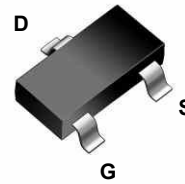
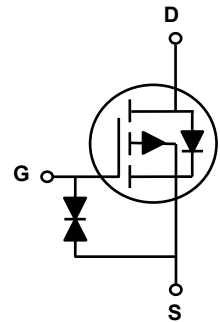


Main Product Characteristics

BV_{DSS}	-20V
$R_{DS(ON)}$	600m Ω (Max.)
I_D	-450mA



SOT-523



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
- ESD protection up to 2KV



Description

The SSF2319CJ1 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 supplies and a wide variety of other applications.

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Units
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	-450	mA
Drain Current-Continuous ($T_C=100^\circ\text{C}$)		-280	mA
Drain Current-Pulsed ¹	I_{DM}	-1.8	A
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	312	mW
Power Dissipation-Derate above 25°C		2.5	mW/ $^\circ\text{C}$
Max. Thermal Resistance Junction to Ambient	$R_{\theta JA}$	400	$^\circ\text{C}/\text{W}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250uA	-20	-	-	V
BV _{DSS} Temperature Coefficient	ΔBV _{DSS} / ΔT _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
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	△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 Ratings and Characteristics						
Continuous Source Current	I _S	V _G =V _D =0V, Force Current	-	-	-0.45	A
Pulsed Source Current	I _{SM}		-	-	-0.9	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-0.2A, T _J =25°C	-	-	-1	V

Notes:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristics

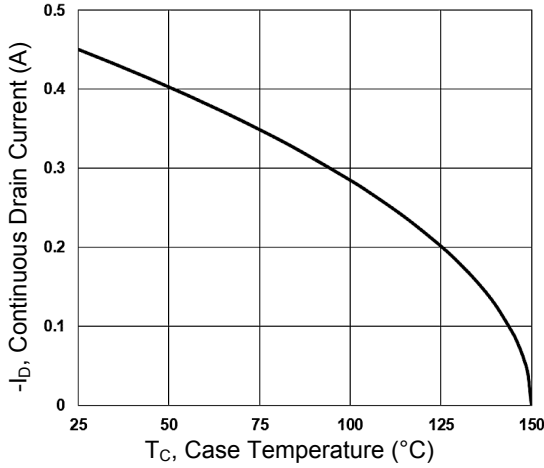


Figure 1. Continuous Drain Current vs. T_C

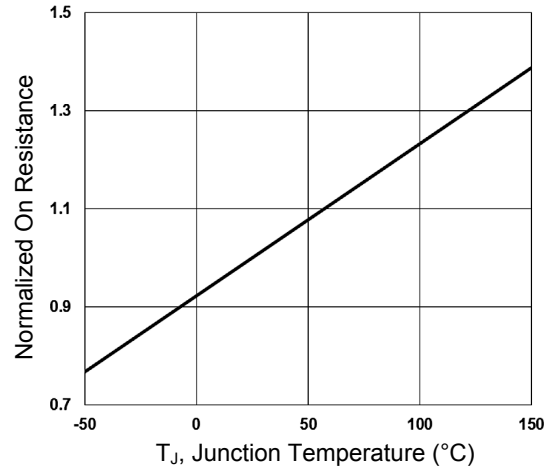


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

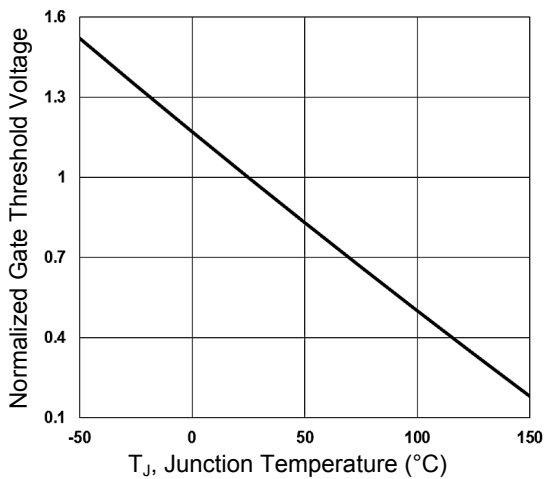


Figure 3. Normalized V_{th} vs. T_J

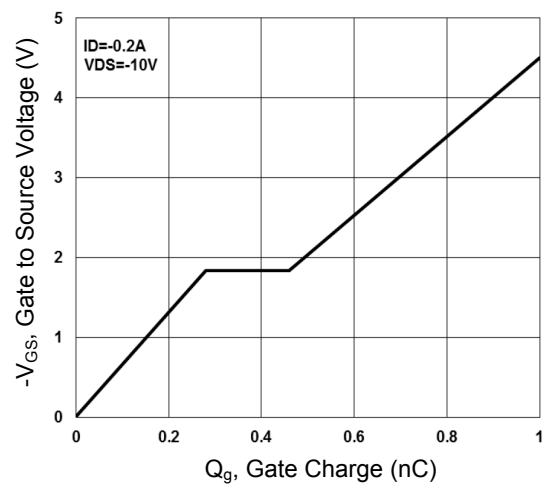


Figure 4. Gate Charge Waveform

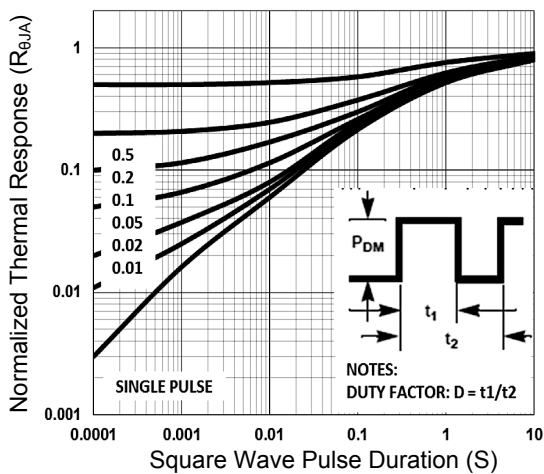


Figure 5. Normalized Transient Response

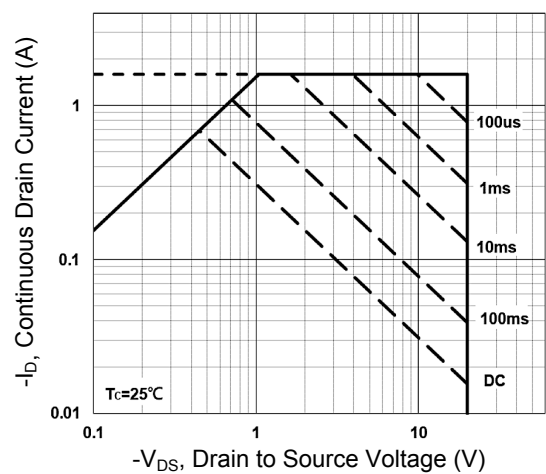
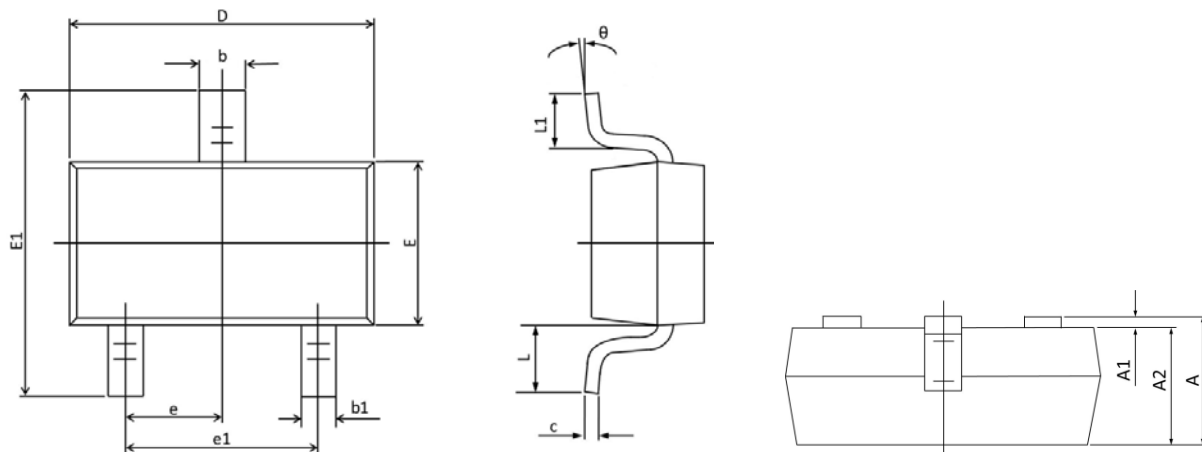


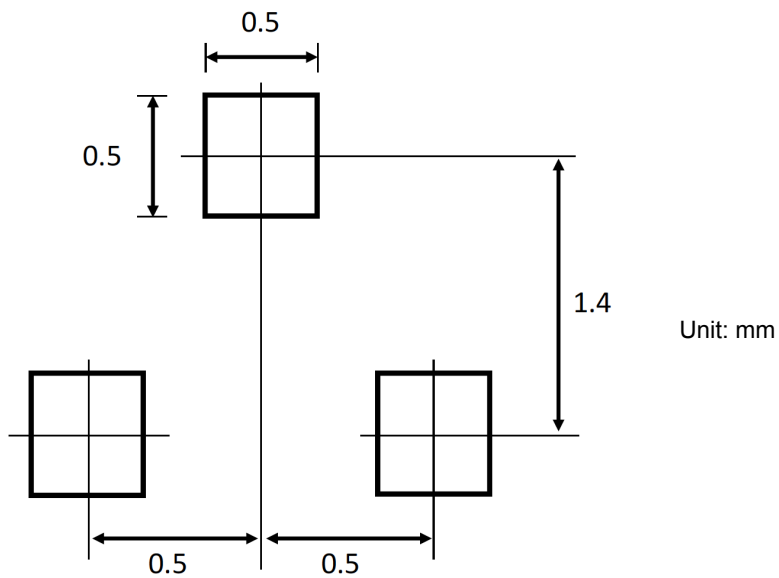
Figure 6. Maximum Safe Operation Area

Package Outline Dimensions (SOT-523)



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b	0.250	0.350	0.010	0.014
b1	0.150	0.250	0.006	0.010
c	0.100	0.200	0.004	0.008
D	1.500	1.750	0.059	0.069
E	0.700	0.900	0.028	0.035
E1	1.400	1.750	0.055	0.069
e	0.500 TYP		0.020 TYP	
e1	0.900	1.100	0.035	0.043
L	0.300	0.460	0.012	0.018
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Recommended Pad Layout



Order Information

Device	Package	Marking	Carrier	Quantity
SSF2319CJ1	SOT-523	F	Tape & Reel	3,000 Pcs / Reel