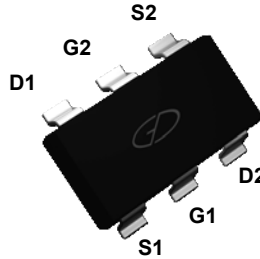
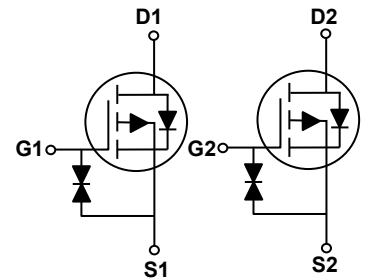


### Main Product Characteristics

$V_{(BR)DSS}$	-20V
$R_{DS(ON)}$	600mΩ
$I_D$	-540mA



SOT-363



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 SSFK2219 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	$V_{GS}$	±8	V
Drain Current – Continuous ( $T_A=25^\circ\text{C}$ )	$I_D$	-540	mA
Drain Current – Continuous ( $T_A=70^\circ\text{C}$ )		-430	mA
Drain Current – Pulsed <sup>1</sup>	$I_{DM}$	-2.16	A
Power Dissipation ( $T_A=25^\circ\text{C}$ )	$P_D$	278	mW
Power Dissipation – Derate above 25°C		2.2	mW/°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	$R_{\theta JA}$	---	450	°C/W

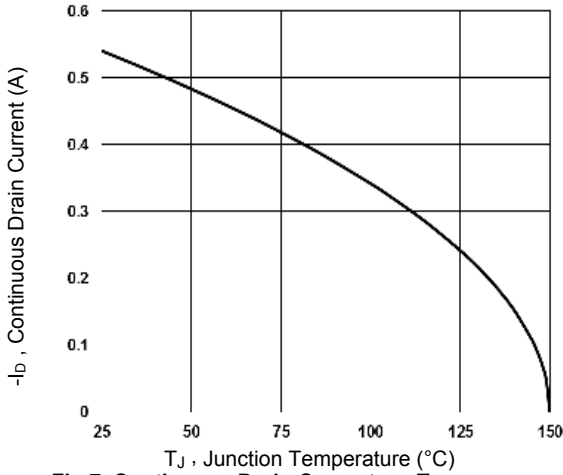
### Electrical Characteristics ( $T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
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 $25^\circ\text{C}, I_D=-1\text{mA}$	---	-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	$\mu A$
		$V_{DS}=-16V, V_{GS}=0V, T_J=125^\circ\text{C}$	---	---	-10	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8V, V_{DS}=0V$	---	---	$\pm 20$	$\mu A$
<b>On Characteristics</b>						
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-0.3A$	---	440	600	m $\Omega$
		$V_{GS}=-2.5V, I_D=-0.2A$	---	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	$V_{GS(th)}$		-0.3	-0.6	-1.0	V
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	---	3	---	$\text{mV}/^\circ\text{C}$
<b>Dynamic and Switching Characteristics</b>						
Total Gate Charge <sup>2, 3</sup>	$Q_g$	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-0.2A$	---	1	2	nC
Gate-Source Charge <sup>2, 3</sup>	$Q_{gs}$		---	0.28	0.5	
Gate-Drain Charge <sup>2, 3</sup>	$Q_{gd}$		---	0.18	0.4	
Turn-On Delay Time <sup>2, 3</sup>	$T_{d(on)}$	$V_{DD}=-10V, V_{GS}=-4.5V, R_G=10\Omega, I_D=-0.2A$	---	8	16	nS
Rise Time <sup>2, 3</sup>	$T_r$		---	5.2	10	
Turn-Off Delay Time <sup>2, 3</sup>	$T_{d(off)}$		---	30	60	
Fall Time <sup>2, 3</sup>	$T_f$		---	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	
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Continuous Source Current	$I_S$	$V_G=V_D=0V, \text{Force Current}$	---	---	-0.54	A
Pulsed Source Current	$I_{SM}$		---	---	-1.08	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=-0.2A, T_J=25^\circ\text{C}$	---	---	-1	V

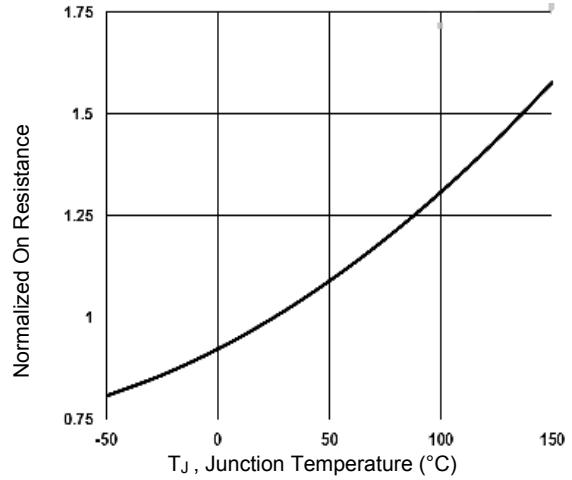
Note:

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.

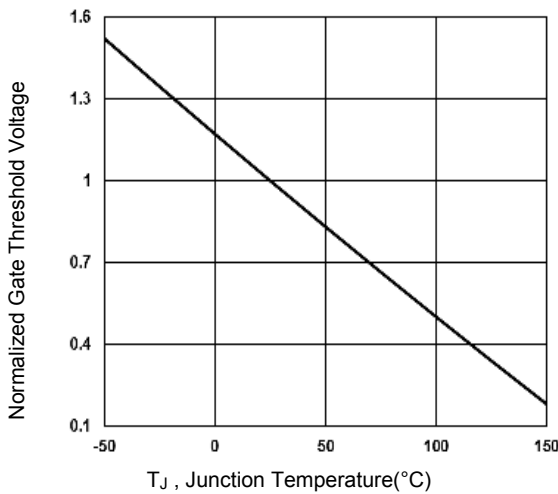
**Typical Electrical and Thermal Characteristic Curves**



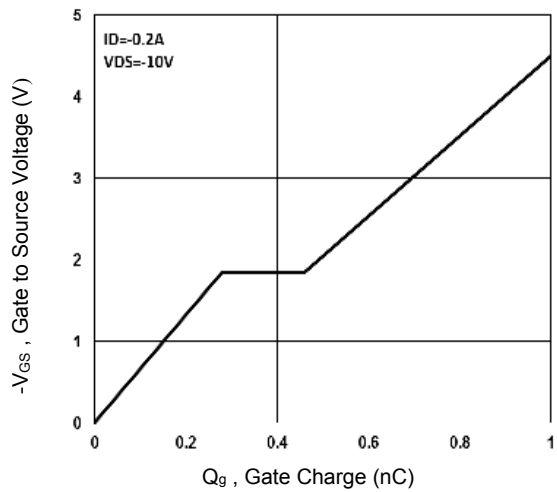
**Fig.7 Continuous Drain Current vs. Tc**



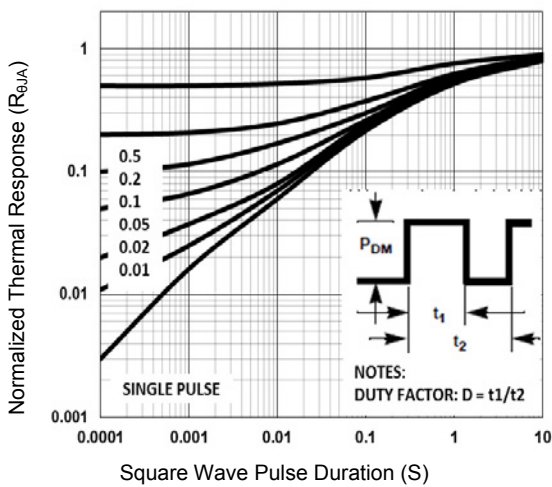
**Fig.8 Normalized  $R_{DS(ON)}$  vs. Tj**



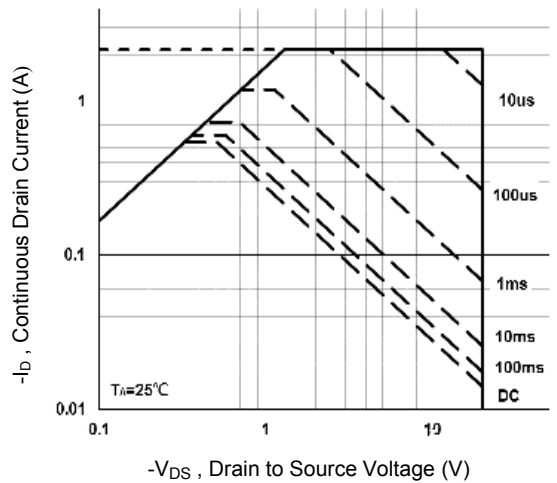
**Fig.9 Normalized  $V_{th}$  vs. Tj**



**Fig.10 Gate Charge Waveform**



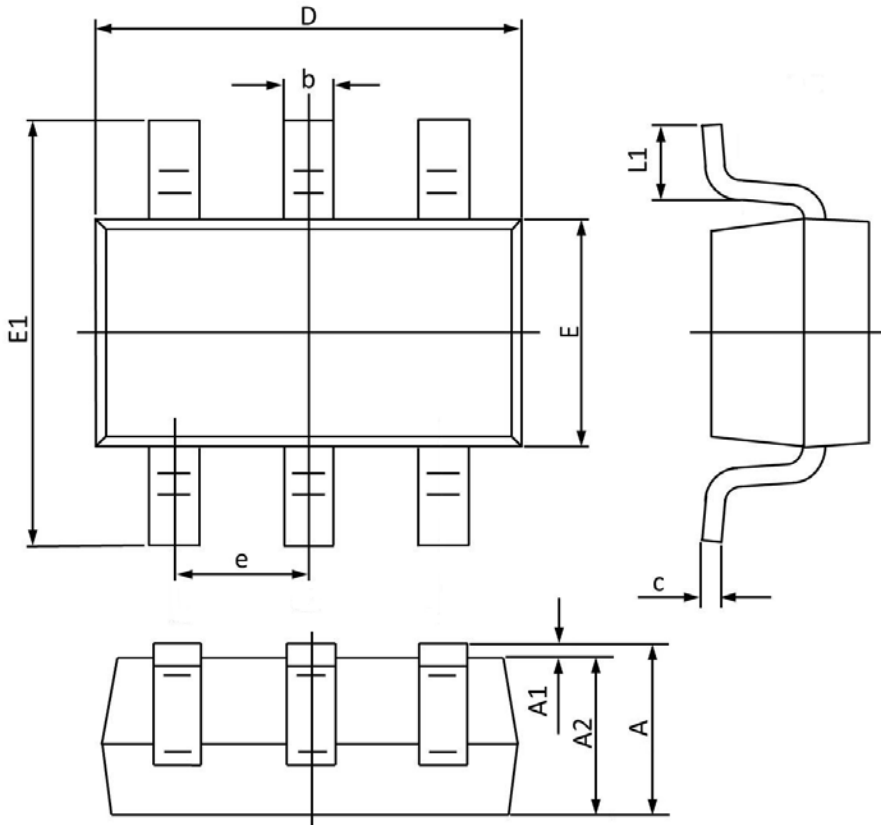
**Fig.11 Normalized Transient Impedance**



**Fig.12 Maximum Safe Operation Area**

**Package Outline Dimensions**

**SOT-363**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.100	0.800	0.043	0.031
A1	0.100	0.000	0.004	0.000
A2	1.000	0.800	0.039	0.031
b	0.330	0.100	0.013	0.004
c	0.250	0.100	0.010	0.004
D	2.200	1.800	0.087	0.071
E	1.350	1.150	0.053	0.045
E1	2.400	1.800	0.094	0.071
e	0.65BSC		0.026BSC	
L1	0.350	0.100	0.014	0.004