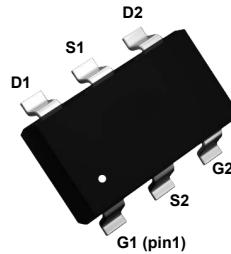
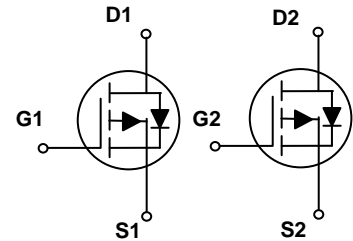


### Main Product Characteristics

$V_{(BR)DSS}$	-20V
$R_{DS(ON)}$	85mΩ
$I_D$	-3A



SOT-23-6L



Schematic Diagram

### Features and Benefits

- Advanced MOSFET process technology
- Ideal for hand-held devices, battery protection and load switch
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



### Description

The SSF2215 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

### Absolute Maximum Ratings ( $T_C=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 10$	V
Drain Current – Continuous ( $T_A=25^{\circ}\text{C}$ )	$I_D$	-3	A
Drain Current – Continuous ( $T_A=70^{\circ}\text{C}$ )		-2.4	A
Drain Current – Pulsed <sup>1</sup>	$I_{DM}$	-12	A
Power Dissipation ( $T_A=25^{\circ}\text{C}$ )	$P_D$	1.25	W
Power Dissipation – Derate above 25°C		0.01	W/°C
Storage Temperature Range	$T_{STG}$	-55 to +150	°C
Operating Junction Temperature Range	$T_J$	-55 to +150	°C

### Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	---	100	°C/W

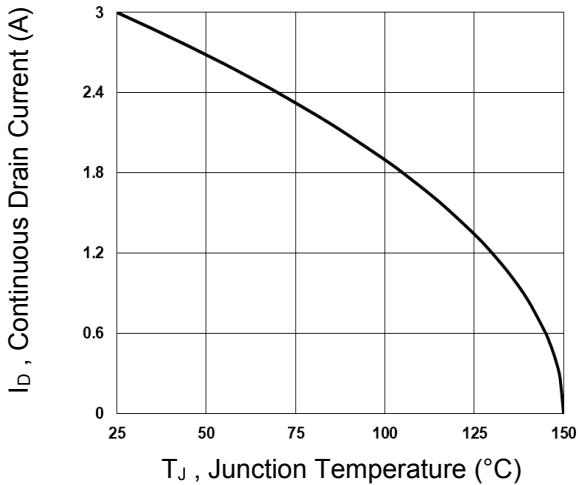
### Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-20	---	---	V
BV <sub>DSS</sub> Temperature Coefficient	ΔBV <sub>DSS</sub> /ΔT <sub>J</sub>	Reference to 25°C, I <sub>D</sub> =-1mA	---	0.01	---	V/°C
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C	---	---	-1	uA
		V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C	---	---	-10	
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±10V, V <sub>DS</sub> =0V	---	---	±100	nA
<b>On Characteristics</b>						
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-3A	---	70	85	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-2A	---	95	120	
		V <sub>DS</sub> =-1.8V, I <sub>D</sub> =-1A	---	130	170	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =0V, I <sub>D</sub> =-250uA	-0.3	-0.6	-1.0	V
V <sub>GS(th)</sub> Temperature Coefficient	ΔV <sub>GS(th)</sub>		---	3	---	mV/°C
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>S</sub> =-1A	---	2.2	---	S
<b>Dynamic and Switching Characteristics</b>						
Total Gate Charge <sup>3, 4</sup>	Q <sub>g</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-3A	---	4.8	8	nC
Gate-Source Charge <sup>3, 4</sup>	Q <sub>gs</sub>		---	0.5	1	
Gate-Drain Charge <sup>3, 4</sup>	Q <sub>gd</sub>		---	1.9	4	
Turn-On Delay Time <sup>3, 4</sup>	T <sub>d(on)</sub>	V <sub>DD</sub> =-10V, V <sub>GS</sub> =-4.5V, R <sub>G</sub> =25Ω, I <sub>D</sub> =-1A	---	3.5	7	nS
Rise Time <sup>3, 4</sup>	T <sub>r</sub>		---	12.6	24	
Turn-Off Delay Time <sup>3, 4</sup>	T <sub>d(off)</sub>		---	32.6	62	
Fall Time <sup>3, 4</sup>	T <sub>f</sub>		---	8.4	16	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V, F=1MHz	---	350	510	pF
Output Capacitance	C <sub>oss</sub>		---	65	95	
Reverse Transfer Capacitance	C <sub>rss</sub>		---	50	75	
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Continuous Source Current	I <sub>S</sub>	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	---	---	-3	A
Pulsed Source Current	I <sub>SM</sub>		---	---	-6	A
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-1A, T <sub>J</sub> =25°C	---	---	-1	V

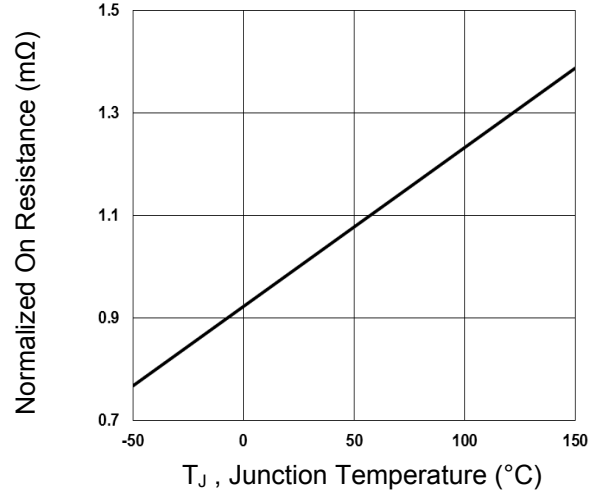
Note:

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

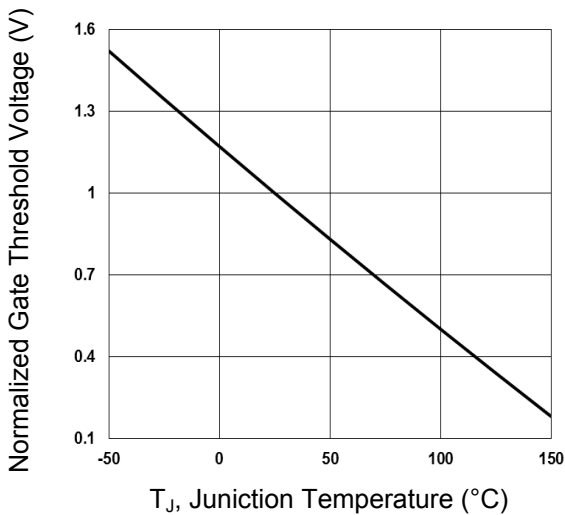
**Typical Electrical and Thermal Characteristics**



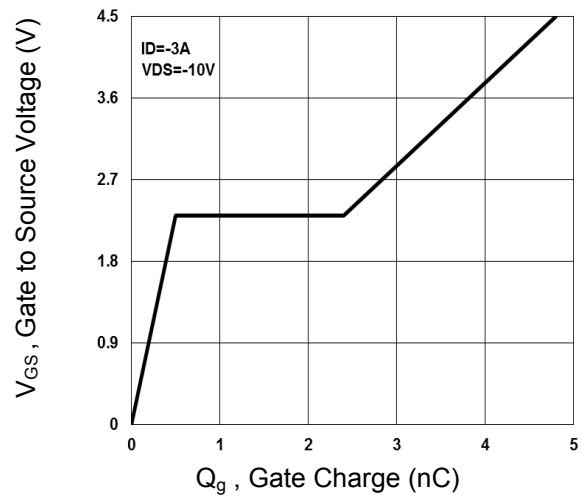
**Fig.1 Continuous Drain Current vs. T<sub>J</sub>**



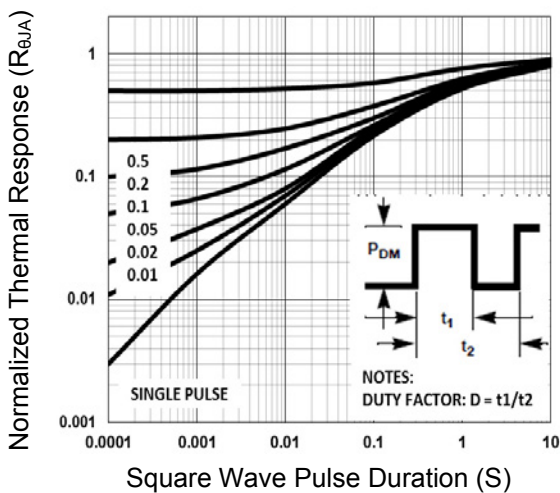
**Fig.2 Normalized R<sub>DS(on)</sub> vs. T<sub>J</sub>**



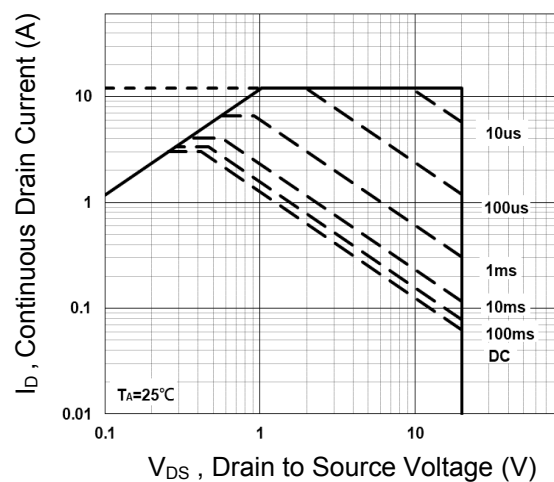
**Fig.3 Normalized V<sub>th</sub> vs. T<sub>J</sub>**



**Fig.4 Gate Charge Waveform**

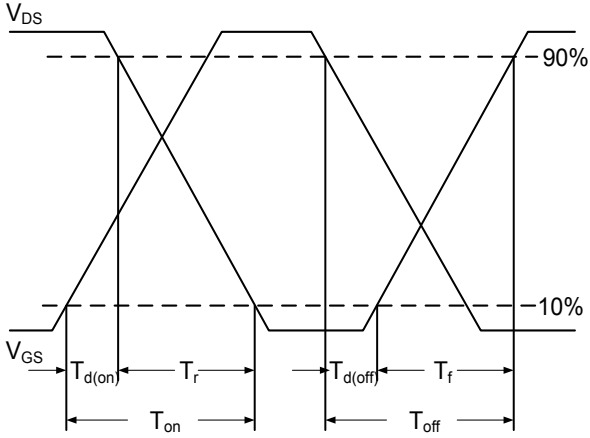


**Fig.5 Normalized Transient Impedance**

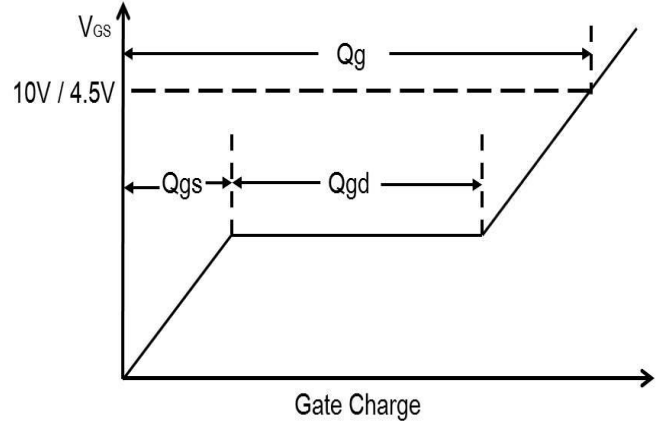


**Fig.6 Maximum Safe Operation Area**

**Typical Electrical and Thermal Characteristics**



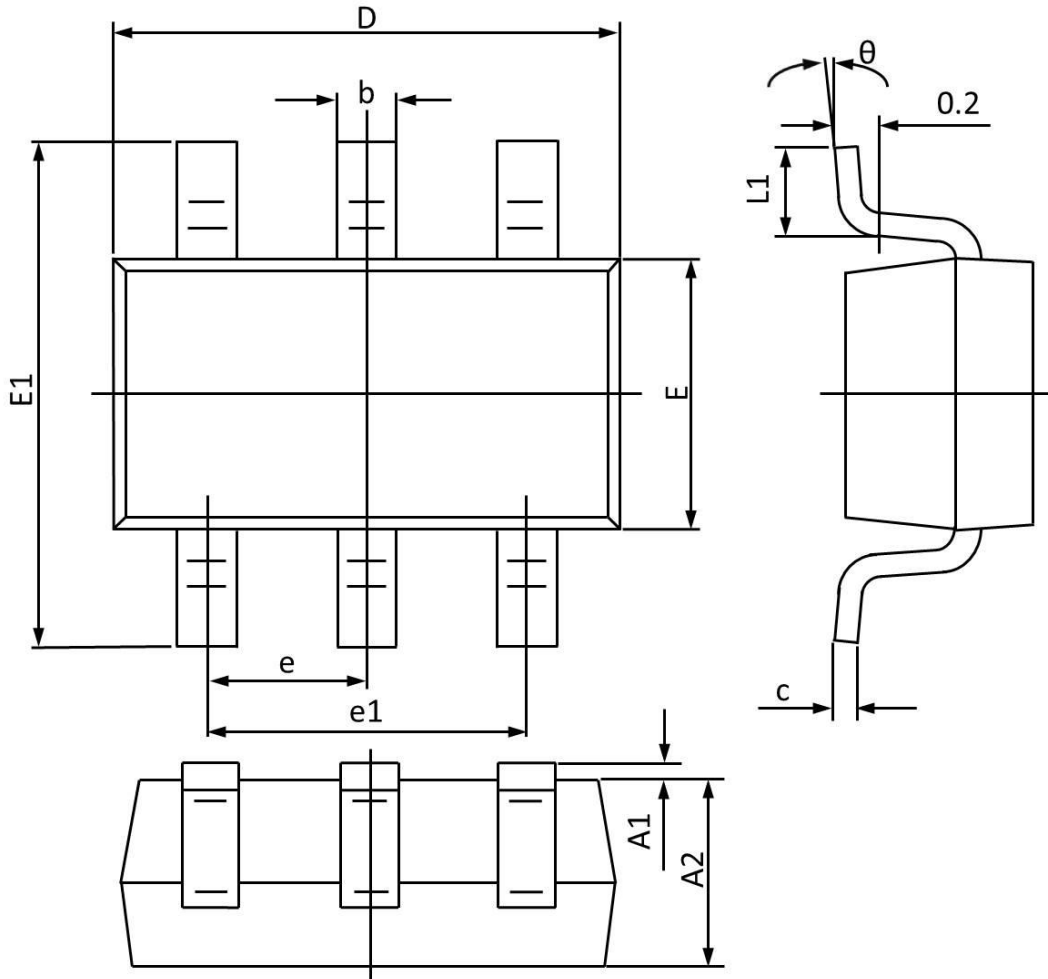
**Fig.7 Switching Time Waveform**



**Fig.8 Gate Charge Waveform**

## Package Outline Dimensions

## SOT-23-6L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A1	0.000	0.100	0.000	0.004
A2	1.000	1.200	0.040	0.047
b	0.300	0.500	0.012	0.019
c	0.047	0.207	0.002	0.008
D	2.800	3.000	0.110	0.118
E	1.500	1.800	0.059	0.070
E1	2.600	3.000	0.103	0.118
e	0.950 TYP		0.037 TYP	
e1	1.900 TYP		0.075 TYP	
L1	0.250	0.550	0.010	0.021
θ	0°	8°	0°	8°