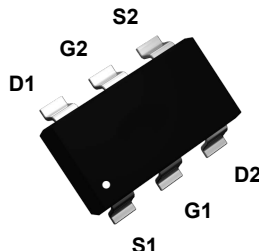
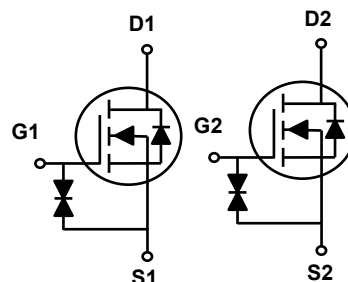


Main Product Characteristics

$V_{(BR)DSS}$	20V
$R_{DS(ON)}$	300m Ω
I_D	800mA



SOT-363



Schematic Diagram

Features and Benefits

- Fast switching and reverse body recovery
- Ideal for 1.5V gate drive applications
- Low on-resistance with low gate charge
- ESD protection up to 2KV



Description

The SSFK3220B 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 ($T_C=25^{\circ}\text{C}$)	I_D	800	mA
Drain Current – Continuous ($T_C=100^{\circ}\text{C}$)		510	mA
Drain Current – Pulsed ¹	I_{DM}	3.2	A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	275	mW
Power Dissipation – Derate above 25°C		2.2	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	$R_{\theta JA}$	-	450	$^{\circ}\text{C/W}$

Electrical Characteristics (T_J=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static State Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V
BV _{DSS} Temperature Coefficient	△BV _{DSS} /△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	μA
		V _{DS} =16V, V _{GS} =0V, T _J =125°C	-	-	10	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±4.5V, V _{DS} =0V	-	-	±1.5	μA
On Characteristics						
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =0.5A	-	200	300	mΩ
		V _{GS} =2.5V, I _D =0.4A	-	235	400	
		V _{GS} =1.8V, I _D =0.2A	-	295	550	
		V _{GS} =1.5V, I _D =0.1A	-	365	800	
		V _{GS} =1.2V, I _D =0.1A	-	600	1500	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.3	0.6	1.0	V
V _{GS(th)} Temperature Coefficient	△V _{GS(th)}		-	-1.6	-	mV/°C
Dynamic and Switching Characteristics						
Total Gate Charge ^{2,3}	Q _g	V _{DS} =10V, I _D =0.5A, V _{GS} =4.5V	-	1	2	nC
Gate-Source Charge ^{2,3}	Q _{gs}		-	0.26	0.5	
Gate-Drain Charge ^{2,3}	Q _{gd}		-	0.2	0.4	
Turn-On Delay Time ^{2,3}	T _{d(on)}	V _{DD} =10V, R _G =10Ω V _{GS} =4.5V, I _D =0.5A	-	5	10	nS
Rise Time ^{2,3}	T _r		-	3.5	7	
Turn-Off Delay Time ^{2,3}	T _{d(off)}		-	14	28	
Fall Time ^{2,3}	T _f		-	6	12	
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, F=1MHz	-	38.2	75	PF
Output Capacitance	C _{oss}		-	14.4	28	
Reverse Transfer Capacitance	C _{rss}		-	6	12	
Drain-Source Diode Characteristics						
Continuous Source Current	I _S	V _G =V _D =0V, Force Current	-	-	0.8	A
Pulsed Source Current	I _{SM}		-	-	1.6	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 ≤ 300μs, duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

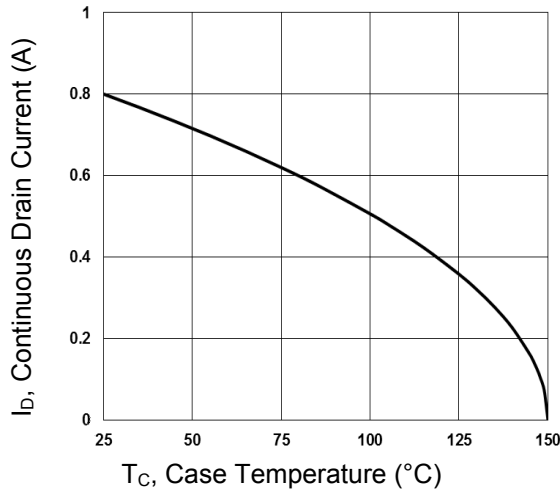


Figure 1. Continuous Drain Current vs. T_C

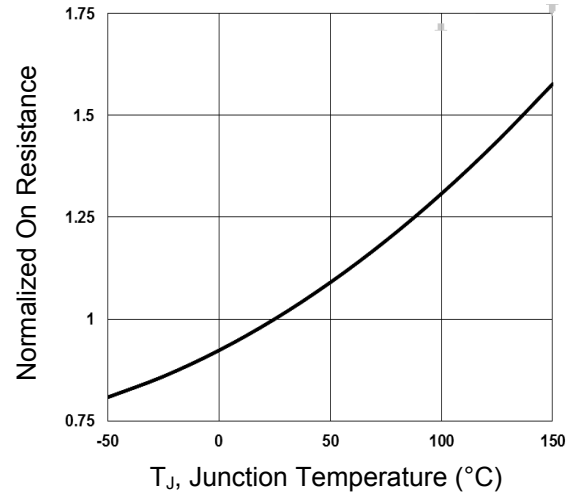


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

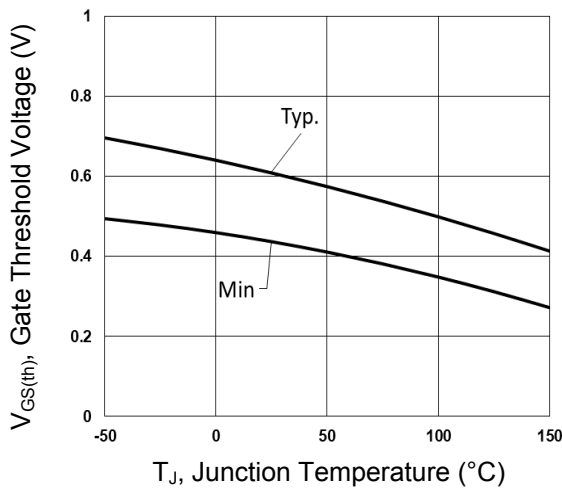


Figure 3. Gate Threshold Voltage vs. T_J

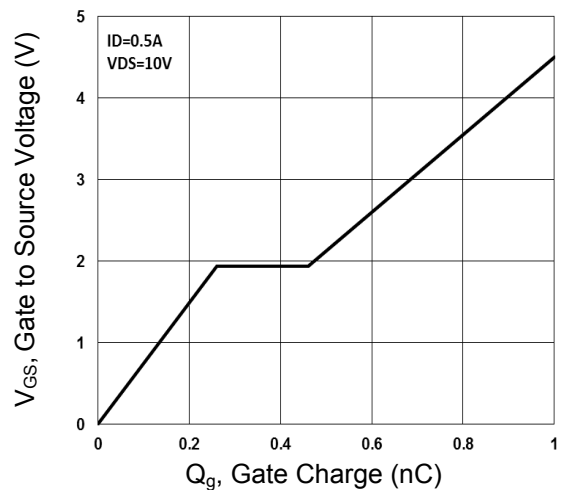


Figure 4. Gate Charge Waveform

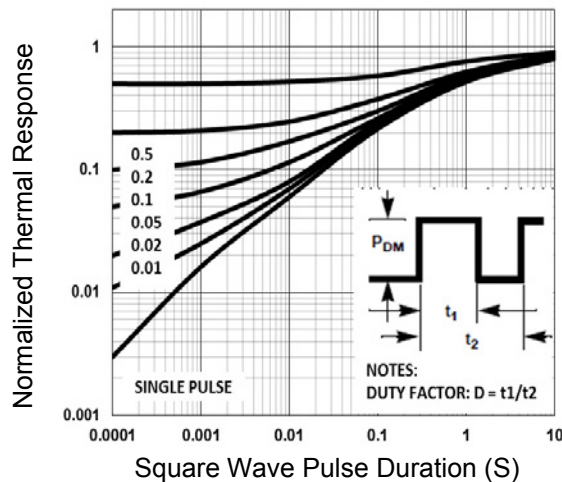


Figure 5. Normalized Transient Impedance

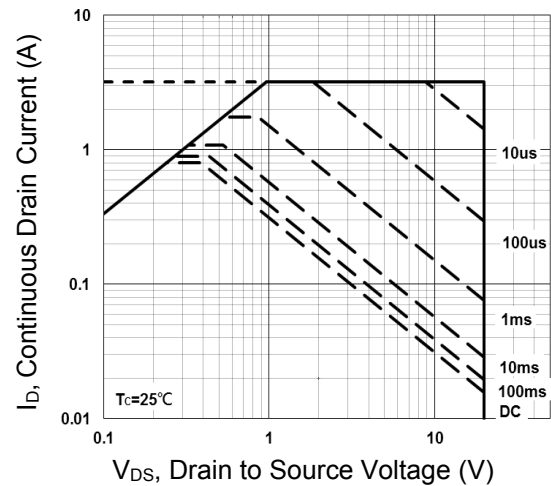
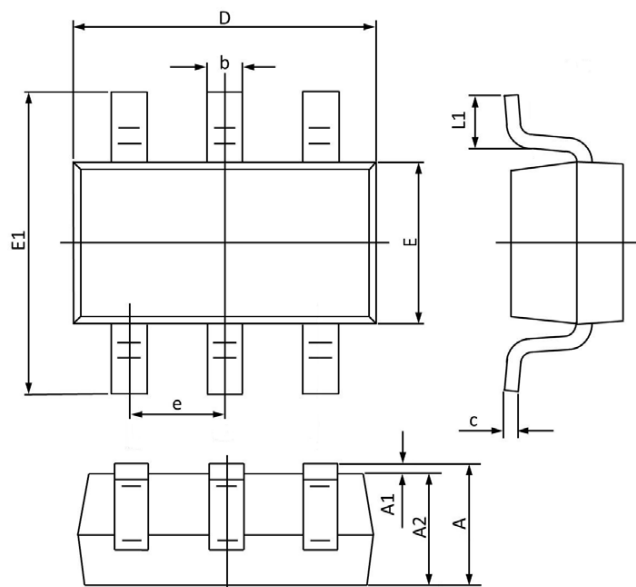


Figure 6. Maximum Safe Operation Area

Package Outline Dimensions (SOT-363)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.800	1.100	0.031	0.043
A1	0.000	0.100	0.000	0.004
A2	0.800	1.000	0.031	0.039
b	0.100	0.350	0.004	0.014
c	0.080	0.250	0.003	0.010
D	1.800	2.200	0.071	0.087
E	1.150	1.350	0.045	0.053
E1	1.800	2.450	0.071	0.096
e	0.650 BSC		0.026 BSC	
L1	0.100	0.460	0.004	0.018

Order Information

Device	Package	Marking	Carrier	Quantity
SSFK3220B	SOT-363	r* (*varied by lots)	Tape & Reel	3,000pcs / Reel