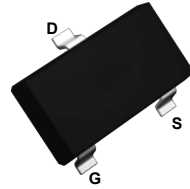
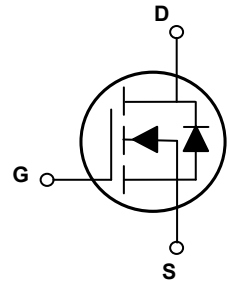


### Main Product Characteristics

$V_{(BR)DSS}$	100V
$R_{DS(ON)}$	220m $\Omega$ (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 ( $T_J=25^{\circ}\text{C}$ unless otherwise specified)

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

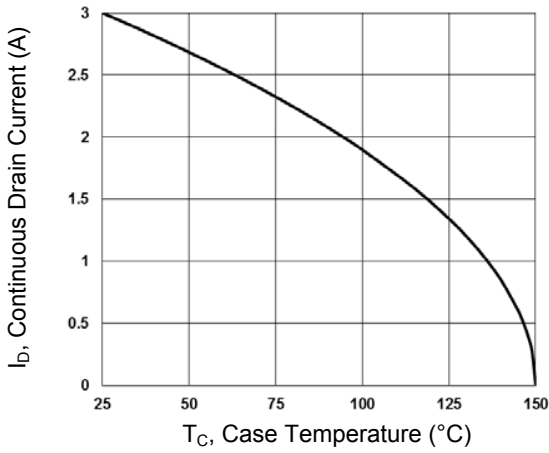
**Electrical Characteristics** ( $T_J=25^{\circ}\text{C}$  unless otherwise specified)

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

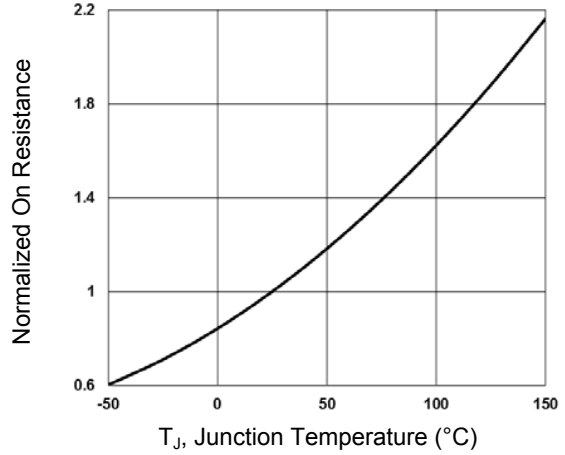
Notes:

1. Repetitive rating; pulse width limited by max. junction temperature.
2. Pulse test: Pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .
3. Essentially independent of operation temperature.

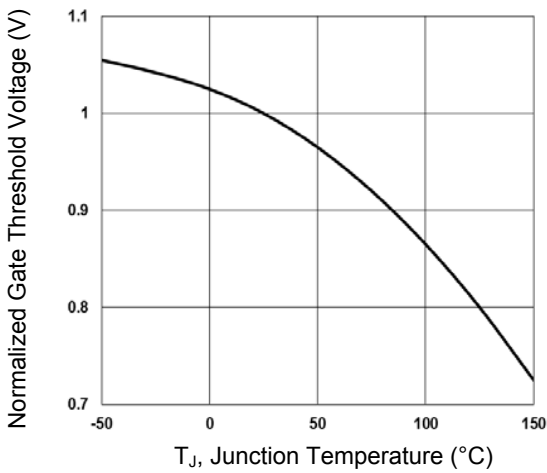
**Typical Electrical and Thermal Characteristic Curves**



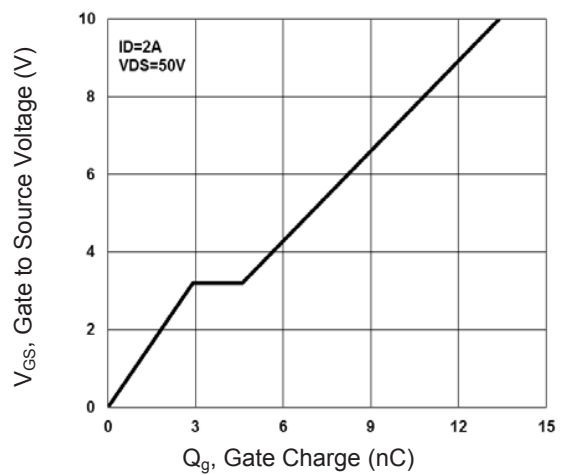
**Figure 1. Continuous Drain Current vs.  $T_c$**



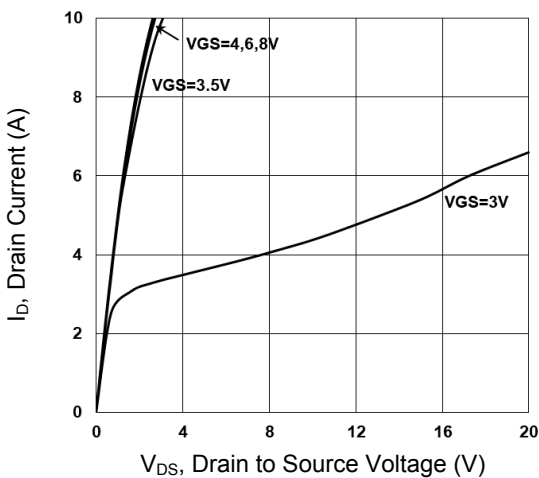
**Figure 2. Normalized  $R_{DS(ON)}$  vs.  $T_j$**



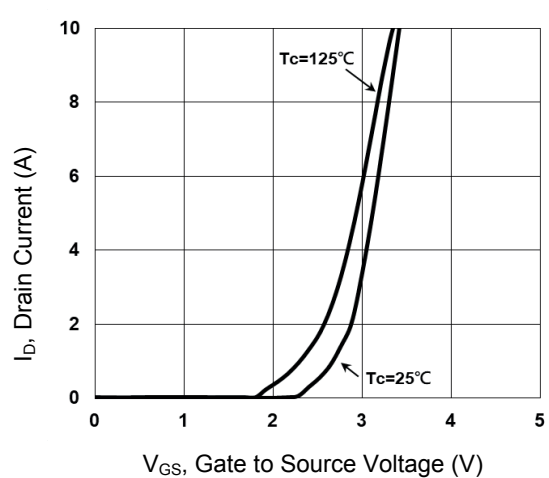
**Figure 3. Normalized  $V_{th}$  vs.  $T_j$**



**Figure 4. Gate Charge Waveform**

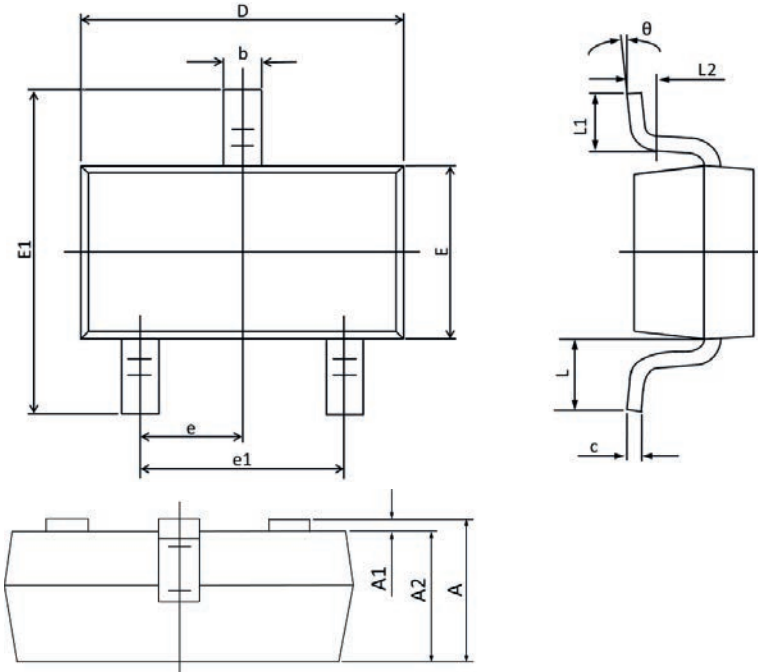


**Figure 5. Typical Output Characteristics**



**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