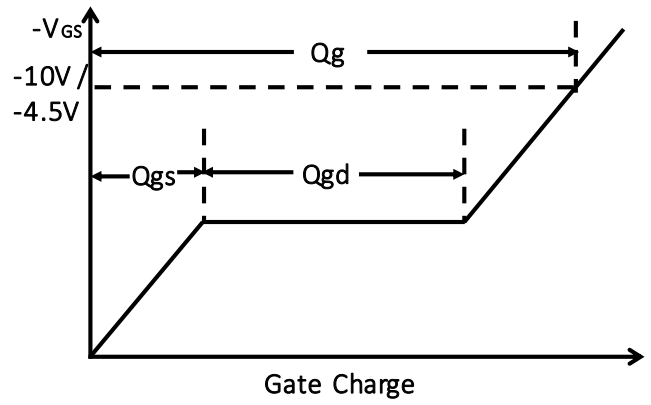
**Fig.5 Normalized Transient Impedance**



**Fig.6 Maximum Safe Operation Area**

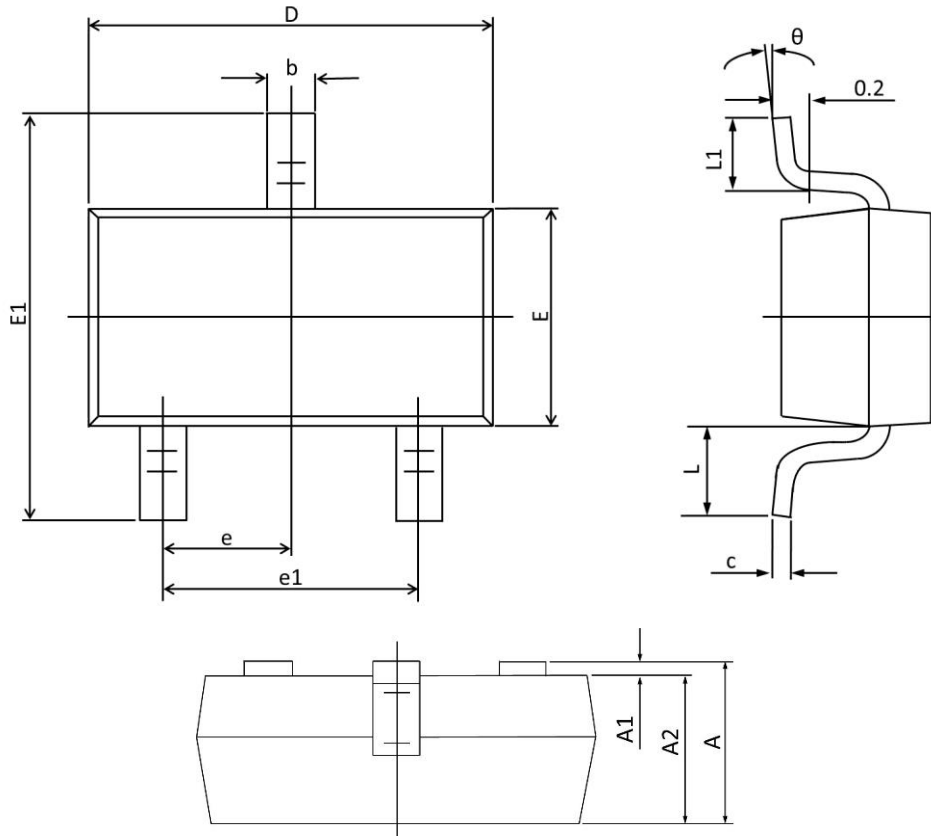


**Fig.7 Switching Time Waveform**



**Fig.8 Gate Charge Waveform**

**SOT23-3 PACKAGE INFORMATION**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.450	0.041	0.057
A1	---	0.150	---	0.006
A2	0.900	1.300	0.035	0.051
b	0.300	0.490	0.012	0.019
c	0.100	0.200	0.004	0.008
D	2.820	3.050	0.111	0.120
E	1.500	1.750	0.059	0.069
E1	2.600	3.000	0.102	0.118
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.700 REF.		0.028 REF.	
L1	0.300	0.600	0.012	0.024
$\theta$	0°	8°	0°	8°