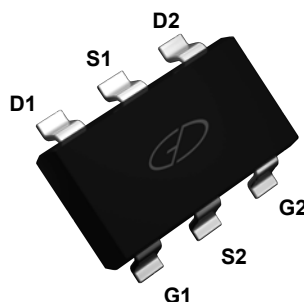
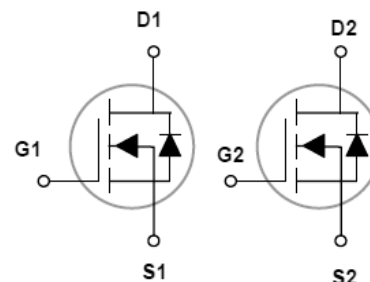


Main Product Characteristics

$V_{(BR)DSS}$	20V
$R_{DS(ON)}$	60m Ω
I_D	3.6A



SOT-23-6L



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The SSF2218 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}	± 10	V
Drain Current – Continuous ($T_c=25^\circ\text{C}$)	I_D	3.6	A
Drain Current – Continuous ($T_c=70^\circ\text{C}$)		2.9	A
Drain Current – Pulsed ¹	I_{DM}	14.4	A
Power Dissipation ($T_c=25^\circ\text{C}$)	P_D	1.25	W
Power Dissipation – Derate above 25°C		0.01	W/ $^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ\text{C}$

Thermal Characteristics

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

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20	---	---	V
BV_{DSS} Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25°C , $I_D=1\text{mA}$	---	0.02	---	$V/^\circ\text{C}$
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	1	μA
		$V_{DS}=16V, V_{GS}=0V, T_J=125^\circ\text{C}$	---	---	10	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	---	---	± 100	nA
On Characteristics						
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=3A$	---	50	60	m Ω
		$V_{GS}=2.5V, I_D=2A$	---	60	80	
		$V_{GS}=1.8V, I_D=1A$	---	85	110	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	0.3	0.5	1	V
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}$		---	2	---	$\text{mV}/^\circ\text{C}$
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=2A$	---	4.4	---	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{2,3}	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=1A$	---	3.6	7.2	nC
Gate-Source Charge ^{2,3}	Q_{GS}		---	0.38	0.76	
Gate-Drain Charge ^{2,3}	Q_{GD}		---	0.6	1.2	
Turn-On Delay Time ^{2,3}	$T_{d(on)}$	$V_{DD}=10V, V_{GS}=4.5V, R_G=25\Omega, I_D=1A$	---	1.8	5	nS
Rise Time ^{2,3}	T_r		---	5.6	12	
Turn-Off Delay Time ^{2,3}	$T_{d(off)}$		---	11.3	24	
Fall Time ^{2,3}	T_f		---	3.2	7	
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, F=1\text{MHz}$	---	180	360	pF
Output Capacitance	C_{oss}		---	32	64	
Reverse Transfer Capacitance	C_{rss}		---	26	52	
Drain-Source Diode Characteristics and Maximum Ratings						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	I_S	$V_G=V_D=0V, \text{Force Current}$	---	---	3.6	A
Pulsed Source Current	I_{SM}		---	---	7.2	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. The data tested by pulsed, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

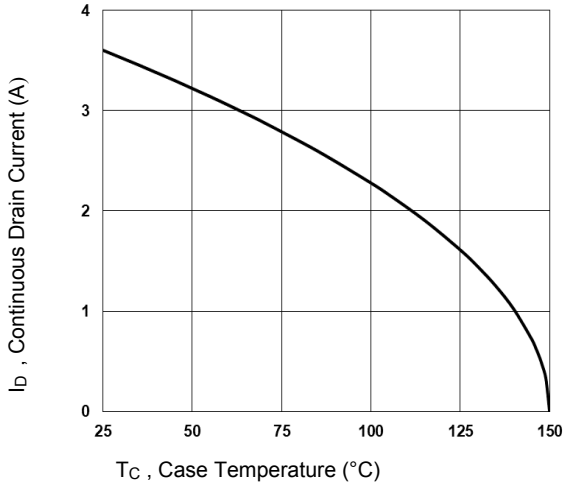


Fig.1 Continuous Drain Current vs. T_C

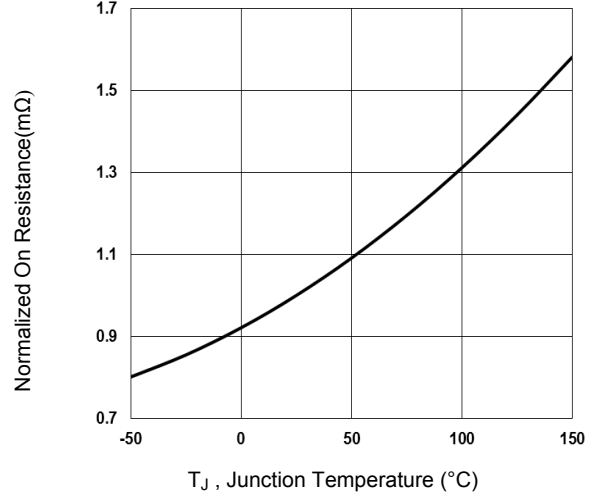


Fig.2 Normalized $R_{DS(ON)}$ vs. T_J

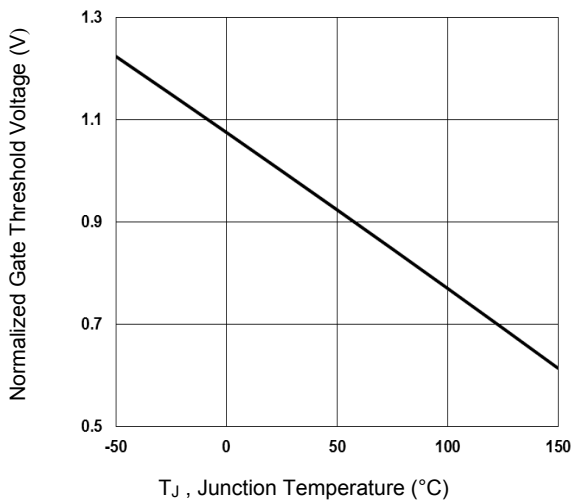


Fig.3 Normalized V_{th} vs. T_J

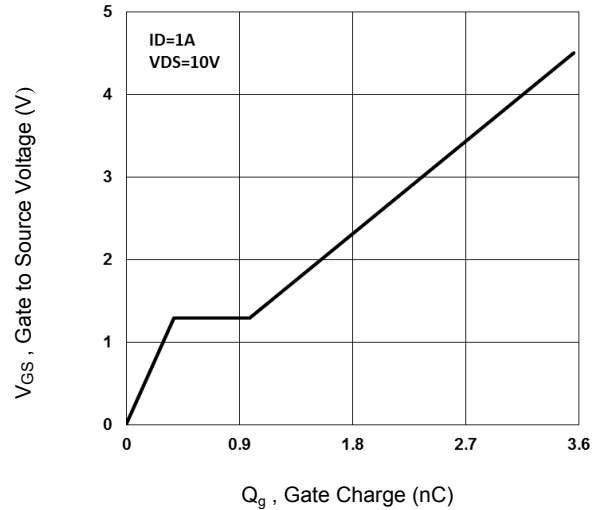


Fig.4 Gate Charge Waveform

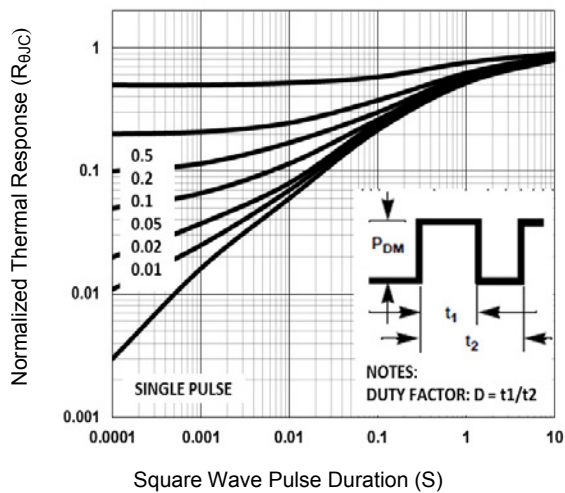


Fig.5 Normalized Transient Impedance

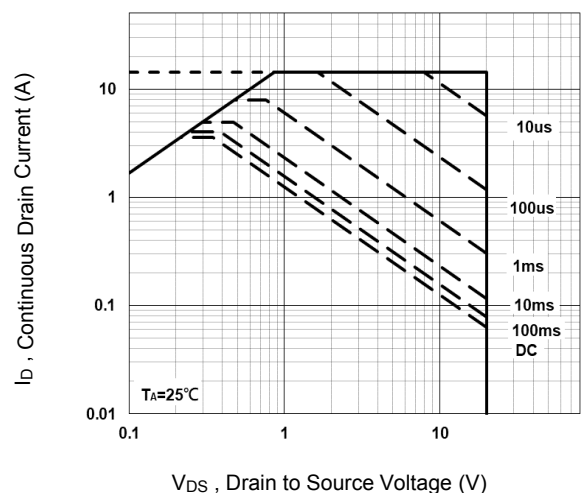


Fig.6 Maximum Safe Operation Area

Typical Electrical and Thermal Characteristic Curves

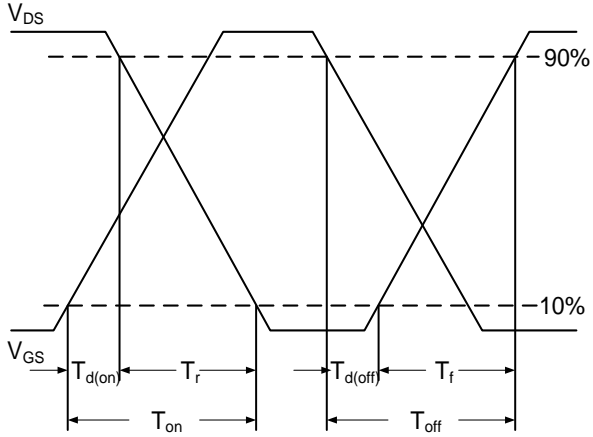


Fig.7 Switching Time Waveform

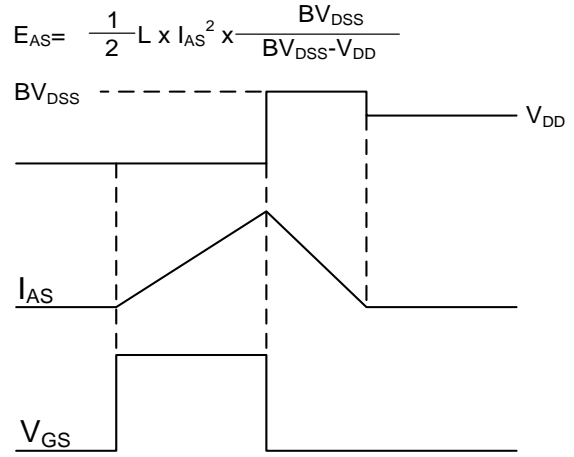
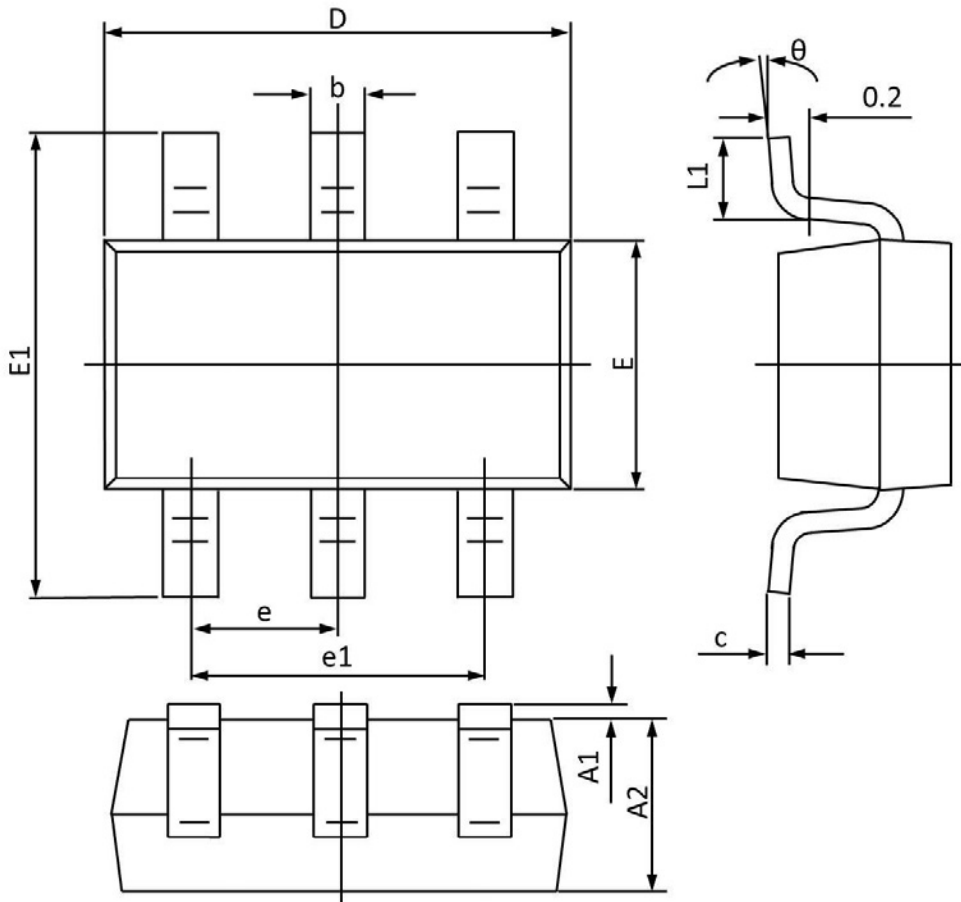


Fig.8 E_{AS} Waveform

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°