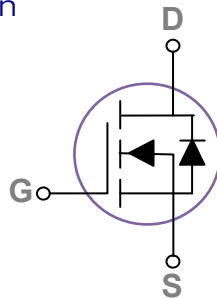
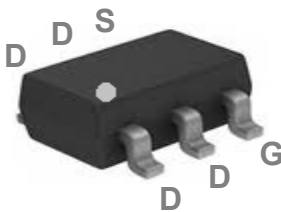


### General Description

These N-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.

### SOT23-6 Pin Configuration



BVDSS	RDSON	ID
150V	480mΩ	1.4A

### Features

- 150V, 1.4A,  $R_{DS(ON)} = 480m\Omega @ V_{GS} = 10V$
- Improved  $dv/dt$  capability
- Fast switching
- 100% EAS Guaranteed

### Applications

- Networking
- Load Switch
- LED applications

### Absolute Maximum Ratings $T_c=25^\circ\text{C}$ 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 ( $T_c=25^\circ\text{C}$ )	1.4	A
	Drain Current – Continuous ( $T_c=100^\circ\text{C}$ )	0.88	A
$I_{DM}$	Drain Current – Pulsed <sup>1</sup>	5.6	A
$P_D$	Power Dissipation ( $T_c=25^\circ\text{C}$ )	1.56	W
	Power Dissipation – Derate above $25^\circ\text{C}$	0.012	W/ $^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-50 to 150	$^\circ\text{C}$
$T_J$	Operating Junction Temperature Range	-50 to 150	$^\circ\text{C}$

### Thermal Characteristics

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

**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	$\mu A$
		$V_{DS}=120V, V_{GS}=0V, T_J=125^\circ\text{C}$	---	---	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	$V_{GS}=10V, I_D=1A$	---	380	480	m $\Omega$
		$V_{GS}=6V, I_D=0.5A$	---	410	520	m $\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	2	3	4	V
gfs	Forward Transconductance	$V_{DS}=10V, I_D=1A$	---	1.7	---	S

**Dynamic and switching Characteristics**

$Q_g$	Total Gate Charge <sup>2,3</sup>	$V_{DS}=75V, V_{GS}=10V, I_D=1A$	---	8.1	16	nC
$Q_{gs}$	Gate-Source Charge <sup>2,3</sup>		---	2	4	
$Q_{gd}$	Gate-Drain Charge <sup>2,3</sup>		---	2.7	5.4	
$T_{d(on)}$	Turn-On Delay Time <sup>2,3</sup>	$V_{DD}=75V, V_{GS}=10V, R_G=10\Omega$ $I_D=1A$	---	8.2	16	ns
$T_r$	Rise Time <sup>2,3</sup>		---	5.8	12	
$T_{d(off)}$	Turn-Off Delay Time <sup>2,3</sup>		---	14.8	28	
$T_f$	Fall Time <sup>2,3</sup>		---	8	16	
$C_{iss}$	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, F=1\text{MHz}$	---	350	700	pF
$C_{oss}$	Output Capacitance		---	34	68	
$C_{rss}$	Reverse Transfer Capacitance		---	26	52	
$R_g$	Gate resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	---	2	4	$\Omega$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_S$	Continuous Source Current	$V_G=V_D=0V$ , Force Current	---	---	1.4	A
$I_{SM}$	Pulsed Source Current		---	---	2.8	A
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V, I_S=1A, T_J=25^\circ\text{C}$	---	---	1	V
$t_{rr}$	Reverse Recovery Time	$V_{GS}=0V, I_S=1A, di/dt=100A/\mu s$	---	43	---	ns
$Q_{rr}$	Reverse Recovery Charge	$T_J=25^\circ\text{C}$	---	37	---	nC

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.

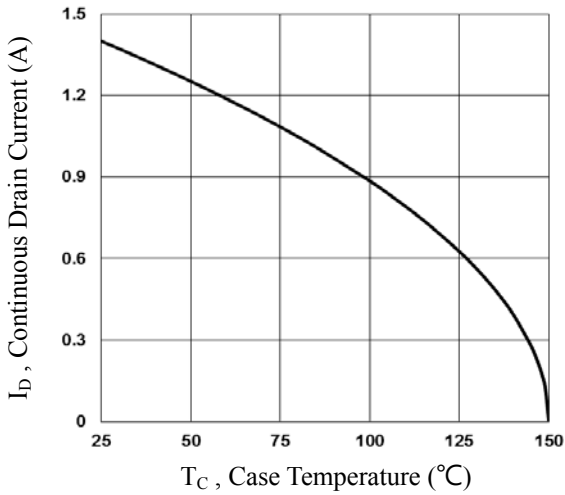


Fig.1 Continuous Drain Current vs.  $T_C$

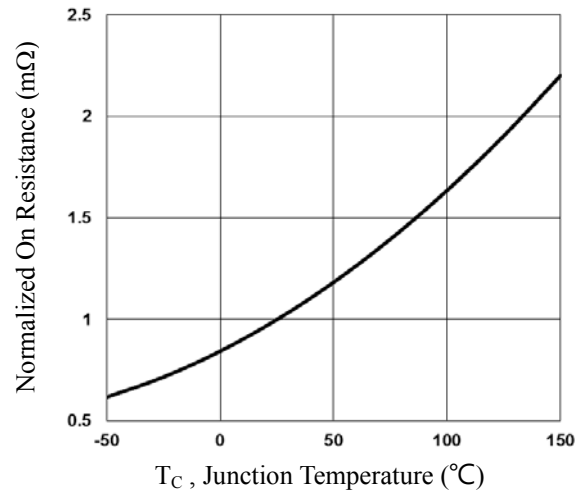


Fig.2 Continuous Drain Current vs.  $T_C$

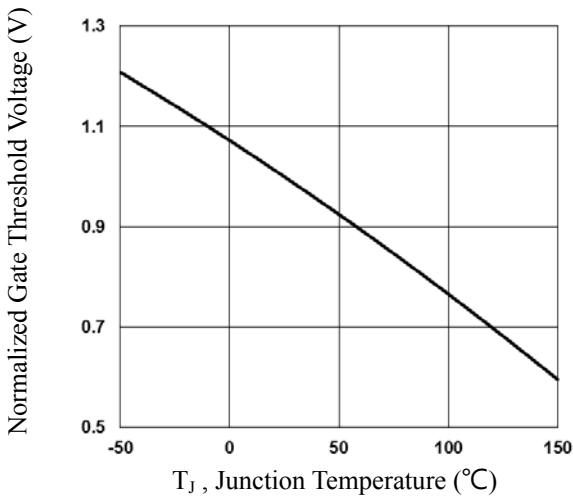


Fig.3 Normalized  $V_{th}$  vs.  $T_J$

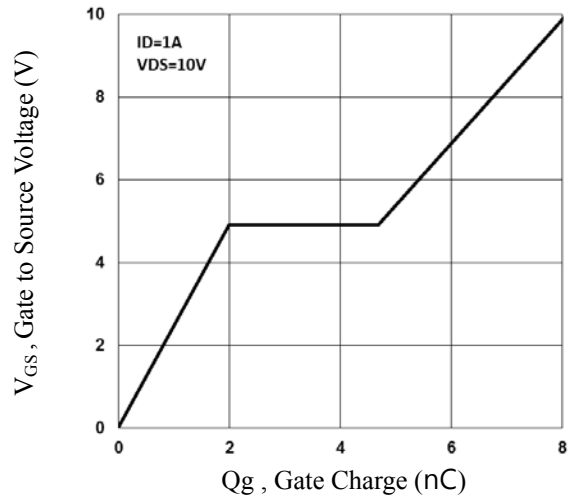


Fig.4 Gate Charge Waveform

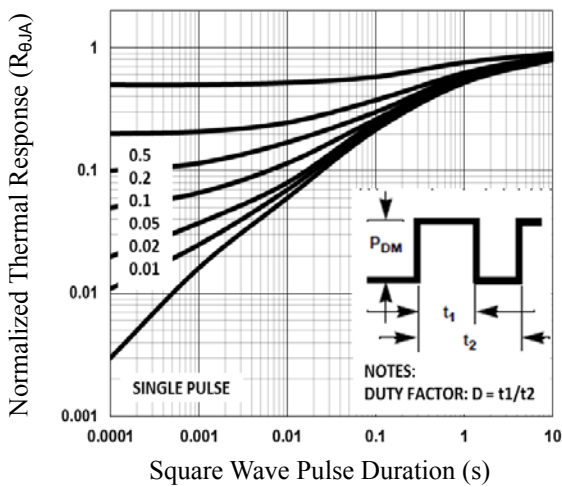


Fig.5 Normalized Transient Impedance

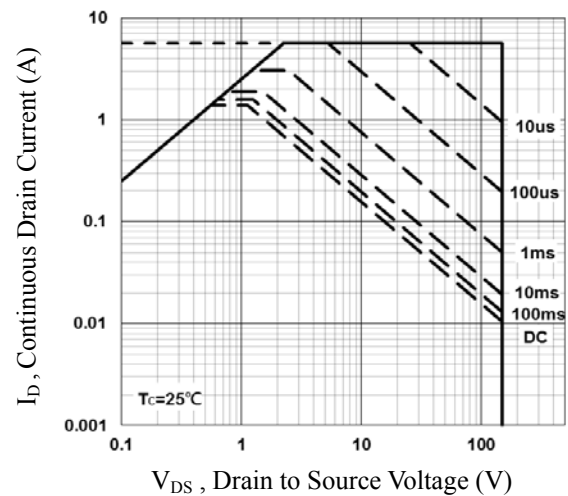


Fig.6 Maximum Safe Operation Area

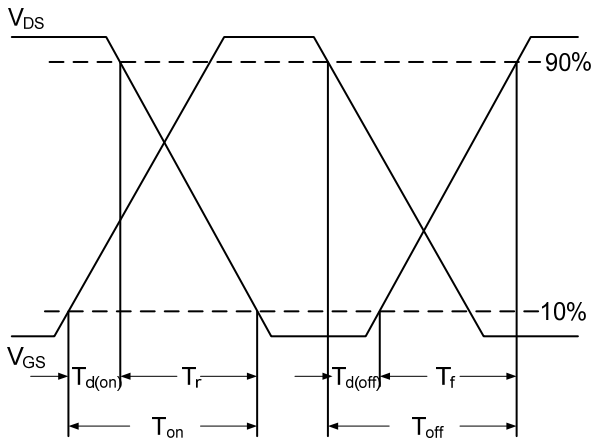


Fig.7 Switching Time Waveform

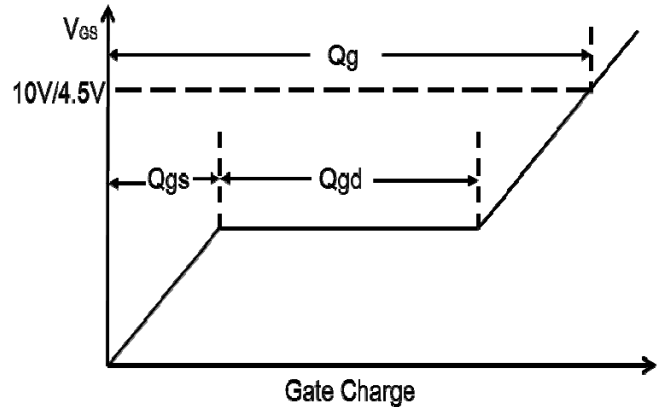
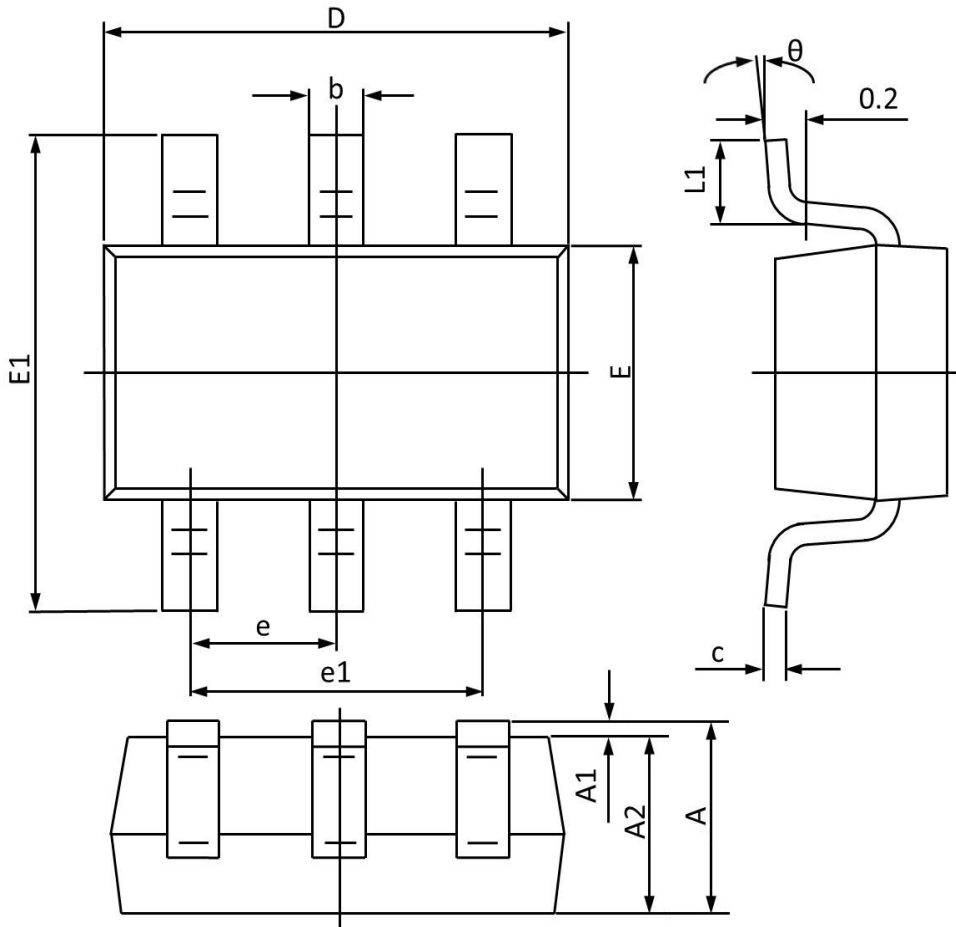


Fig.8 Gate Charge Waveform

### SOT23-6 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
c	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°