GOOD-ARK SEMICONDUCTOR

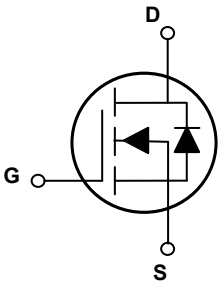
GSFC28110

100V N-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	100V
$R_{DS(ON)}$	220mΩ (Typ.)
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 GSFC28110 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_J=25°C unless otherwise specified)

Parameter	Symbol	Parameter	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-to-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, @ Steady-State (T_C=25°C)	I_D	3	A
Continuous Drain Current, @ Steady-State (T_C=100°C)		1.8	A
Pulsed Drain Current (T_C=25°C)[1]	I_{DM}	12	A
Power Dissipation (T_C=25°C)	P_D	2.1	W
Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	62	°C/W
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +150	°C
Soldering temperature (SMD)	T_{sold}	260	°C

Electrical Characteristics (T_J=25°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=250μA	100	-	-	V
BV_{DSS} Temperature Coefficient	$\triangle BV_{DSS}/\triangle T_J$	Reference to 25°C, I_D=1mA	-	0.1	-	V/°C
Drain-Source Leakage Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V, T_J=25°C	-	-	1	μA
		V_{DS}=80V, V_{GS}=0V, T_J=125°C	-	-	10	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=2A	-	220	284	mΩ
		V_{GS}=4.5V, I_D=1A	-	240	400	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.1	-	2.9	V
$V_{GS(th)}$ Temperature Coefficient	$\triangle V_{GS(th)}$		-	-4	-	mV/°C
Forward Transconductance	gfs	V_{DS}=10V, I_D=1A	-	2	-	S
Dynamic and Switching Characteristics						
Total Gate Charge[2,3]	Q_g	V_{DS}=50V, I_D=2A, V_{GS}=10V	-	13.4	-	nC
Gate-Source Charge[2,3]	Q_{gs}		-	2.9	-	
Gate-Drain Charge[2,3]	Q_{gd}		-	1.7	-	
Turn-On Delay Time[2,3]	$t_{d(on)}$	V_{DD}=30V, R_G=3.3Ω, V_{GS}=10V, I_D=1A	-	1.6	-	nS
Rise Time[2,3]	t_r		-	6.6	-	
Turn-Off Delay Time[2,3]	$t_{d(off)}$		-	11.5	-	
Fall Time[2,3]	t_f		-	3.6	-	
Input Capacitance	C_{iss}	V_{DS}=50V, V_{GS}=0V, F=1MHz	-	820	-	pF
Output Capacitance	C_{oss}		-	35	-	
Reverse Transfer Capacitance	C_{rss}		-	20	-	
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, F=1MHz	-	1.3	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current	I_S	V_G=V_D=0V, Force Current	-	-	3	A
Pulsed Source Current	I_{SM}		-	-	6	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=1A, T_J=25°C	-	-	1	V

Notes:

1. Repetitive rating; pulse width limited by max. junction temperature.
2. Pulse test: Pulse width ≤ 300us, duty cycle ≤ 2%.
3. Essentially independent of operation temperature.

Typical Electrical and Thermal Characteristic Curves

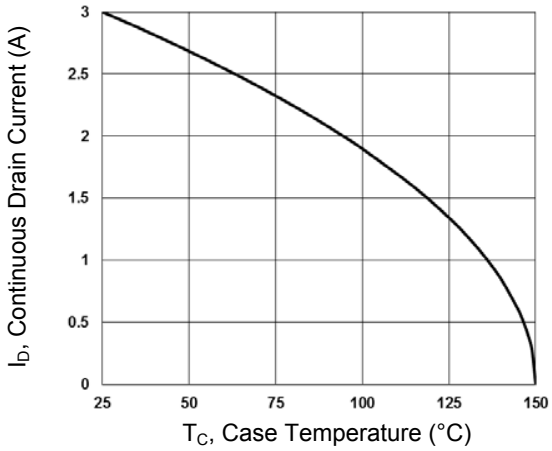


Figure 1. Continuous Drain Current vs. T_C

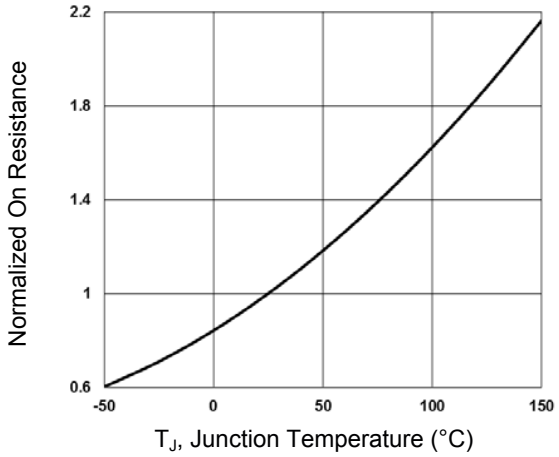


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

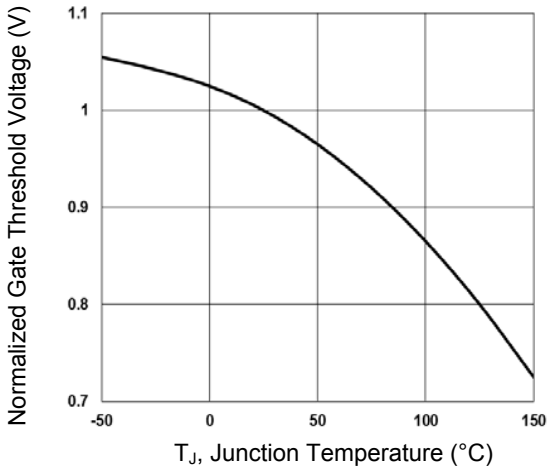


Figure 3. Normalized V_{th} vs. T_J

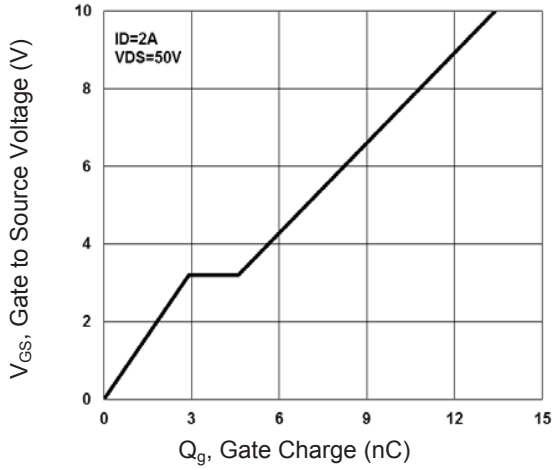


Figure 4. Gate Charge Waveform

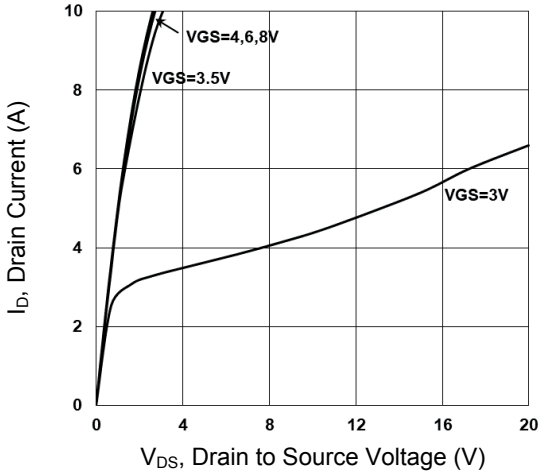


Figure 5. Typical Output Characteristics

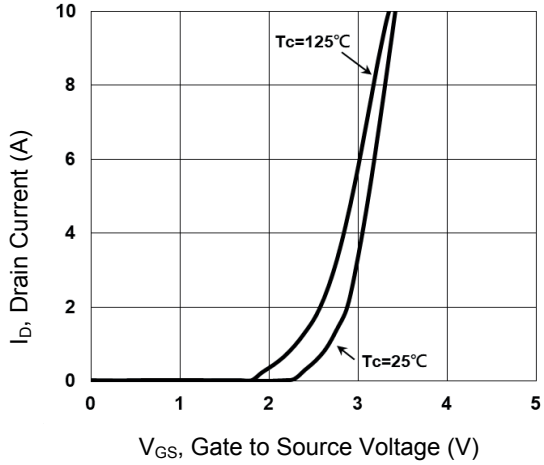
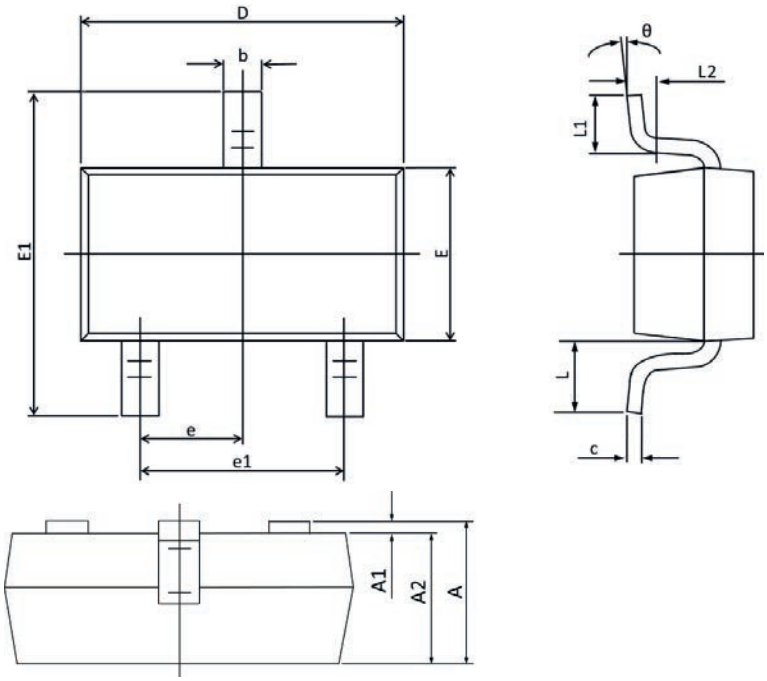


Figure 6. Transfer Characteristics

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.55 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
L2	0.25 TYP.		0.01 TYP.	
θ	0°	8°	0°	8°

Order Information

Device	Package	Marking	Carrier	Quantity
GSFC28110	SOT-23	C28110	Tape & Reel	3,000 pcs / Reel