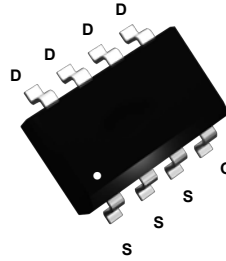
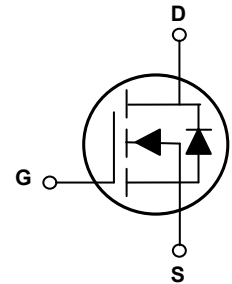


Main Product Characteristics

$V_{(BR)DSS}$	30V
$R_{DS(ON)}$	10m Ω (Max.)
I_D	20A



SOP-8



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 GSFQ3110 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_C=25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous (T _C =25°C)	I_D	20	A
Drain Current-Continuous (T _C =70°C)		15	A
Drain Current-Pulsed ¹	I_{DM}	80	A
Single Pulse Avalanche Energy ²	E_{AS}	13	mJ
Single Pulse Avalanche Current ²	I_{AS}	16	A
Power Dissipation (T _C =25°C)	P_D	2.5	W
Power Dissipation-Derate Above 25°C		0.02	W/°C
Max. Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	50	°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}	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
BV_{DSS} Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25°C , $I_D=1mA$	-	0.04	-	$V/^\circ\text{C}$
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	1	μA
		$V_{DS}=30V, V_{GS}=0V, T_J=125^\circ\text{C}$	-	-	10	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Static Drain-Source On-Resistance ³	$R_{DS(ON)}$	$V_{GS}=10V, I_D=11A$	-	7.4	10	m Ω
		$V_{GS}=4.5V, I_D=7A$	-	10.5	16	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.1	1.8	2.5	V
$V_{GS(th)}$ Temperature Coefficient	$\Delta V_{GS(th)}$		-	-4	-	$mV/^\circ\text{C}$
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=3A$	-	6	-	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{3,4}	Q_g	$V_{DS}=15V, V_{GS}=4.5V, I_D=5A$	-	8.6	14	nC
Gate-Source Charge ^{3,4}	Q_{gs}		-	2.3	5	
Gate-Drain Charge ^{3,4}	Q_{gd}		-	3	6	
Turn-On Delay Time ^{3,4}	$t_{d(on)}$	$V_{DD}=15V, V_{GS}=10V, R_G=6\Omega, I_D=1A$	-	3.8	7	nS
Rise Time ^{3,4}	t_r		-	10	19	
Turn-Off Delay Time ^{3,4}	$t_{d(off)}$		-	22	42	
Fall Time ^{3,4}	t_f		-	6.6	13	
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, F=1MHz$	-	880	1700	pF
Output Capacitance	C_{oss}		-	89	125	
Reverse Transfer Capacitance	C_{rss}		-	68	90	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, F=1MHz$	-	2.8	5.6	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current	I_S	$V_G=V_D=0V, \text{Force Current}$	-	-	50	A
Pulsed Source Current ³	I_{SM}		-	-	200	A
Diode Forward Voltage ³	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^\circ\text{C}$	-	-	1	V

Notes:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. $V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=16A, R_G=25\Omega$, starting $T_J=25^\circ\text{C}$.
3. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

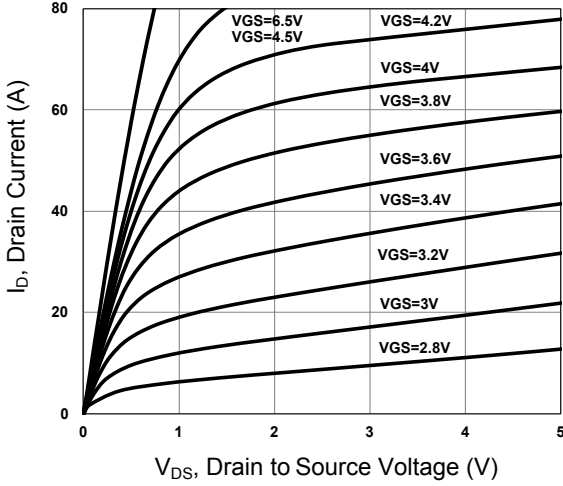


Figure 1. Typical Output Characteristics

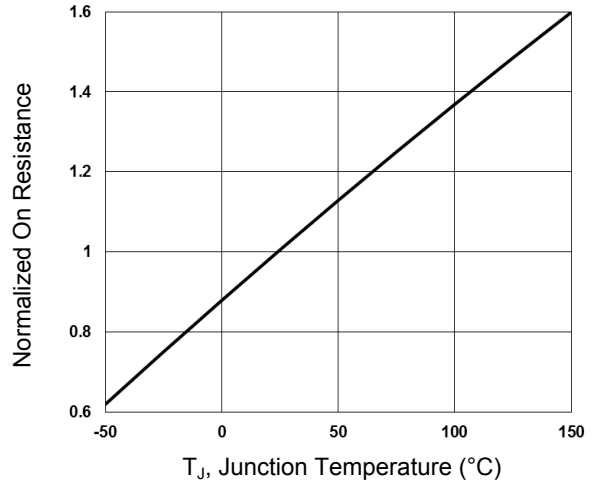


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

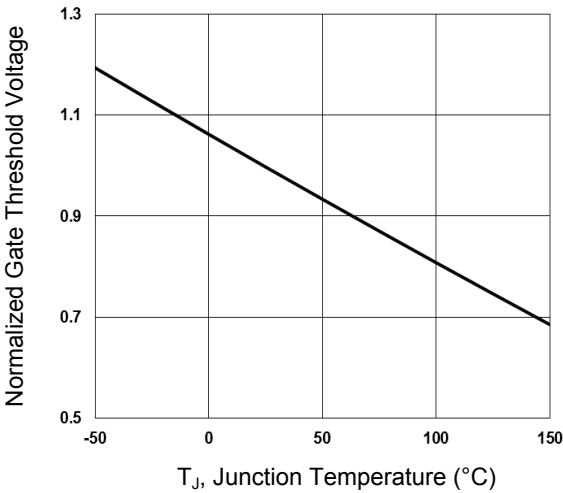


Figure 3. Normalized V_{th} vs. T_J

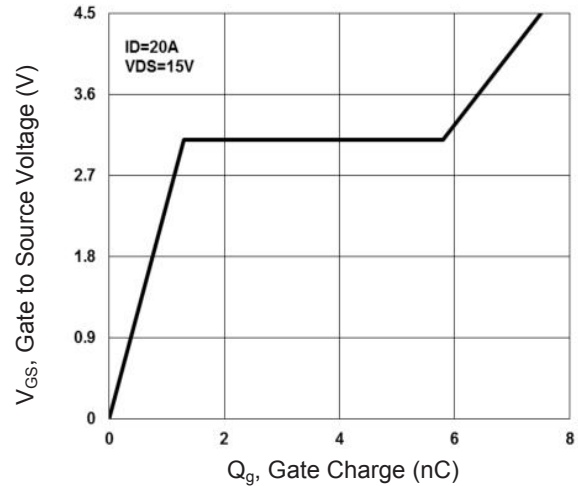


Figure 4. Gate Charge Characteristics

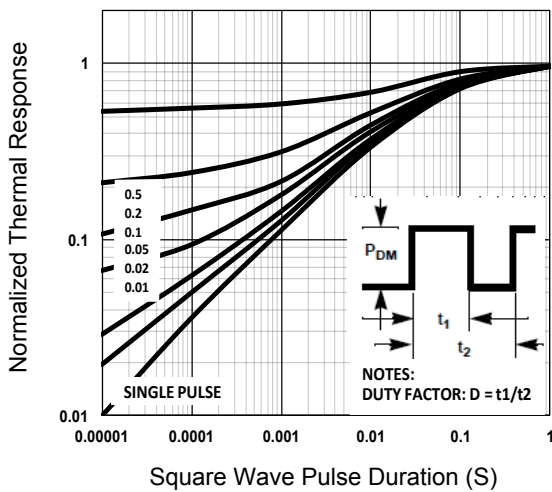


Figure 5. Normalized Transient Impedance

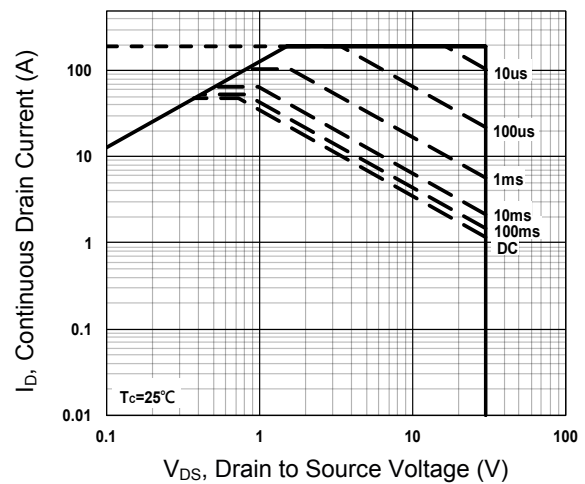
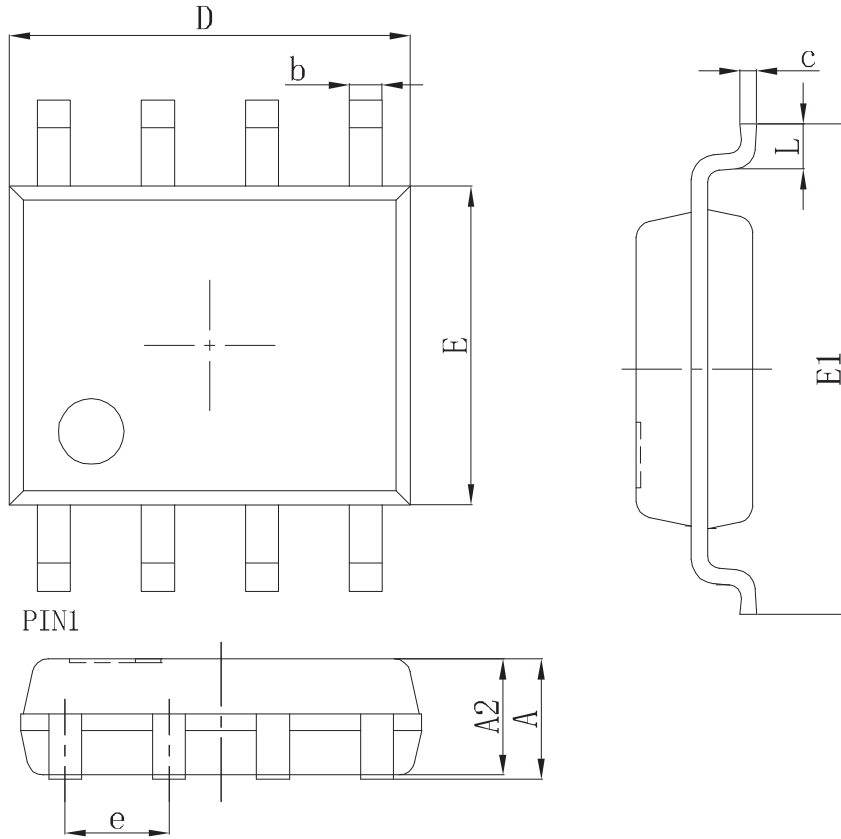


Figure 6. Maximum Safe Operation Area

Package Outline Dimensions (SOP-8)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.30	1.70	0.051	0.067
A2	1.25	1.55	0.049	0.061
c	0.17	0.25	0.007	0.010
E	3.80	4.00	0.150	0.157
E1	5.80	6.20	0.228	0.244
L	0.45	0.75	0.018	0.030
b	0.33	0.51	0.013	0.020
D	4.80	5.00	0.189	0.197
e	1.27 BSC		0.050 BSC	

Order Information

Device	Package	Marking	Packaging	SPQ
GSFQ3110	SOP-8	Q3110	Tape & Reel	3,000 Pcs / Reel

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