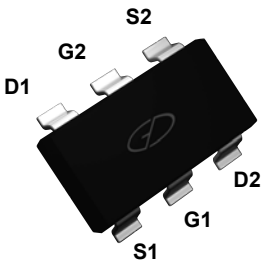
GOOD-ARK
SEMICONDUCTOR

SSFK2219

20V Dual P-Channel MOSFET

Main Product Characteristics

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



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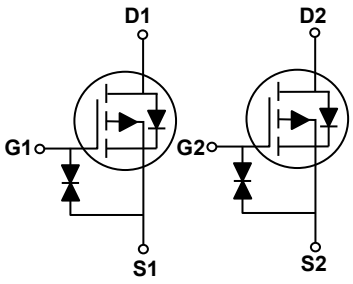

Schematic Diagram

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°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°C)	I_D	-540	mA
Drain Current – Continuous (T_A=70°C)		-430	mA
Drain Current – Pulsed[1]	I_{DM}	-2.16	A
Power Dissipation (T_A=25°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°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V , I_D=-250uA	-20	---	---	V
BV_{DSS} Temperature Coefficient	$\triangle BV_{DSS}/\triangle T_J$	Reference to 25°C , I_D=-1mA	---	-0.01	---	V/°C
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-20V , V_{GS}=0V , T_J=25°C	---	---	-1	uA
		V_{DS}=-16V , V_{GS}=0V , T_J=125°C	---	---	-10	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±8V , V_{DS}=0V	---	---	±20	uA
On Characteristics						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V , I_D=-0.3A	---	440	600	mΩ
		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 =-250uA	-0.3	-0.6	-1.0	V
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}$		---	3	---	mV/°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=10Ω , 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=1MHz	---	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	---	---	-0.54	A
Pulsed Source Current	I_{SM}		---	---	-1.08	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=-0.2A , T_J=25°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 Characteristic Curves

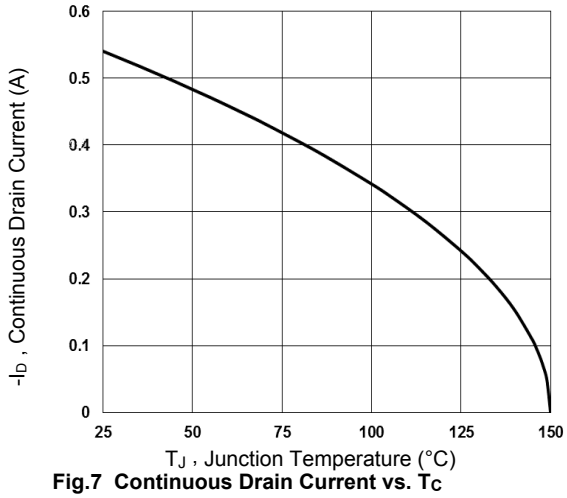

Fig.7 Continuous Drain Current vs. T_C

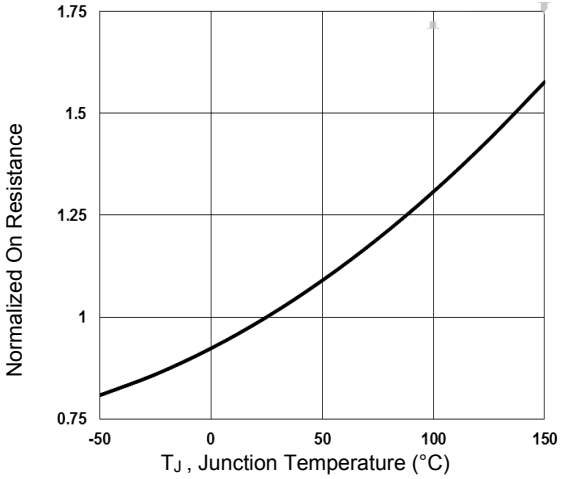

Fig.8 Normalized $R_{DS(ON)}$ vs. T_J

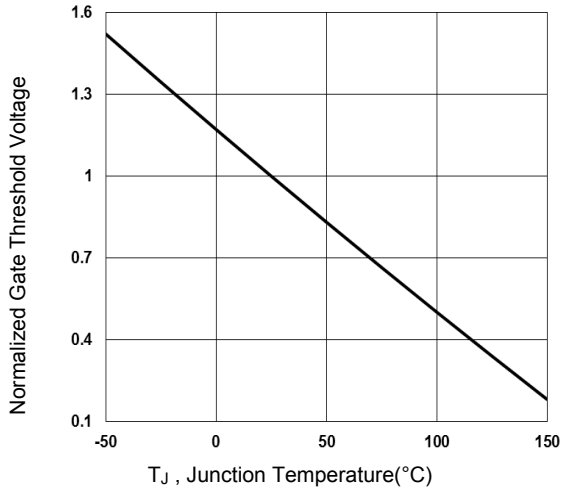

Fig.9 Normalized V_{th} vs. T_J

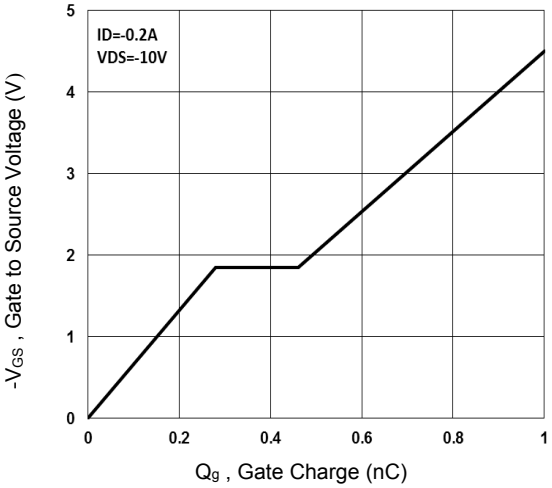

Fig.10 Gate Charge Waveform

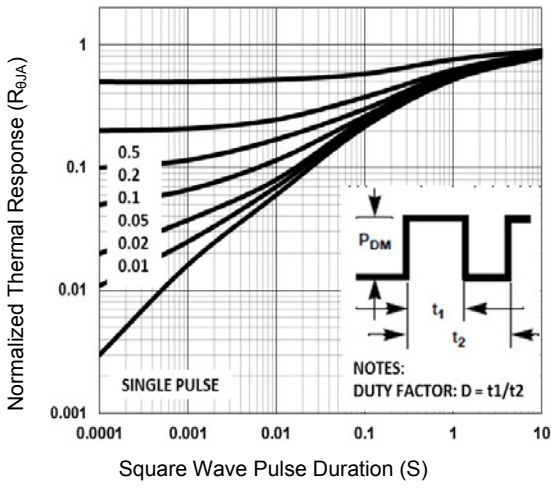

Fig.11 Normalized Transient Impedance

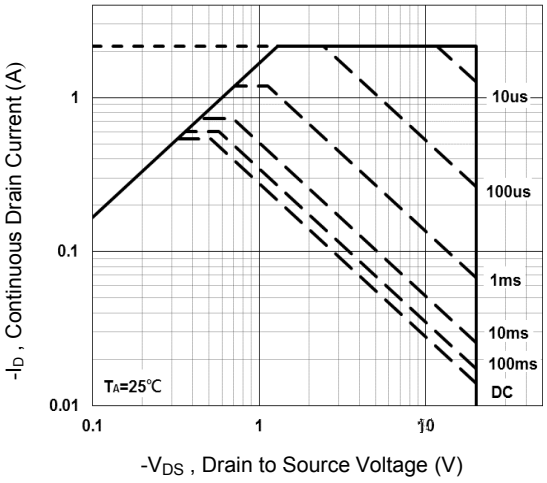

Fig.12 Maximum Safe Operation Area

Package Outline Dimensions

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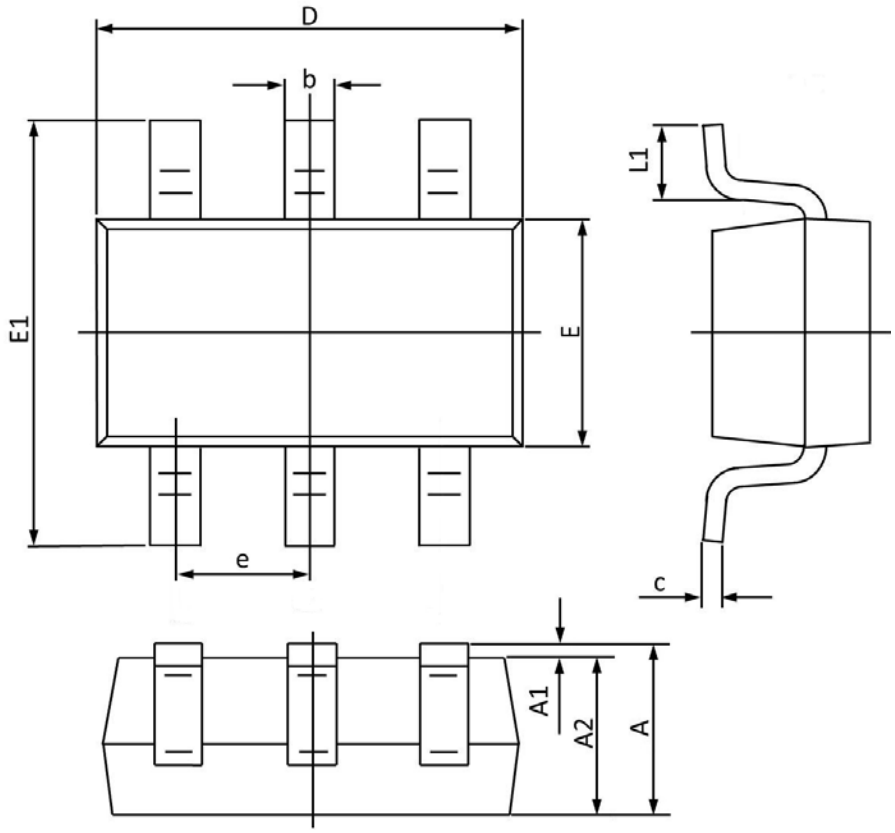

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.100	0.800	0.043	0.031
A1	0.100	0.000	0.004	0.000
A2	1.000	0.800	0.039	0.031
b	0.330	0.100	0.013	0.004
c	0.250	0.100	0.010	0.004
D	2.200	1.800	0.087	0.071
E	1.350	1.150	0.053	0.045
E1	2.400	1.800	0.094	0.071
e	0.65BSC		0.026BSC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