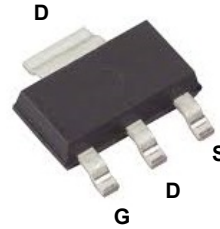


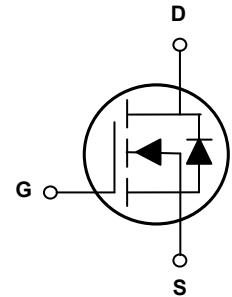


Main Product Characteristics

$V_{(BR)DSS}$	100V
$R_{DS(ON)}$	90m Ω (Typ.)
I_D	6A



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 GSFL10110 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 ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-to-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current, @ Steady-State ($T_A=25^\circ\text{C}$) ¹	I_D	6	A
Continuous Drain Current, @ Steady-State ($T_A=100^\circ\text{C}$)		4.3	A
Pulsed Drain Current ²	I_{DM}	24	A
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	2.5	W
Linear Derating Factor ($T_A=25^\circ\text{C}$)		0.02	W/ $^\circ\text{C}$
Single Pulse Avalanche Energy ³	E_{AS}	11	mJ
Junction-to-Case	$R_{\theta JC}$	50	$^\circ\text{C/W}$
Junction-to-Ambient (PCB Mounted, Steady-State) ⁴	$R_{\theta JA}$	85	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +175	$^\circ\text{C}$


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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	-	-	1	μA
		$T_J=125^\circ\text{C}$	-	-	50	
Gate-to-Source Forward Leakage	I_{GSS}	$V_{GS}=20V$	-	-	100	nA
		$V_{GS}=-20V$	-	-	-100	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=5A$	-	90	110	m Ω
		$V_{GS}=6V, I_D=2A$	-	92	120	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.1	1.8	2.9	V
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=9A$	-	15	-	S
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=50V, f=1\text{MHz}$	-	446	-	pF
Output Capacitance	C_{oss}		-	57	-	
Reverse Transfer Capacitance	C_{rss}		-	2.8	-	
Total Gate Charge	Q_g	$I_D=10A, V_{DS}=50V, V_{GS}=10V$	-	8.2	-	nC
Gate-to-Source Charge	Q_{gs}		-	2.8	-	
Gate-to-Drain ("Miller") Charge	Q_{gd}		-	1.6	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=50V, R_L=5\Omega, R_{GEN}=3\Omega$	-	2.6	-	nS
Rise Time	t_r		-	22	-	
Turn-Off Delay Time	$t_{d(off)}$		-	8.4	-	
Fall Time	t_f		-	12	--	
Gate Resistance	R_g	$f=1\text{MHz}$	-	1.4	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	15	A
Pulsed Source Current (Body Diode)	I_{SM}		-	-	60	A
Diode Forward Voltage	V_{SD}	$I_S=10A, V_{GS}=0V$	-	1	1.3	V
Reverse Recovery Time	T_{rr}	$I_S=10A, V_{GS}=0V, dl_F/dt=100A/us$	-	46	-	nS
Reverse Recovery Charge	Q_{rr}		-	40	-	nC

Notes:

1. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. $L=0.5\text{mH}, R_G=25\Omega, V_{DD}=80V, I_{AS}=6.5A, T_J=25^\circ\text{C}$.
4. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Electrical and Thermal Characteristic Curves

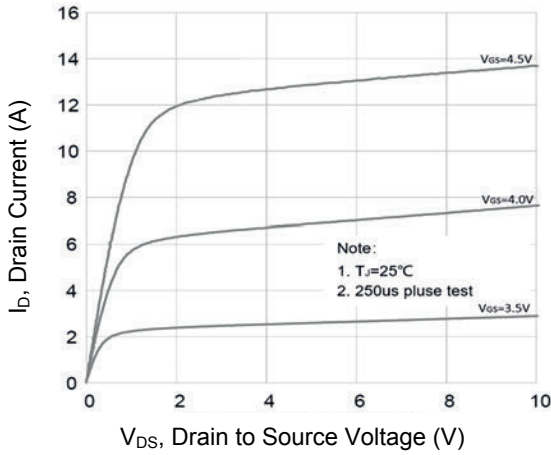


Figure 1. Typical Output Characteristics

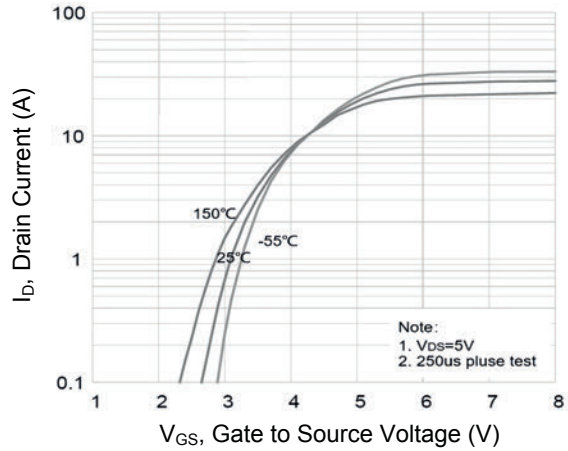


Figure 2. Transfer Characteristics

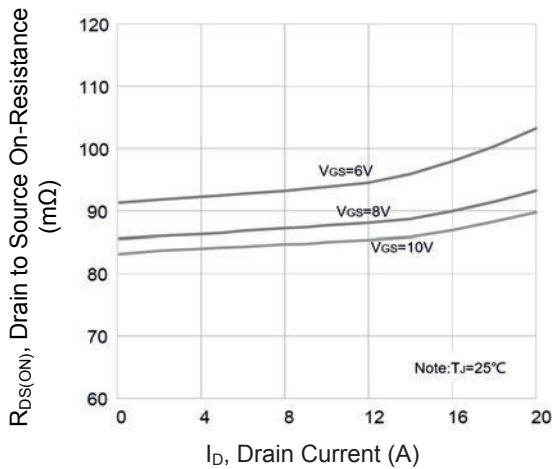


Figure 3. $R_{DS(ON)}$ vs. Drain Current

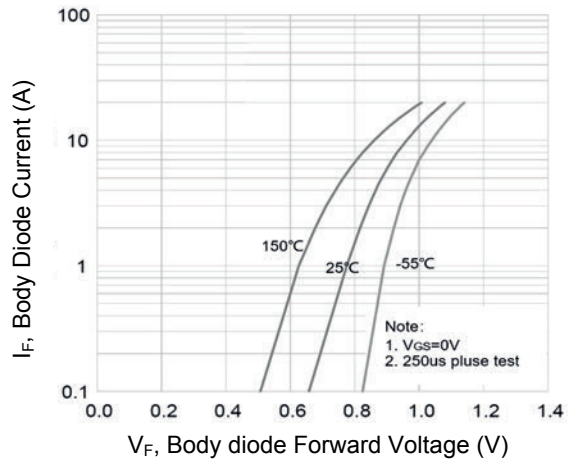


Figure 4. Body Diode Characteristics

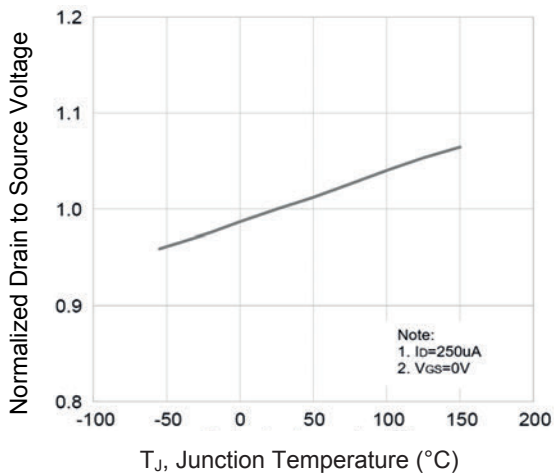


Figure 5. Normalized BV_{dss} vs. T_J

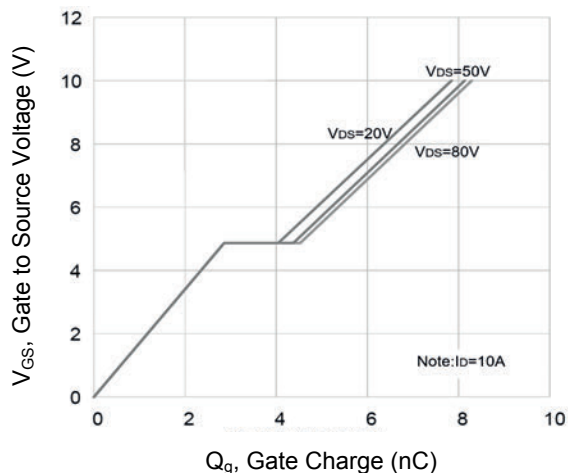
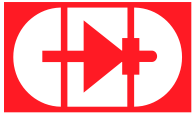


Figure 6. Gate Charge



Typical Electrical and Thermal Characteristic Curves

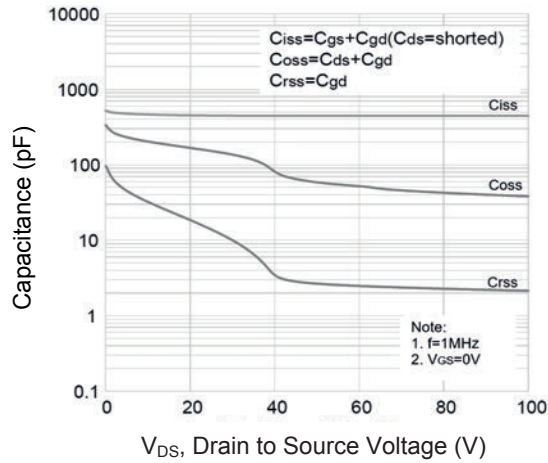


Figure 7. Capacitance Characteristics

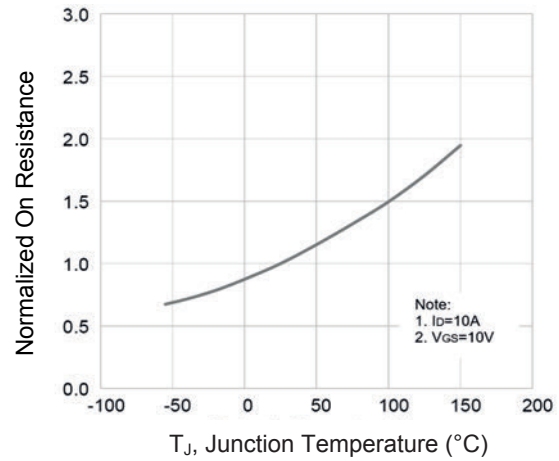
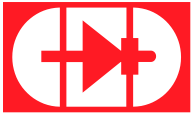
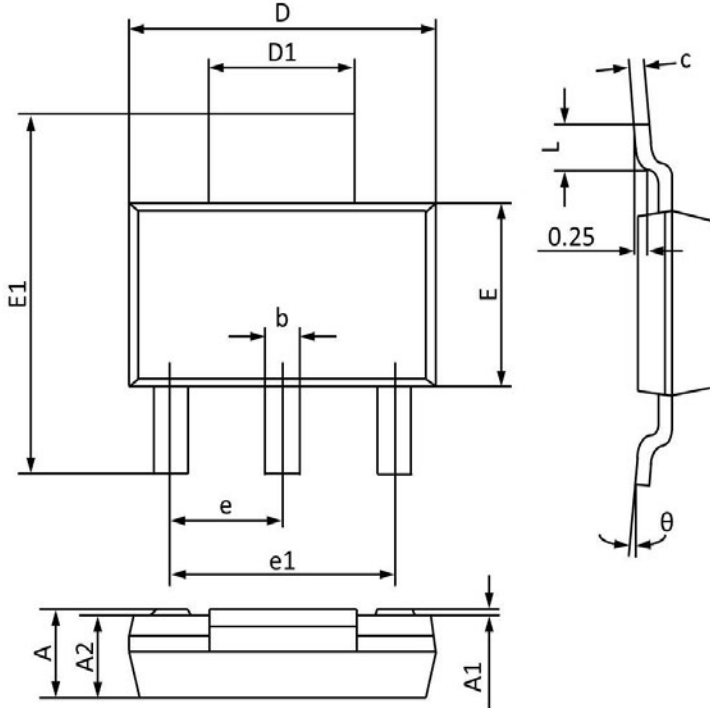


Figure 8. Normalized $R_{DS(ON)}$ vs. T_J



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
GSFL10110	SOT-223	L10110	Tape & Reel	3,000pcs / Reel