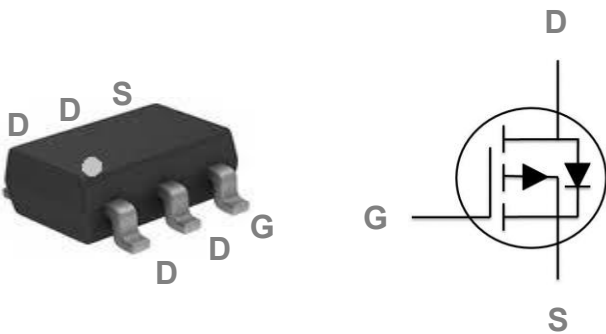


### General Description

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.

### SOT23-6L Pin Configuration



BVDSS	R <sub>DS(ON)</sub>	I <sub>D</sub>
-20V	28mΩ	-4.8A

### Features

- -20V, -4.8A, R<sub>DS(ON)</sub> = 28mΩ @ V<sub>GS</sub> = -4.5V
- Improved dv/dt capability
- Fast switching
- Green Device Available

### Applications

- Notebook
- Load Switch
- Networking

### Absolute Maximum Ratings T<sub>c</sub>=25°C unless otherwise noted

Symbol	Parameter	Rating	Units
V <sub>DS</sub>	Drain-Source Voltage	-20	V
V <sub>GS</sub>	Gate-Source Voltage	±12	V
I <sub>D</sub>	Drain Current – Continuous (T <sub>A</sub> =25°C)	-4.8	A
	Drain Current – Continuous (T <sub>A</sub> =70°C)	-3.8	A
I <sub>DM</sub>	Drain Current – Pulsed <sup>1</sup>	-19.2	A
P <sub>D</sub>	Power Dissipation (T <sub>A</sub> =25°C)	1	W
	Power Dissipation – Derate above 25°C	0.008	W/°C
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150	°C

### Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
R <sub>θJA</sub>	Thermal Resistance Junction to ambient	---	125	°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	$V_{GS}=0V, I_D=-250\mu A$	-20	---	---	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=-20V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	-1	$\mu A$
		$V_{DS}=-16V, V_{GS}=0V, T_J=125^\circ\text{C}$	---	---	-10	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	---	---	$\pm 100$	nA

**On Characteristics**

$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5V, I_D=-2A$	---	23	28	m $\Omega$
		$V_{GS}=-2.5V, I_D=-1.5A$	---	32	40	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-0.5	-0.8	-1.1	V
$\Delta V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	2	---	mV/ $^\circ\text{C}$
$g_{fs}$	Forward Transconductance	$V_{DS}=-10V, I_S=-1A$	---	8.4	---	S

**Dynamic and switching Characteristics**

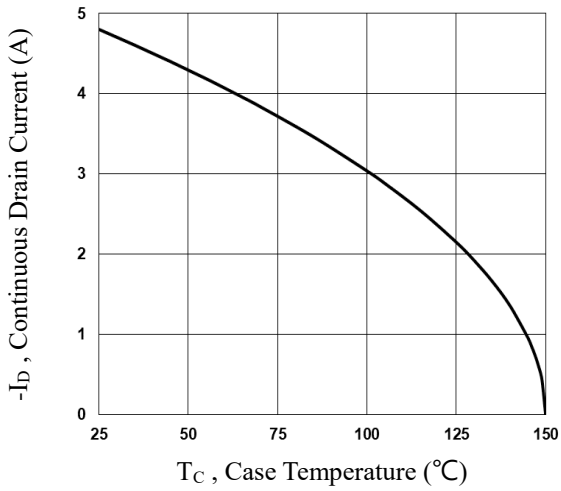
$Q_g$	Total Gate Charge <sup>2, 3</sup>	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-2A$	---	---	---	nC
$Q_{gs}$	Gate-Source Charge <sup>2, 3</sup>		---	---	---	
$Q_{gd}$	Gate-Drain Charge <sup>2, 3</sup>		---	---	---	
$T_{d(on)}$	Turn-On Delay Time <sup>2, 3</sup>	$V_{DD}=-10V, V_{GS}=-4.5V, R_G=25\Omega$ $I_D=-1A$	---	---	---	nS
$T_r$	Rise Time <sup>2, 3</sup>		---	---	---	
$T_{d(off)}$	Turn-Off Delay Time <sup>2, 3</sup>		---	---	---	
$T_f$	Fall Time <sup>2, 3</sup>		---	---	---	
$C_{iss}$	Input Capacitance	$V_{DS}=-10V, V_{GS}=0V, F=1\text{MHz}$	---	---	---	pF
$C_{oss}$	Output Capacitance		---	---	---	
$C_{rss}$	Reverse Transfer Capacitance		---	---	---	

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

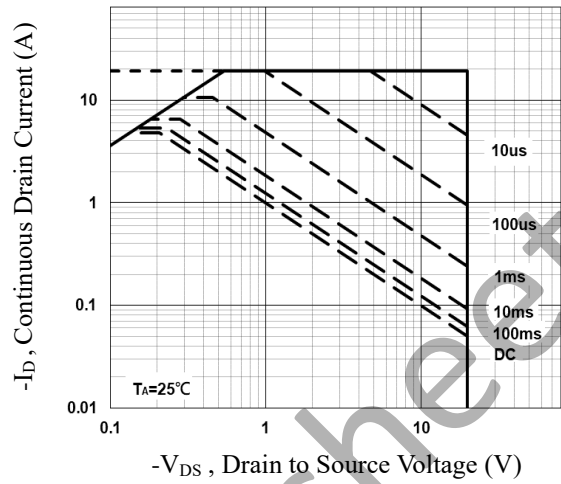
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_S$	Continuous Source Current	$V_G=V_D=0V$ , Force Current	---	---	-4.8	A
$I_{SM}$	Pulsed Source Current		---	---	-9.6	A
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V, I_S=-1A, T_J=25^\circ\text{C}$	---	---	-1	V

Note :

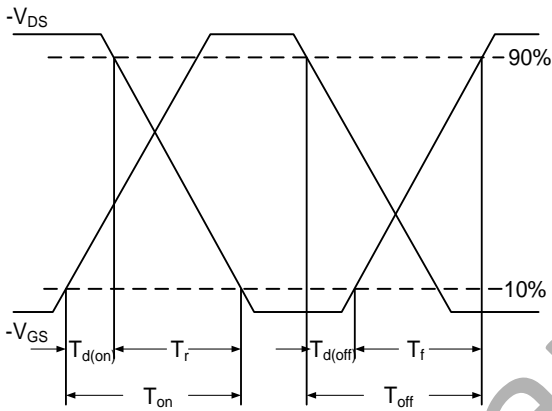
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
3. Essentially independent of operating temperature.



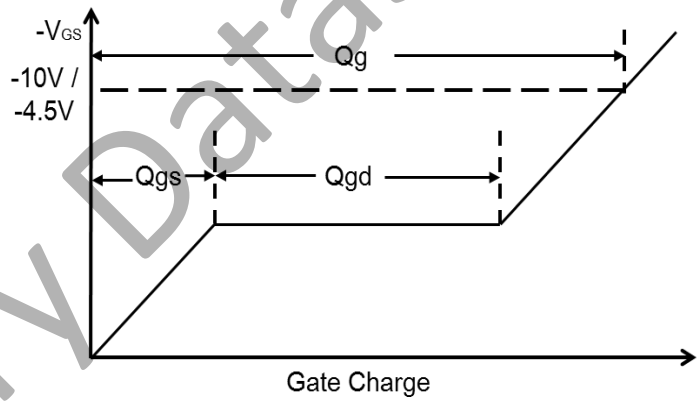
**Fig.1 Continuous Drain Current vs.  $T_C$**



**Fig.2 Maximum Safe Operation**

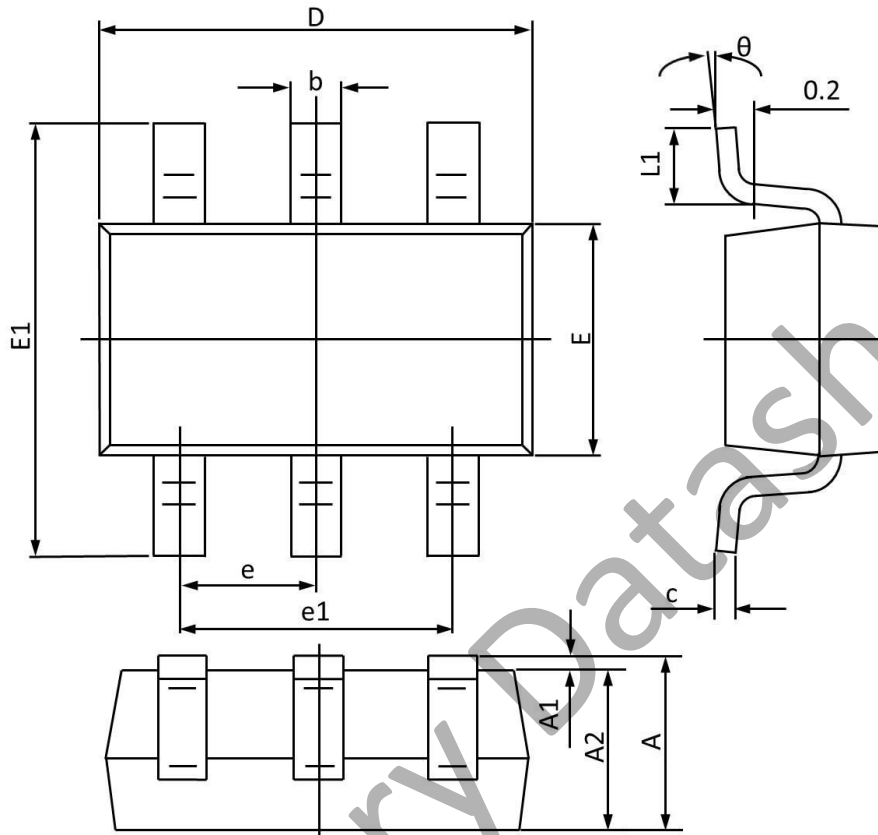


**Fig.3 Switching Time Waveform**



**Fig.4 Gate Charge Waveform**

### SOT23-6L PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.450	-	0.057	-
A1	0.100	0.000	0.004	0.000
A2	1.300	1.050	0.051	0.041
b	0.500	0.300	0.020	0.012
e	0.200	0.100	0.008	0.004
D	3.100	2.700	0.122	0.106
E	1.800	1.400	0.071	0.055
E1	3.000	2.600	0.118	0.102
e	0.95BSC		0.037BSC	
e1	2.000	1.800	0.079	0.071
L1	0.600	0.300	0.024	0.012
theta	10°	0°	10°	0°