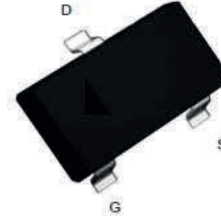
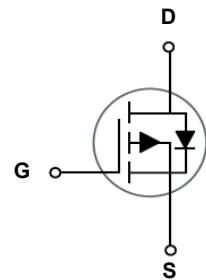


Main Product Characteristics

BV_{DSS}	-100V
$R_{DS(ON)}$	341m Ω (Max)
I_D	-3A



SOT-23



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Low on-resistance and low gate charge.
- Featuring low switching and drive losses.
- Fast switching and reverse body recovery.
- High ruggedness and robustness.



Description

The GSFC1005L 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 ($T_A=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ($T_A=25^{\circ}C$)	I_D	-3	A
Drain Current-Continuous ($T_A=70^{\circ}C$)		-2.3	
Drain Current-Pulsed ¹	I_{DM}	-12	A
Single Pulse Avalanche Energy ²	E_{AS}	109	mJ
Single Pulse Avalanche Current ²	I_{AS}	20	A
Power Dissipation ($T_A=25^{\circ}C$)	P_D	3.1	W
Power Dissipation Derat Above 25 $^{\circ}C$		0.025	
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	45	$^{\circ}C/W$
Operating Junction Temperature Range	T_J	-55 To +150	$^{\circ}C$
Storage Temperature Range	T_{STG}	-55 To +150	$^{\circ}C$

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}	$V_{GS}=0V, I_D=-250\mu A$	-100	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-100V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	-1	μA
		$V_{DS}=-80V, V_{GS}=0V, T_J=125^\circ\text{C}$	-	-	-10	μA
Gate-Source Forward Leakage	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-3A$	-	279	341	m Ω
		$V_{GS}=-4.5V, I_D=-3A$	-	297	391	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1.1	-1.6	-2.7	V
Forward Transconductance	g_{fs}	$V_{DS}=-10V, I_D=-3A$	-	10	-	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{3,4}	Q_g	$V_{DS}=-50V, I_D=-3A, V_{GS}=-10V$	-	20	-	nC
Gate-Source Charge ^{3,4}	Q_{gs}		-	6	-	
Gate-Drain Charge ^{3,4}	Q_{gd}		-	4.3	-	
Turn-on Delay Time ^{3,4}	$t_{d(on)}$	$V_{DD}=-50V, R_G=3\Omega, V_{GS}=-10V, I_D=-3.1A$	-	14	-	nS
Rise Time ^{3,4}	t_r		-	4	-	
Turn-Off Delay Time ^{3,4}	$t_{d(off)}$		-	42	-	
Fall Time ^{3,4}	t_f		-	7	-	
Input Capacitance	C_{iss}	$V_{DS}=-50V, V_{GS}=0V, F=1\text{MHz}$	-	1200	-	pF
Output Capacitance	C_{oss}		-	34	-	
Reverse Transfer Capacitance	C_{rss}		-	29	-	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	-	6	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current	I_S	$V_G=V_D=0V, \text{Fore Current}$	-	-	-3	A
Pulsed Source Current	I_{SM}		-	-	-12	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-3A, T_J=25^\circ\text{C}$	-	-	-1.2	V
Reverse Recovery Time	T_{rr}	$V_R=-100V, I_S=-3A, \text{didt}=100A/\mu s, T_J=25^\circ\text{C}$	-	42	-	nS
Reverse Recovery Charge	Q_{rr}		-	83	-	nC

Notes

1. Repetitive rating; pulse width limited by max. junction temperature.
2. $V_{DD}=50V, V_{GS}=10V, L=0.5\text{mH}, I_{AS}=20A, \text{starting } T_J=25^\circ\text{C}$.
3. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

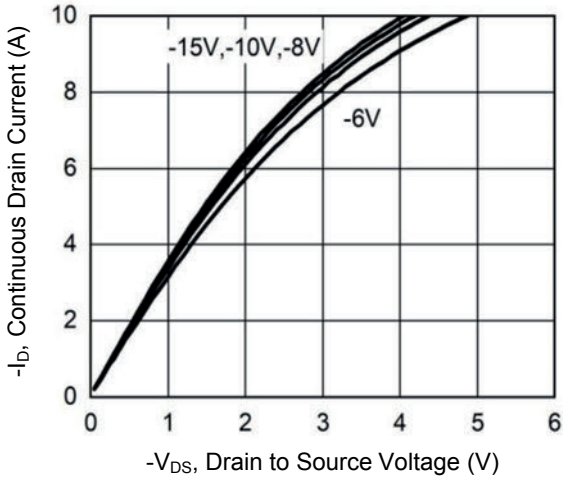


Figure 1. Typical Output Characteristics

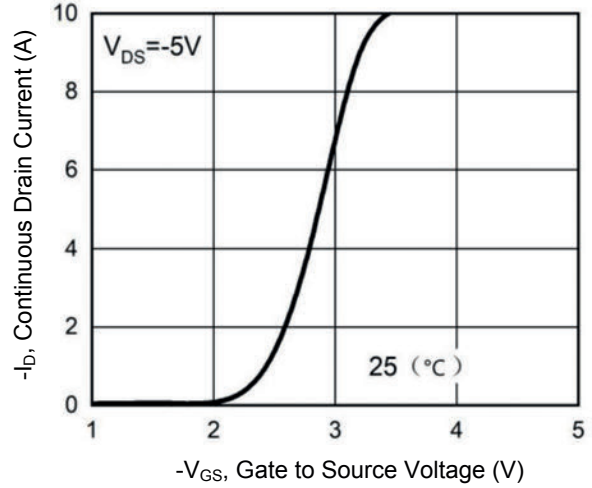


Figure 2. Transfer Characteristics

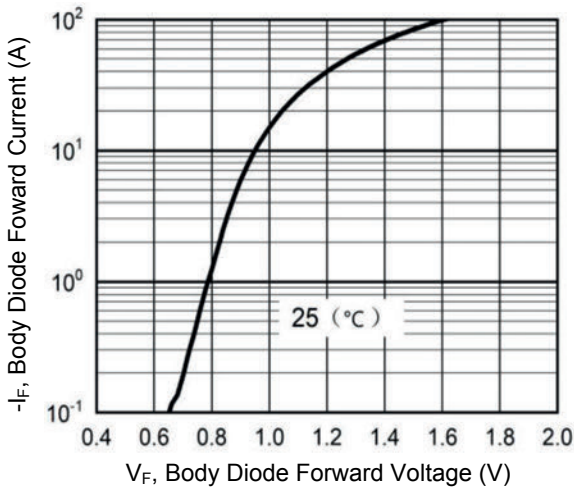


Figure 3. Body Diode Characteristics

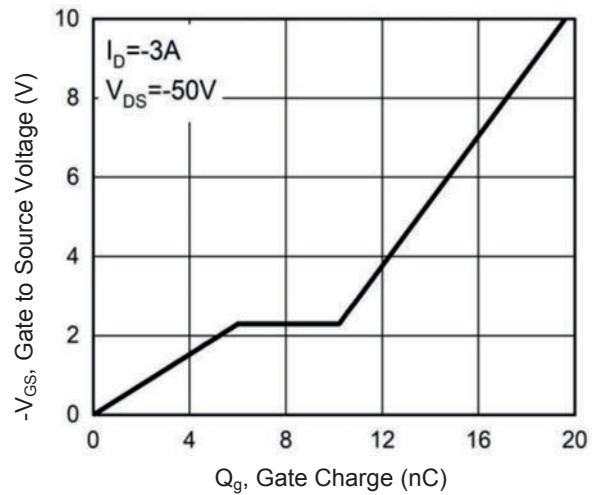


Figure 4. Gate Charge Characteristics

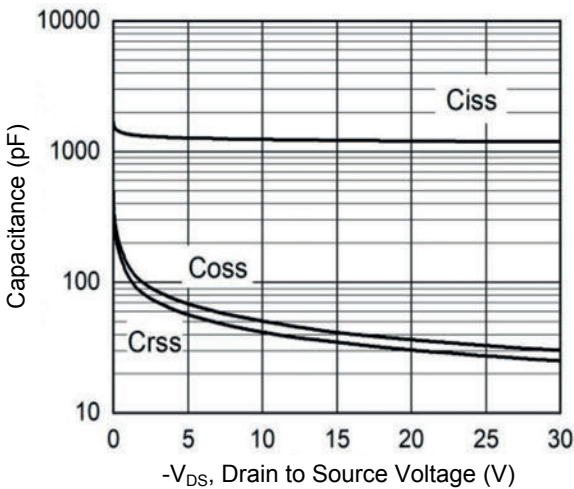


Figure 5. Capacitance Characteristics

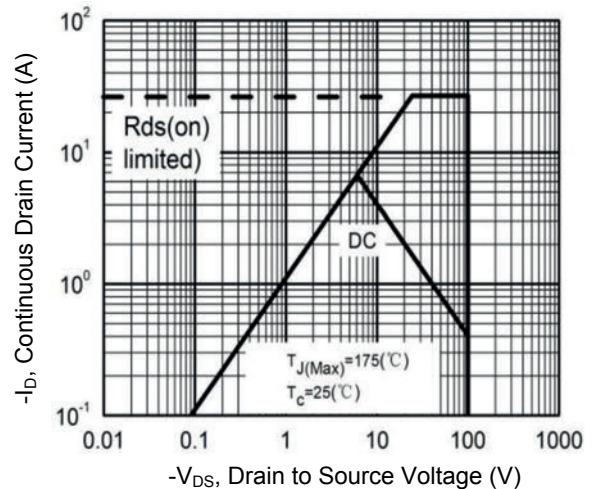
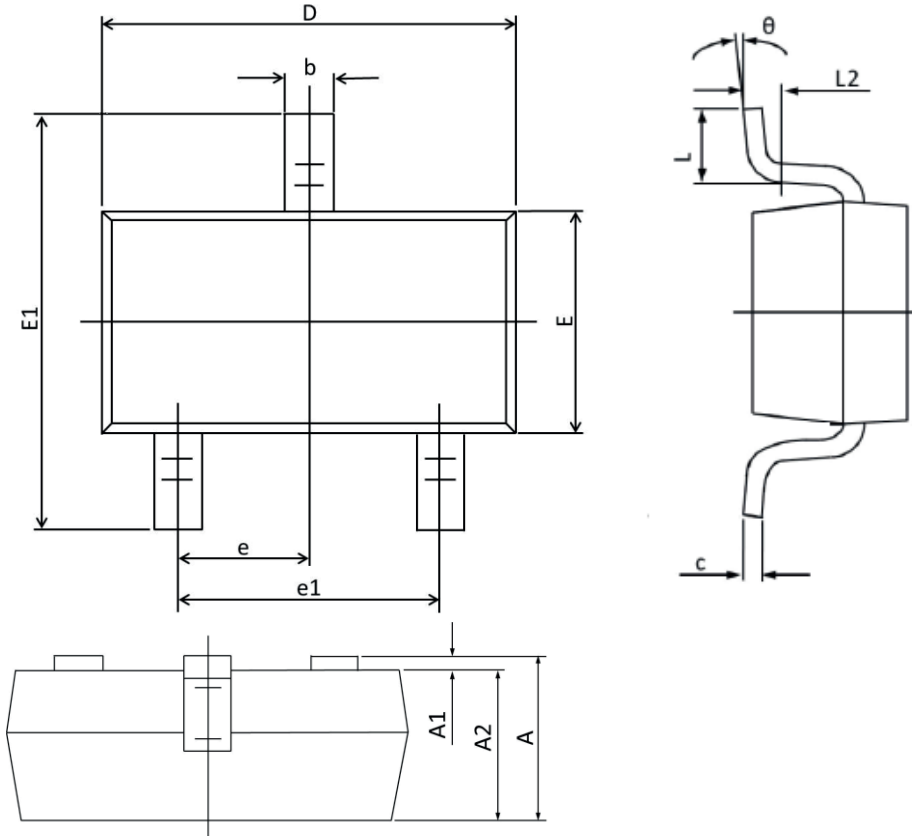


Figure 6. Maximum Safe Operation Area

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037 BSC	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
L2	0.200 TYP		0.008 TYP	
theta	0°	8°	0°	8°