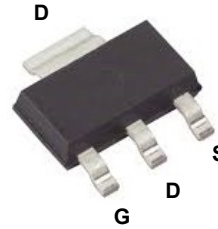
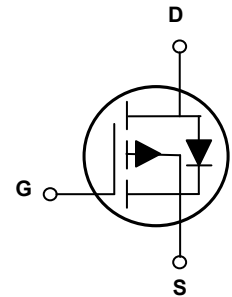


Main Product Characteristics

BV_{DSS}	-60V
$R_{DS(ON)}$	71mΩ (Typ.)
I_D	-10A



SOT-223



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 GSFL0603 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}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ($T_A=25^{\circ}C$)	I_D	-10	A
Drain Current-Continuous ($T_A=70^{\circ}C$)		-6	A
Drain Current-Pulsed ¹	I_{DM}	-40	A
Single Pulse Avalanche Energy ²	E_{AS}	25	mJ
Single Pulse Avalanche Current ²	I_{AS}	-18	A
Power Dissipation ($T_A=25^{\circ}C$)	P_D	28	W
Power Dissipation-De-rate Above 25°C		0.23	W/°C
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	4.46	°C/W
Storage Temperature Range	T_{STG}	-55 To +150	°C
Operating Junction Temperature Range	T_J	-55 To +150	°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}	$V_{GS}=0V, I_D=-250\mu A$	-60	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	-1	μA
		$V_{DS}=-48V, V_{GS}=0V, T_J=125^\circ\text{C}$	-	-	-10	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-2A$	-	71	96	m Ω
		$V_{GS}=-4.5V, I_D=-1A$	-	82	130	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-1.8	-2.7	V
Forward Transconductance	gfs	$V_{DS}=-10V, I_D=-1A$	-	3	-	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{2,3}	Q_g	$V_{DS}=-30V, I_D=-1A, V_{GS}=-10V$	-	10	-	nC
Gate-Source Charge ^{2,3}	Q_{gs}		-	1.6	-	
Gate-Drain Charge ^{2,3}	Q_{gd}		-	3	-	
Turn-On Delay Time ^{2,3}	$t_{d(on)}$	$V_{DD}=-30V, R_G=6\Omega, V_{GS}=-10V, I_D=-1A$	-	8	-	nS
Rise Time ^{2,3}	t_r		-	15.4	-	
Turn-Off Delay Time ^{2,3}	$t_{d(off)}$		-	42.8	-	
Fall Time ^{2,3}	t_f		-	8.4	-	
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V, F=1\text{MHz}$	-	720	-	pF
Output Capacitance	C_{oss}		-	42	-	
Reverse Transfer Capacitance	C_{rss}		-	32	-	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	-	22	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current	I_S	$V_G=V_D=0V,$ Force Current	-	-	-10	A
Pulsed Source Current	I_{SM}		-	-	-40	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-1A, T_J=25^\circ\text{C}$	-	-	-1.2	V
Reverse Recovery Time	T_{rr}	$V_R=-50V, I_S=-1A,$ $di/dt=100A/\mu s, T_J=25^\circ\text{C}$	-	30	-	nS
Reverse Recovery Charge	Q_{rr}		-	15	-	nC

Notes:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. $V_{DD}=-25V, V_{GS}=-10V, L=0.1\text{mH}, I_{AS}=-18A, R_G=25\Omega,$ starting $T_J=25^\circ\text{C}$.
3. Pluse test: pulse width $\leq 300\mu s,$ duty cycle $\leq 2\%$.
4. Essentially independent of operation temperature.

Typical Electrical and Thermal Characteristic Curves

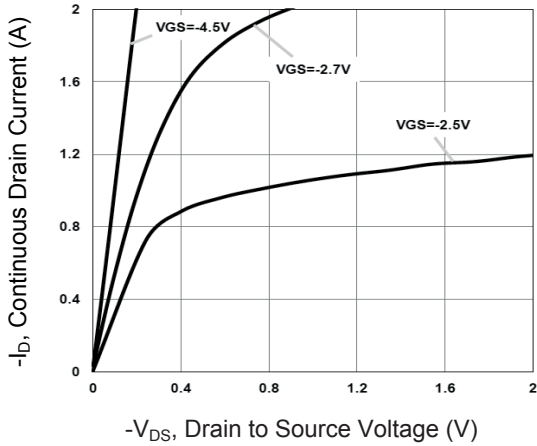


Figure 1. Typical Output Characteristics

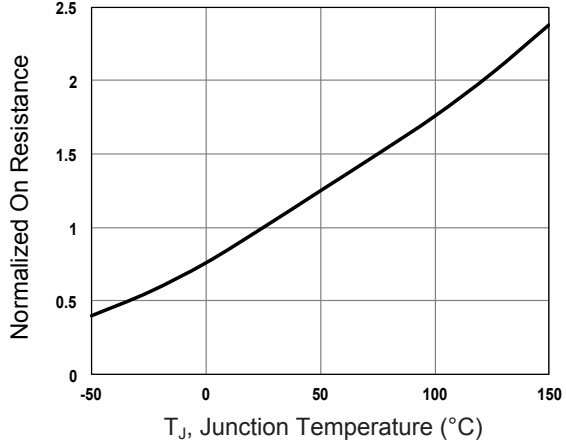


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

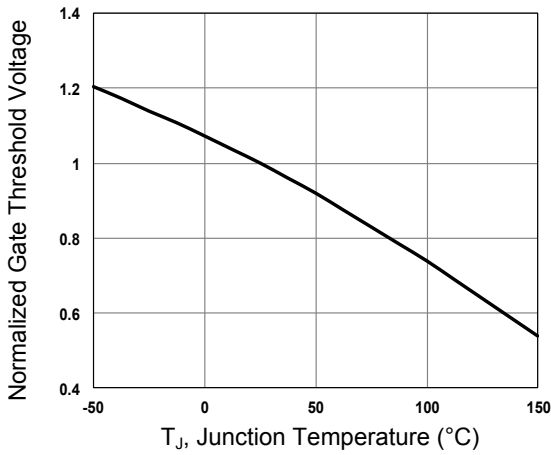


Figure 3. Normalized V_{th} vs. T_J

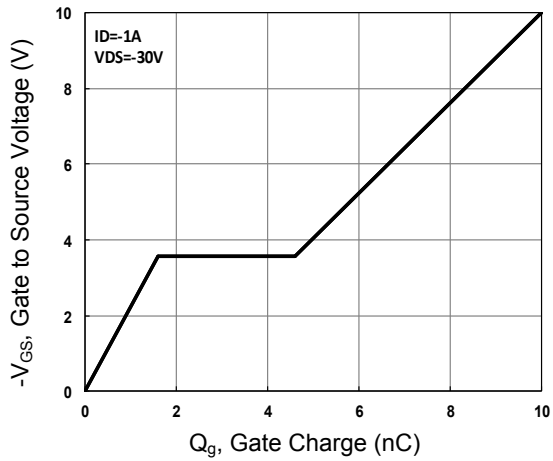


Figure 4. Gate Charge Waveform

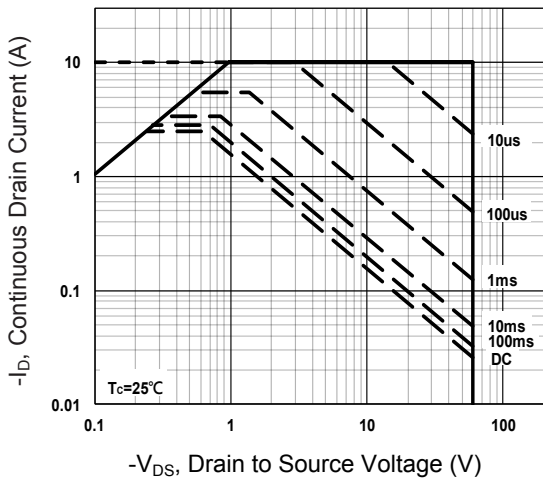


Figure 5. Maximum Safe Operation Area

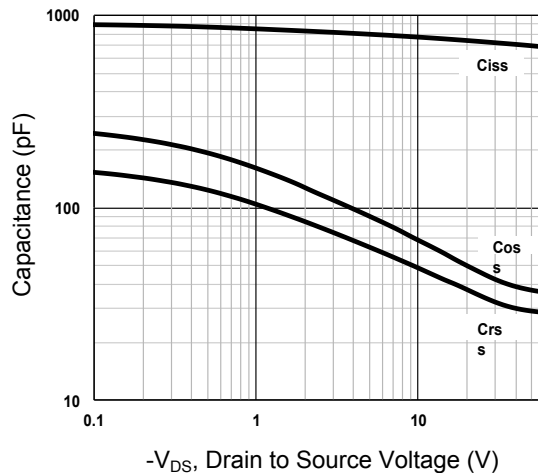
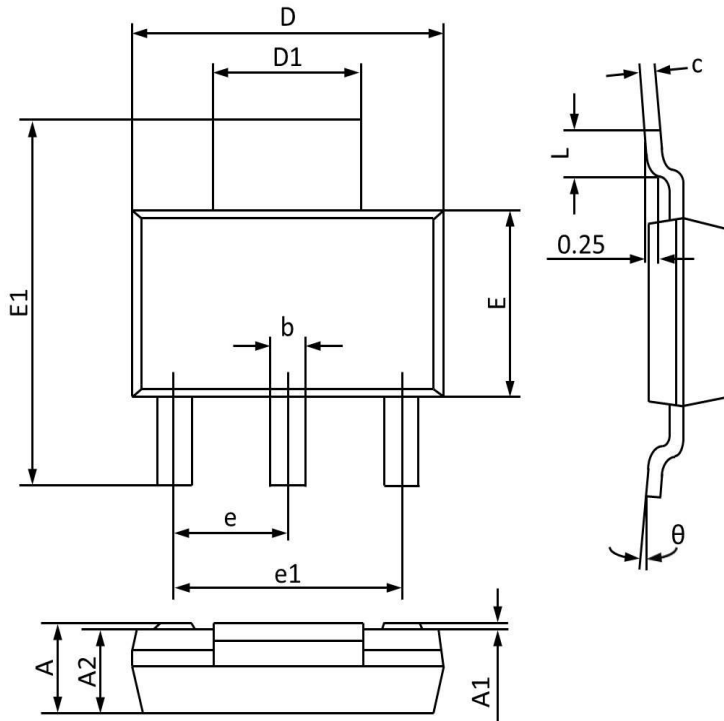


Figure 6. Capacitance Characteristics

Package Outline Dimensions (SOT-223)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.50	1.80	0.060	0.071
A1	0.00	0.12	0.000	0.005
A2	1.45	1.75	0.057	0.069
b	0.60	0.82	0.024	0.032
c	0.20	0.35	0.008	0.014
D	6.20	6.70	0.244	0.264
D1	2.90	3.10	0.114	0.122
E	3.30	3.70	0.130	0.146
E1	6.70	7.30	0.264	0.287
e	2.30 BSC		0.091 BSC	
e1	4.40	4.70	0.173	0.185
L	0.90	1.15	0.035	0.045
θ	0°	10°	0°	10°

Order Information

Device	Package	Marking	Carrier	Quantity
GSFL0603	SOT-223	L0603	Tape & Reel	3,000 Pcs / Reel

For more information, please contact us at: inquiry@goodarksemi.com