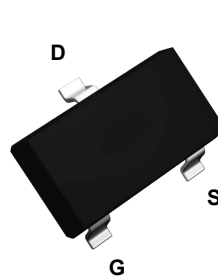
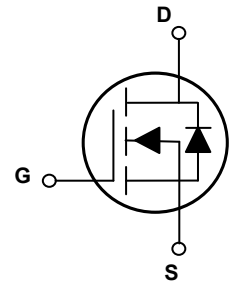


Main Product Characteristics

$V_{(BR)DSS}$	100V
$R_{DS(ON)}$	84m Ω (Typ.)
I_D	6A



SOT-23



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 GSFC10110L 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	Value	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
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	50	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient (PCB Mounted, Steady-State) ⁴	$R_{\theta JA}$	85	$^\circ\text{C}/\text{W}$
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	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$	-	84	106	$m\Omega$
		$V_{GS}=6V, I_D=2A$	-	92	110	
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}	$V_{GS}=0V, V_{DS}=50V, f=1MHz$	-	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	$f=1MHz$	-	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}	$I_S=10A, V_{GS}=0V, dI_F/dt=100A/us$	-	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. $L=0.5mH, R_G=25\Omega, V_{DD}=80V, I_{AS}=6.5A, T_J=25^\circ\text{C}$.
4. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Electrical and Thermal Characteristic Curves

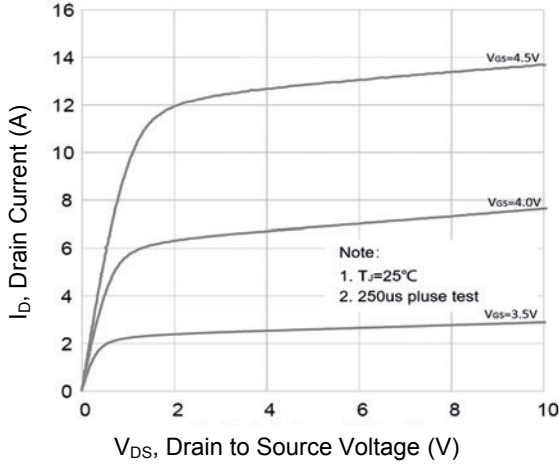


Figure 1. Typical Output Characteristics

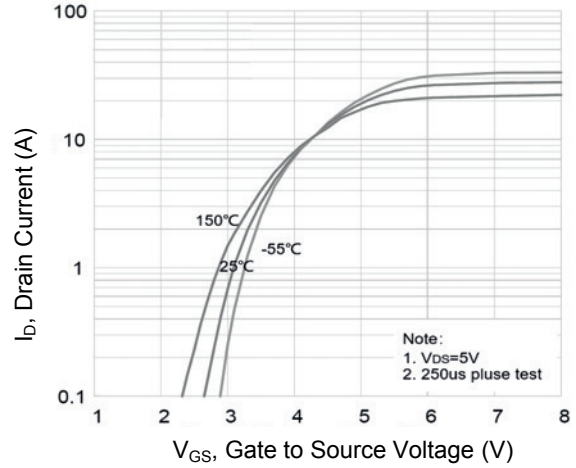


Figure 2. Transfer Characteristics

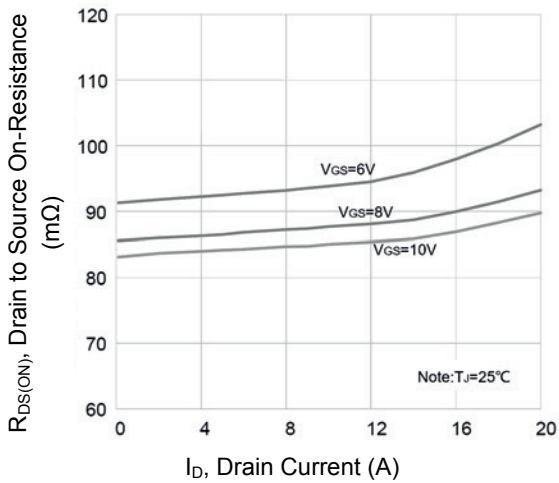


Figure 3. $R_{DS(ON)}$ vs. Drain Current

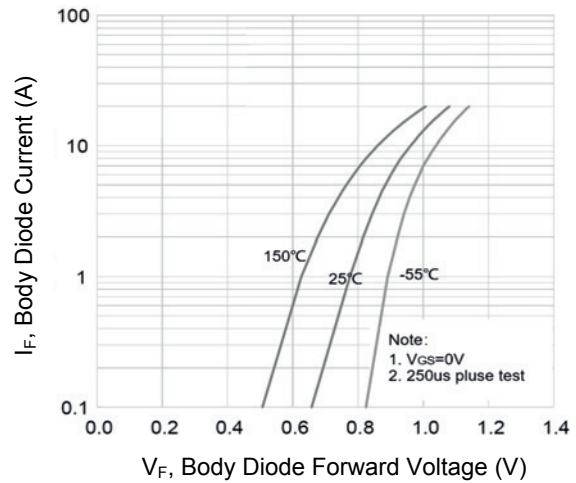


Figure 4. Body Diode Characteristics

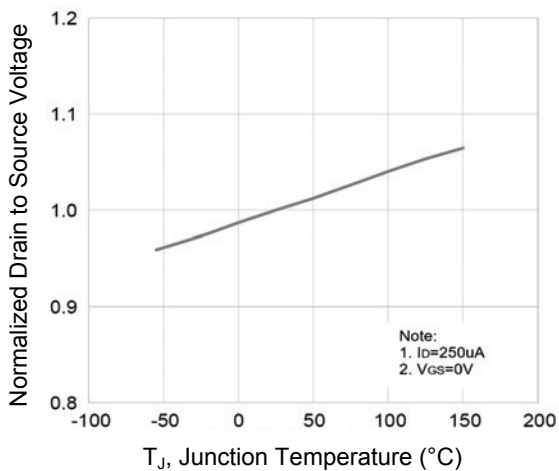


Figure 5. Normalized BV_{DSS} vs. T_J

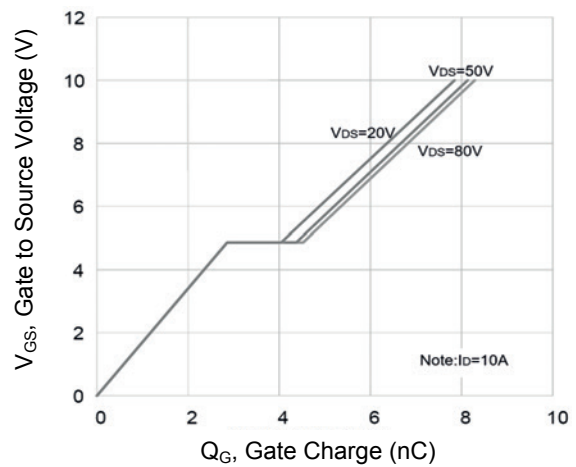


Figure 6. Gate Charge

Typical Electrical and Thermal Characteristic Curves

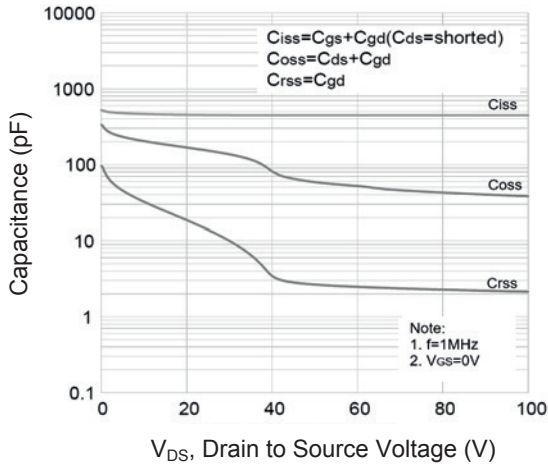


Figure 7. Capacitance Characteristics

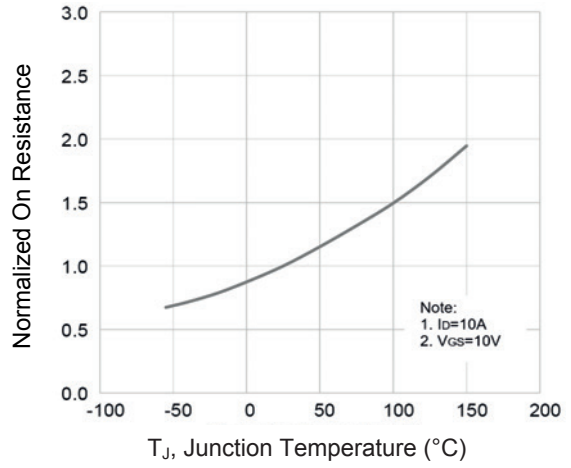
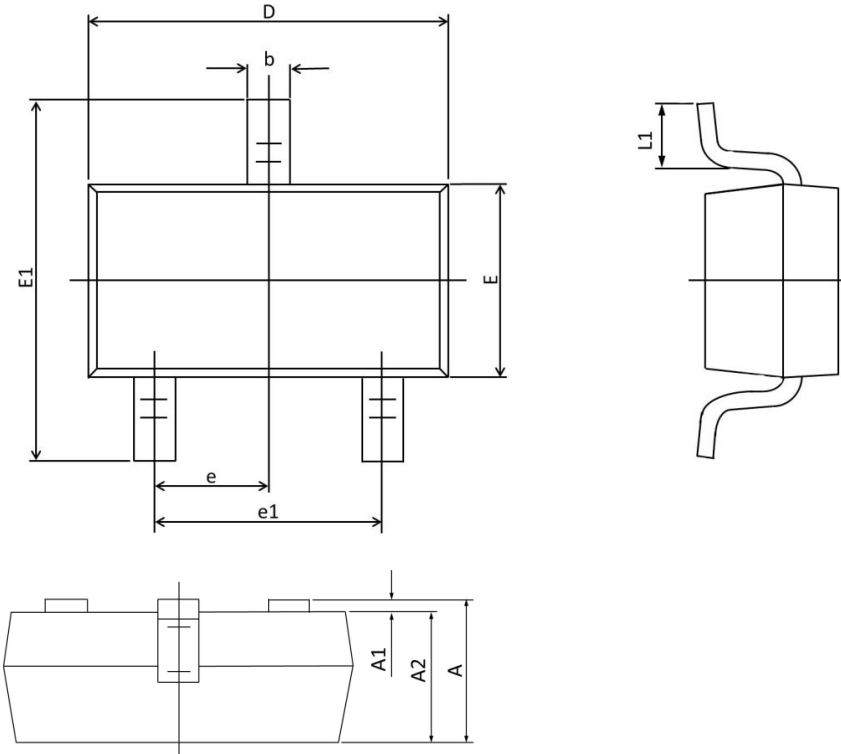


Figure 8. Normalized $R_{DS(ON)}$ vs. T_J

Package Outline Dimensions (SOT-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
D	2.800	3.040	0.110	0.120
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.95 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L1	0.300	0.500	0.012	0.020

Order Information

Device	Package	Marking	Packaging	SPQ
GSFC10110L	SOT-23	C10110	Tape & Reel	3,000 Pcs / Reel

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