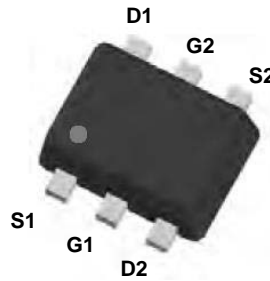
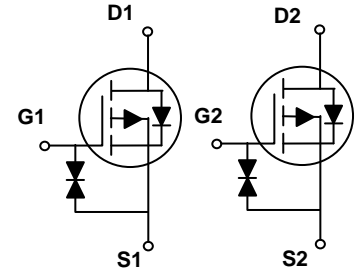


Main Product Characteristics

$V_{(BR)DSS}$	-20V
$R_{DS(ON)}$	600m Ω
I_D	-400mA



SOT-563



Schematic Diagram

Features and Benefits

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



Description

The SSF2219Y 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	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	V
Drain Current – Continuous ($T_C=25^{\circ}\text{C}$)	I_D	-400	mA
Drain Current – Continuous ($T_C=100^{\circ}\text{C}$)		-250	mA
Drain Current – Pulsed ¹	I_{DM}	-1.6	A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	312	mW
Power Dissipation – Derate above 25°C	P_D	2.5	mW/ $^{\circ}\text{C}$
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	$R_{\theta JA}$	---	400	$^{\circ}\text{C}/\text{W}$

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 , $I_D=-1\text{mA}$	---	-0.01	---	$V/^{\circ}\text{C}$
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}	$V_{GS}=\pm 8V, V_{DS}=0V$	---	---	± 20	μA
On Characteristics						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-0.3A$	---	440	600	m Ω
		$V_{GS}=-2.5V, I_D=-0.2A$	---	610	850	
		$V_{GS}=-1.8V, I_D=-0.1A$	---	810	1200	
		$V_{GS}=-1.5V, I_D=-0.1A$	---	1020	1600	
		$V_{GS}=-1.2V, I_D=-0.1A$	---	1800	3000	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-0.3	-0.6	-1	V
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}$		---	3	---	$\text{mV}/^{\circ}\text{C}$
Dynamic and Switching Characteristics						
Total Gate Charge ^{2, 3}	Q_g	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-0.2A$	---	1	2	nC
Gate-Source Charge ^{2, 3}	Q_{gs}		---	0.28	0.5	
Gate-Drain Charge ^{2, 3}	Q_{gd}		---	0.18	0.4	
Turn-On Delay Time ^{2, 3}	$T_{d(on)}$	$V_{DD}=-10V, V_{GS}=-4.5V, R_G=10\Omega, I_D=-0.2A$	---	8	16	nS
Rise Time ^{2, 3}	T_r		---	5.2	10	
Turn-Off Delay Time ^{2, 3}	$T_{d(off)}$		---	30	60	
Fall Time ^{2, 3}	T_f		---	18	36	
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V, F=1\text{MHz}$	---	40	78	pF
Output Capacitance	C_{oss}		---	15	30	
Reverse Transfer Capacitance	C_{rss}		---	6.5	13	
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	$V_G=V_D=0V$, Force Current	---	---	-0.4	A
Pulsed Source Current	I_{SM}		---	---	-0.8	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-0.2A, T_J=25^{\circ}\text{C}$	---	---	-1	V

Notes:

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

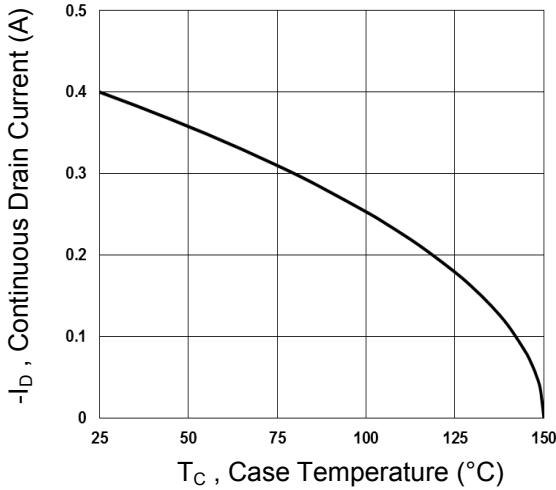


Fig.1 Continuous Drain Current vs. T_C

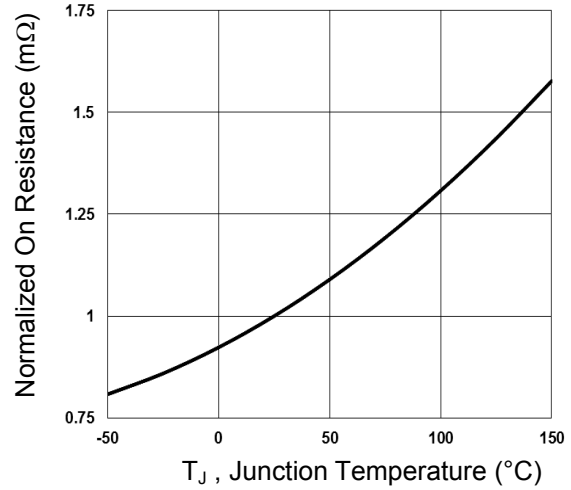


Fig.2 Normalized $R_{DS(ON)}$ vs. T_J

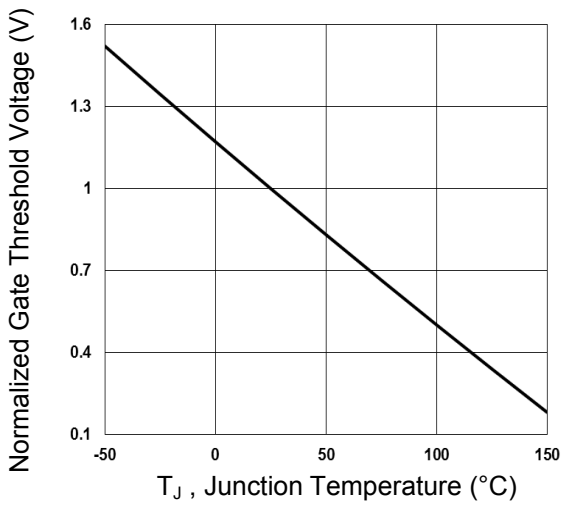


Fig.3 Normalized V_{th} vs. T_J

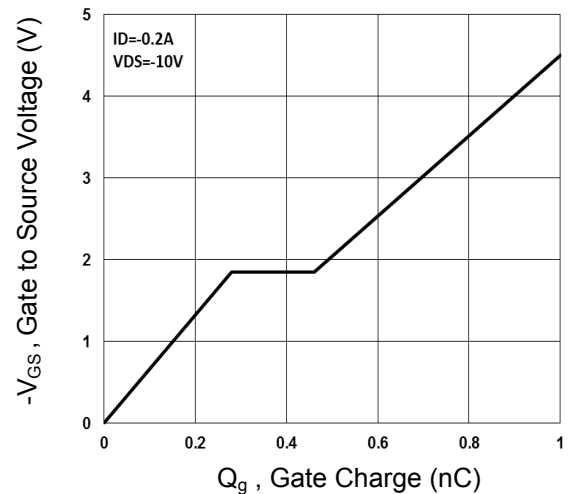


Fig.4 Gate Charge Waveform

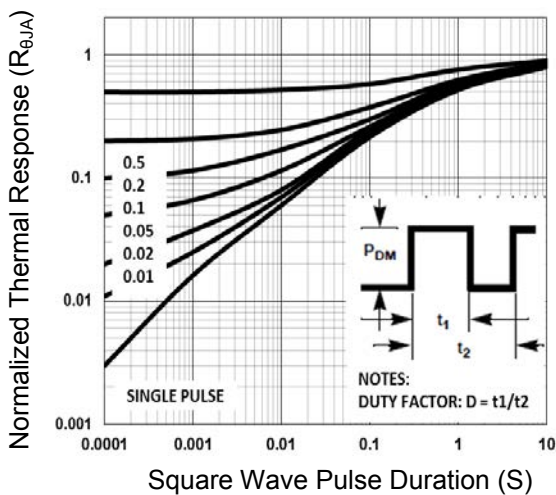


Fig.5 Normalized Transient Impedance

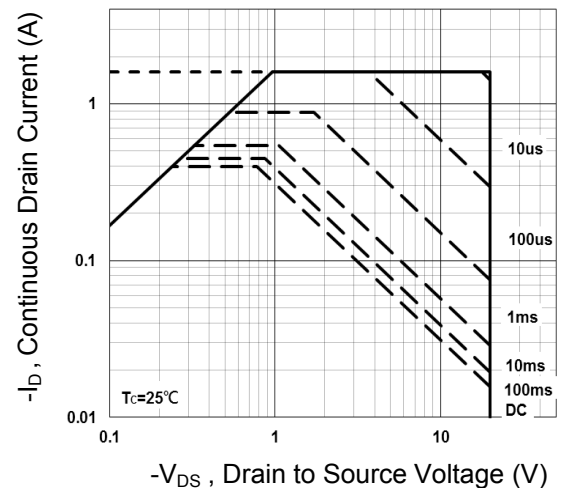
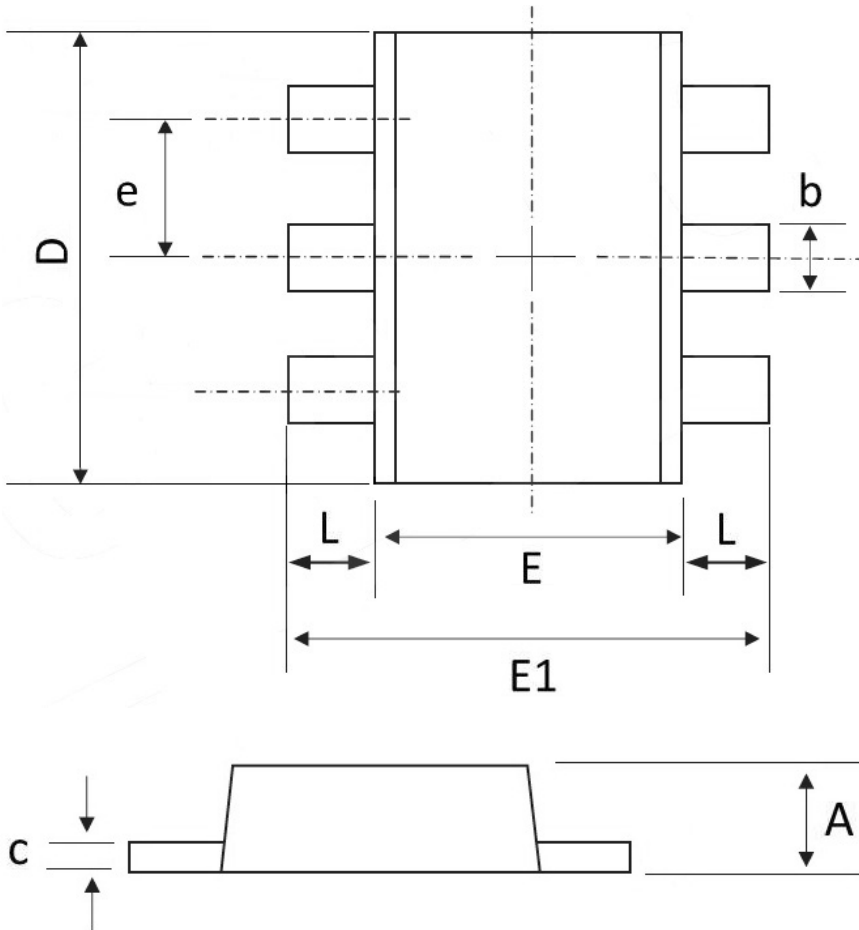


Fig.6 Maximum Safe Operation Area

Package Outline Dimensions

SOT-563



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	0.600	0.500	0.024	0.020
b	0.300	0.150	0.012	0.006
c	0.180	0.100	0.007	0.004
D	1.700	1.500	0.067	0.059
E	1.250	1.100	0.049	0.043
E1	1.700	1.550	0.067	0.061
e	0.5BSC		0.02BSC	
L	0.300	0.100	0.012	0.004