



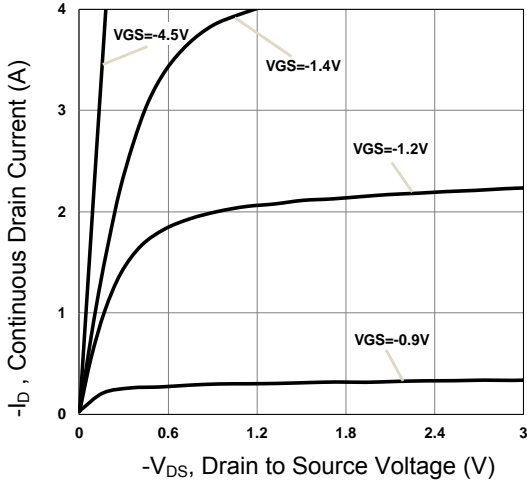
**Electrical Characteristics** ( $T_J=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=-20V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	-1	$\mu A$
		$V_{DS}=-16V, V_{GS}=0V, T_J=125^\circ\text{C}$	-	-	-10	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-3A$	-	45	53	m $\Omega$
		$V_{GS}=-2.5V, I_D=-2A$	-	58	75	
		$V_{GS}=-1.8V, I_D=-1.5A$	-	75	98	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.6	-0.8	V
Forward Transconductance	$g_{fs}$	$V_{DS}=-10V, I_S=-3A$	-	6	-	S
<b>Dynamic and Switching Characteristics</b>						
Total Gate Charge <sup>2,3</sup>	$Q_g$	$V_{DS}=-10V, I_D=-2A, V_{GS}=-4.5V$	-	6.4	9	nC
Gate-Source Charge <sup>2,3</sup>	$Q_{gs}$		-	0.9	1.5	
Gate-Drain Charge <sup>2,3</sup>	$Q_{gd}$		-	1.6	3	
Turn-On Delay Time <sup>2,3</sup>	$t_{d(on)}$	$V_{DD}=-10V, R_G=6\Omega, V_{GS}=-4.5V, I_D=-2A$	-	5	9	nS
Rise Time <sup>2,3</sup>	$t_r$		-	17.4	33	
Turn-Off Delay Time <sup>2,3</sup>	$t_{d(off)}$		-	40.7	80	
Fall Time <sup>2,3</sup>	$t_f$		-	11.4	23	
Input Capacitance	$C_{iss}$	$V_{DS}=-10V, V_{GS}=0V, F=1\text{MHz}$	-	540	810	pF
Output Capacitance	$C_{oss}$		-	80	120	
Reverse Transfer Capacitance	$C_{rss}$		-	75	115	
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Continuous Source Current	$I_S$	$V_G=V_D=0V, \text{Force Current}$	-	-	-4	A
Pulsed Source Current	$I_{SM}$		-	-	-8	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=-1A, T_J=25^\circ\text{C}$	-	-	-1	V

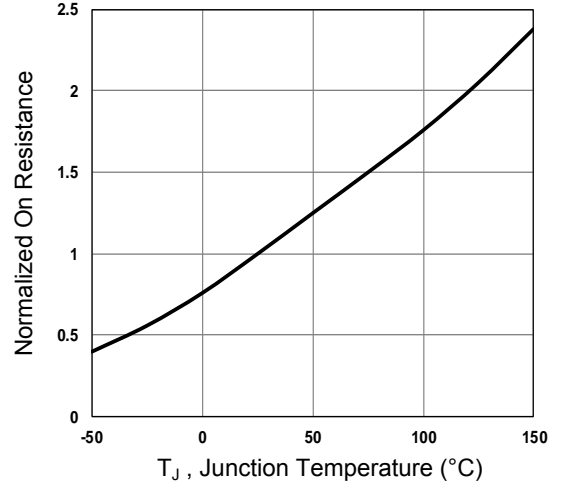
Note:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. Pulse test, pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
3. Essentially independent of operation temperature.

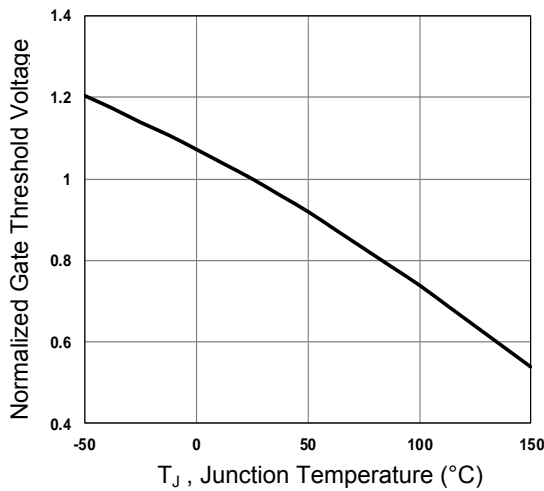
## Typical Electrical and Thermal Characteristic Curves



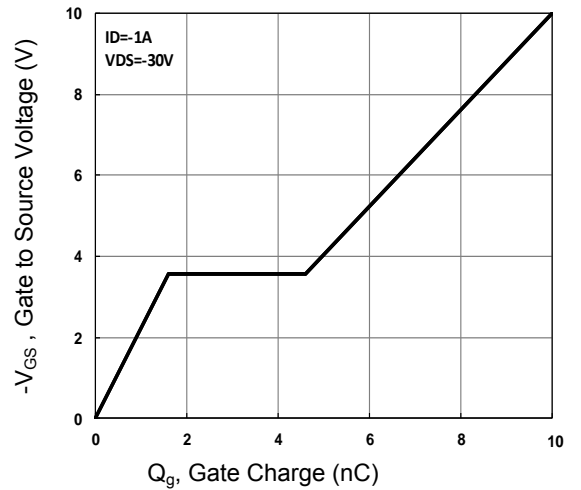
**Fig.1 Typical Output Characteristics**



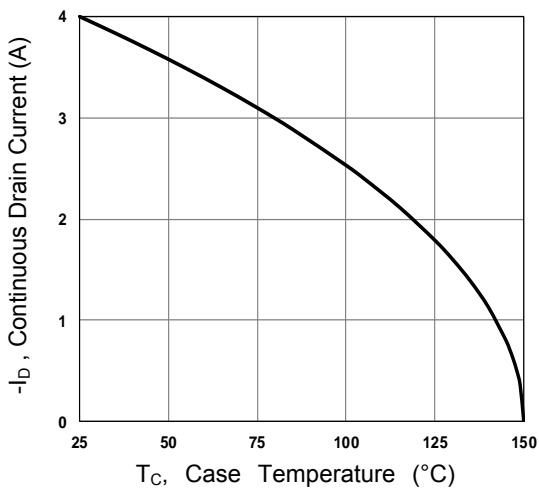
**Fig.2 Normalized  $R_{DS(ON)}$  vs.  $T_J$**



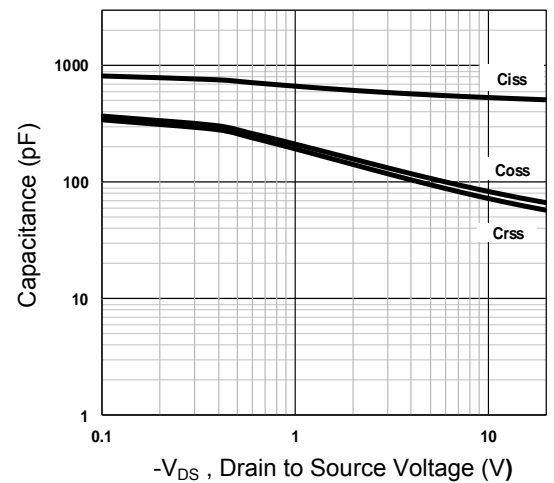
**Fig.3 Normalized  $V_{th}$  vs.  $T_J$**



**Fig.4 Gate Charge Waveform**

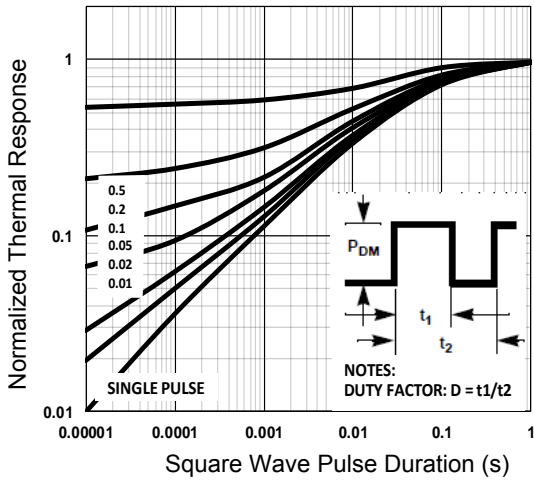


**Fig.5 Continuous Drain Current vs.  $T_C$**

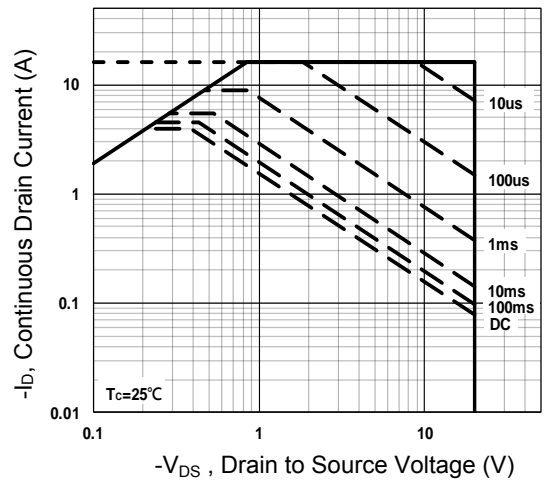


**Fig.6 Capacitance Characteristics**

**Typical Electrical and Thermal Characteristic Curves**

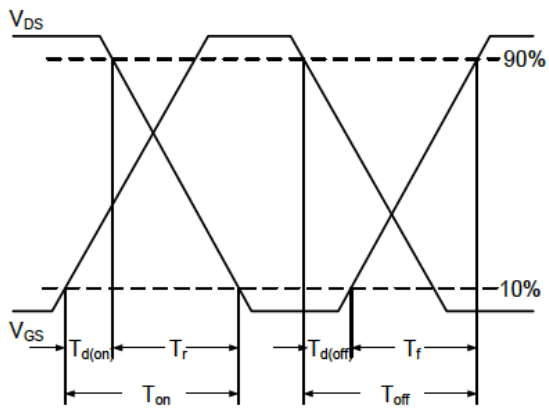


**Fig.7 Normalized Transient Impedance**

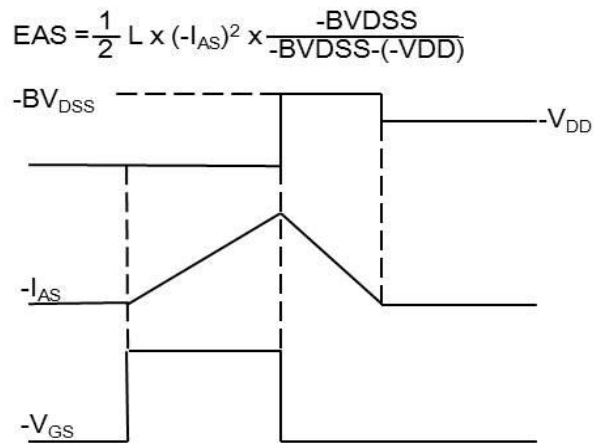


**Fig.8 Maximum Safe Operation Area**

### Typical Electrical and Thermal Characteristic Curves



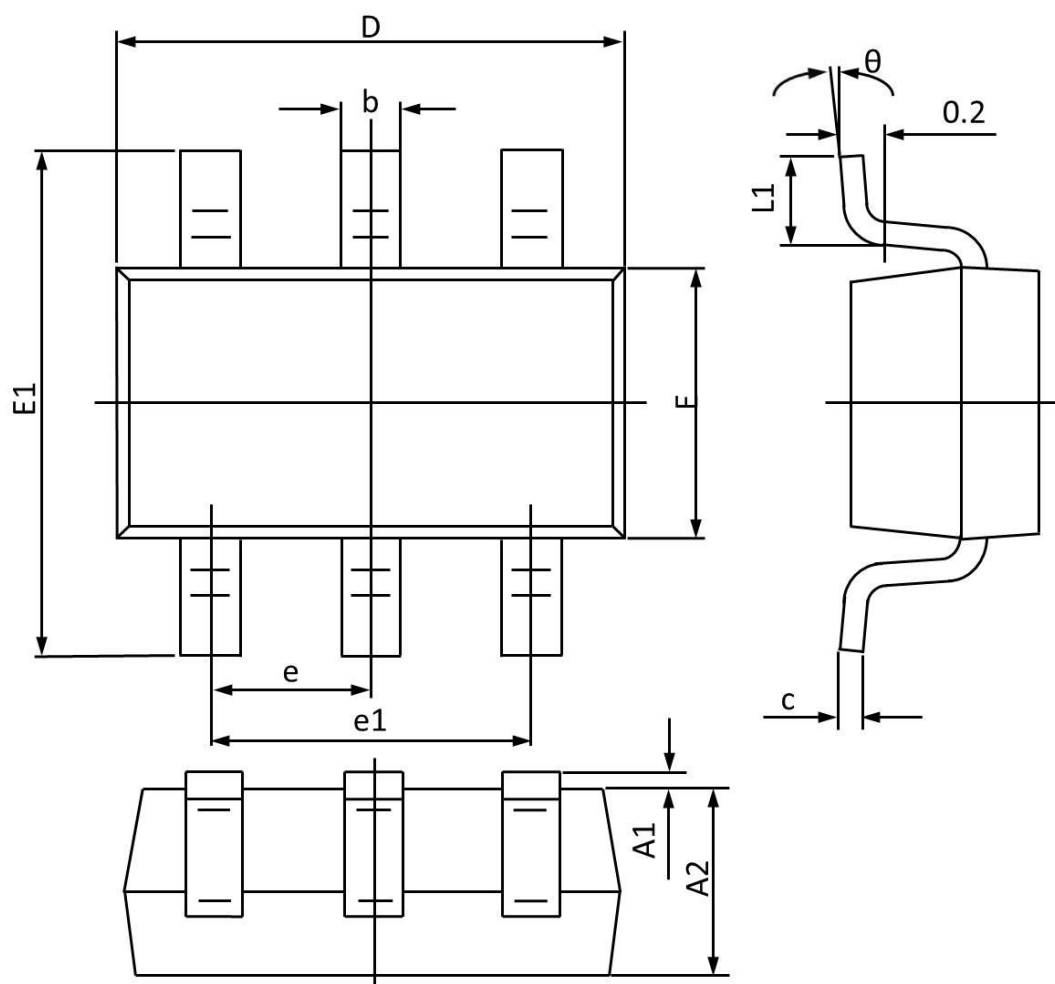
**Fig.9 Switching Time Waveform**



**Fig.10 EAS Waveform**

**Package Outline Dimensions**

**SOT-23-6L**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A1	---	0.150	---	0.006
A2	0.900	1.300	0.035	0.051
b	0.300	0.500	0.012	0.019
c	0.100	0.200	0.004	0.008
D	2.800	3.050	0.110	0.120
E1	2.600	3.000	0.103	0.118
F	1.500	1.800	0.059	0.071
e	0.950 TYP		0.037 TYP	
e1	1.900 TYP		0.075 TYP	
L1	0.250	0.600	0.010	0.024
theta	0°	8°	0°	8°