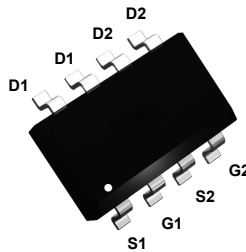
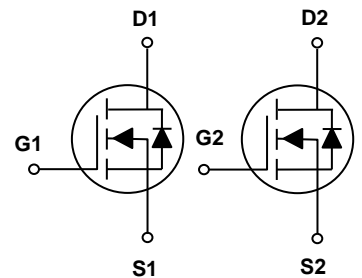


### Main Product Characteristics

$V_{(BR)DSS}$	40V
$R_{DS(ON)}$	20mΩ (Max.)
$I_D$	8A



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 SSFQ4810 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 supply and a wide variety of other applications.

### Absolute Maximum Ratings ( $T_A=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	$V_{DS}$	40	V
Gate-Source Voltage	$V_{GS}$	±20	V
Drain Current-Continuous ( $T_A=25^{\circ}C$ )	$I_D$	8	A
Drain Current-Continuous ( $T_A=70^{\circ}C$ )		6.4	A
Drain Current-Pulsed <sup>1</sup>	$I_{DM}$	32	A
Single Pulse Avalanche Energy <sup>2</sup>	$E_{AS}$	4.9	mJ
Single Pulse Avalanche Current <sup>2</sup>	$I_{AS}$	10	A
Power Dissipation ( $T_A=25^{\circ}C$ )	$P_D$	2	W
Power Dissipation-Derate Above 25°C		0.016	W/°C
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	°C/W
Storage Temperature Range	$T_{STG}$	-50 To +150	°C
Operating Junction Temperature Range	$T_J$	-50 To +150	°C



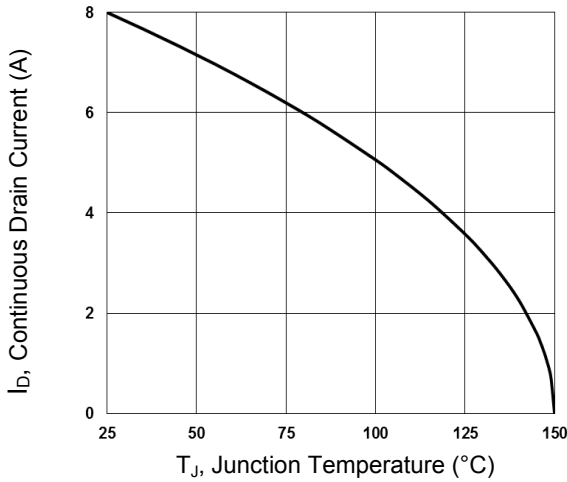
## Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	40	-	-	V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =40V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C	-	-	1	μA
		V <sub>DS</sub> =32V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C	-	-	10	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
<b>On Characteristics</b>						
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =8A	-	16	20	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =4A	-	20	26	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.1	1.6	2.7	V
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1A	-	4.5	-	S
<b>Dynamic and Switching Characteristics</b>						
Total Gate Charge <sup>2,3</sup>	Q <sub>g</sub>	V <sub>DS</sub> =32V, I <sub>D</sub> =3A, V <sub>GS</sub> =10V	-	10.8	22.0	nC
Gate-Source Charge <sup>2,3</sup>	Q <sub>gs</sub>		-	1.6	3.5	
Gate-Drain Charge <sup>2,3</sup>	Q <sub>gd</sub>		-	3.3	7.0	
Turn-On Delay Time <sup>2,3</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> =15V, R <sub>G</sub> =3.3Ω, V <sub>GS</sub> =10V, I <sub>D</sub> =1A	-	3.8	7.6	nS
Rise Time <sup>2,3</sup>	t <sub>r</sub>		-	10.5	21	
Turn-Off Delay Time <sup>2,3</sup>	t <sub>d(off)</sub>		-	22.2	45	
Fall Time <sup>2,3</sup>	t <sub>f</sub>		-	6.6	13.2	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, F=1MHz	-	800	1500	PF
Output Capacitance	C <sub>oss</sub>		-	71	140	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	110	220	
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, F=1MHz	-	2.6	-	Ω
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Continuous Source Current	I <sub>S</sub>	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	-	-	8	A
Pulsed Source Current	I <sub>SM</sub>		-	-	16	A
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A, T <sub>J</sub> =25°C	-	-	1	V
Reverse Recovery Time	T <sub>rr</sub>	V <sub>R</sub> =30V, I <sub>S</sub> =8A, di/dt=100A/μs, T <sub>J</sub> =25°C	-	33	-	nS
Reverse Recovery Charge	Q <sub>rr</sub>		-	12	-	nC

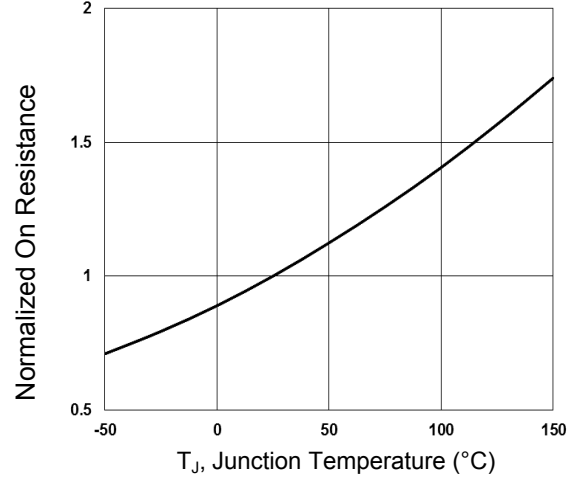
Note:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. V<sub>DD</sub>=25V, V<sub>GS</sub>=10V, L=0.1mH, I<sub>AS</sub>=9.9A, R<sub>G</sub>=25Ω, starting T<sub>J</sub>=25°C.
3. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%.

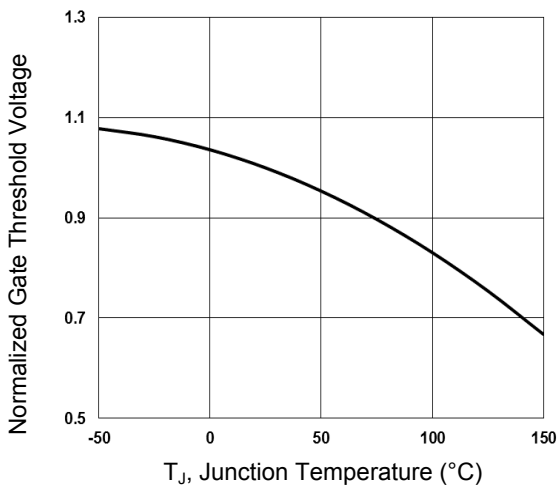
**Typical Electrical and Thermal Characteristic Curves**



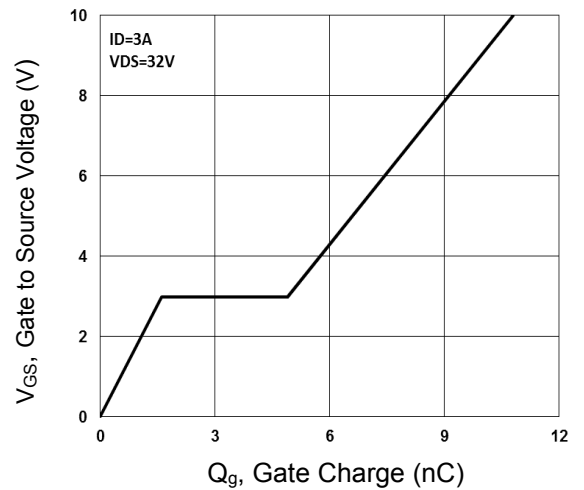
**Figure 1. Continuous Drain Current vs.  $T_C$**



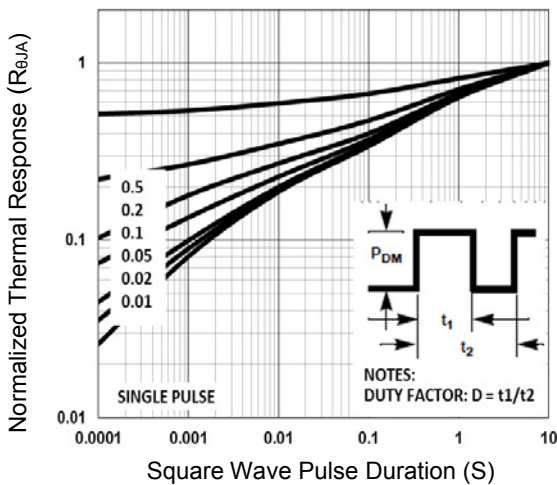
**Figure 2. Normalized  $R_{DS(ON)}$  vs.  $T_J$**



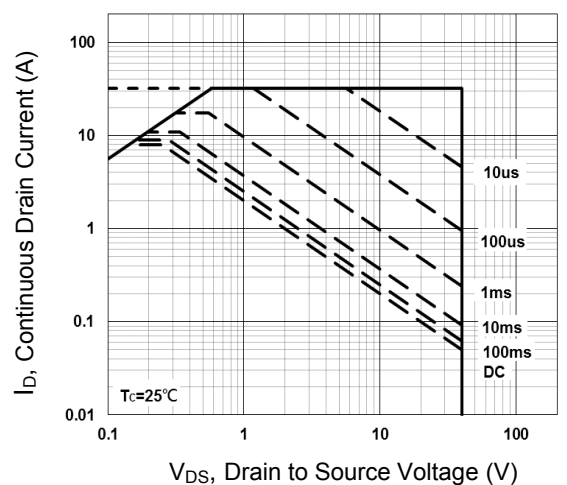
**Figure 3. Normalized  $V_{th}$  vs.  $T_J$**



**Figure 4. Gate Charge Waveform**

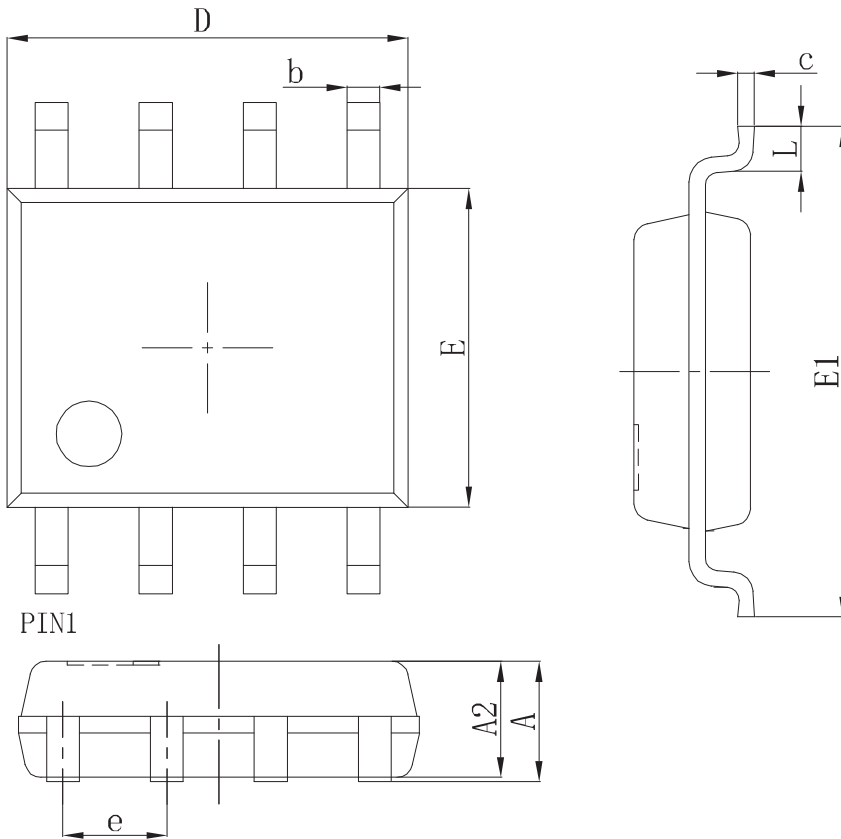


**Figure 5. Normalized Transient Impedance**



**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
SSFQ4810	SOP-8	DS4810	Tape & Reel	3,000 Pcs / Reel