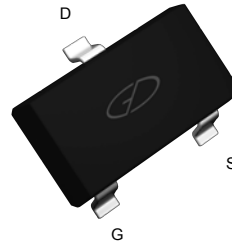
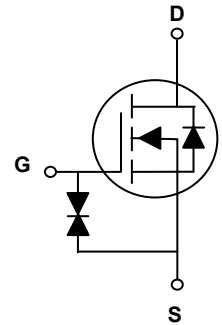


### Main Product Characteristics

$V_{(BR)DSS}$	100V
$R_{DS(ON)}$	6Ω
$I_D$	0.2A



SOT-23



Schematic Diagram

### Features and Benefits

- Advanced MOSFET process technology
- Ideal for motor drive, power tools and LED lighting
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



### Description

The SSF0998 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<sub>C</sub>=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	100	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Drain Current – Continuous (T <sub>C</sub> =25°C)	I <sub>D</sub>	0.2	A
Drain Current – Continuous (T <sub>C</sub> =100°C)		0.13	A
Drain Current – Pulsed <sup>1</sup>	I <sub>DM</sub>	0.8	A
Power Dissipation (T <sub>C</sub> =25°C)	P <sub>D</sub>	0.31	W
Power Dissipation – Derate above 25°C	P <sub>D</sub>	0.0025	W/°C
Storage Temperature Range	T <sub>STG</sub>	-50 to +150	°C
Operating Junction Temperature Range	T <sub>J</sub>	-50 to +150	°C

### Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	---	400	°C/W

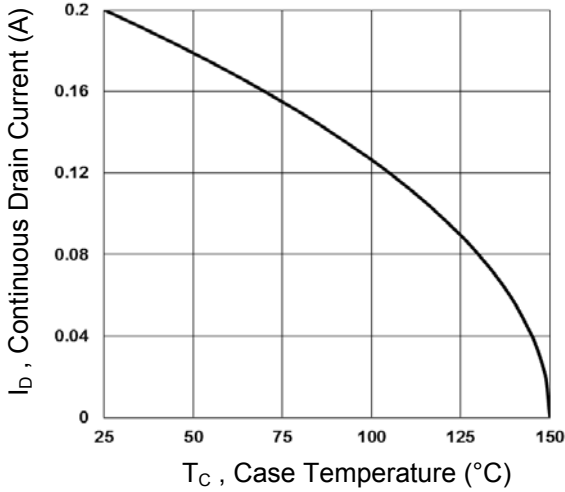
### Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

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	100	---	---	V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =80V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C	---	---	1	μA
		V <sub>DS</sub> =80V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C	---	---	100	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	---	---	±10	μA
<b>On Characteristics</b>						
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =0.2A	---	3	6	Ω
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.1A	---	4	8	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250μA	1	1.7	2.5	V
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>S</sub> =0.2A	---	0.29	---	S
<b>Dynamic and Switching Characteristics</b>						
Total Gate Charge <sup>2, 3</sup>	Q <sub>g</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =0.2A	---	1	2	nC
Gate-Source Charge <sup>2, 3</sup>	Q <sub>gs</sub>		---	0.26	0.5	
Gate-Drain Charge <sup>2, 3</sup>	Q <sub>gd</sub>		---	0.2	0.5	
Turn-On Delay Time <sup>2, 3</sup>	T <sub>d(on)</sub>	V <sub>DD</sub> =30V, V <sub>GS</sub> =10V, R <sub>G</sub> =6Ω, I <sub>D</sub> =0.2A	---	4	8	nS
Rise Time <sup>2, 3</sup>	T <sub>r</sub>		---	5	10	
Turn-Off Delay Time <sup>2, 3</sup>	T <sub>d(off)</sub>		---	14	28	
Fall Time <sup>2, 3</sup>	T <sub>f</sub>		---	10	20	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, F=1MHz	---	37.5	45	pF
Output Capacitance	C <sub>oss</sub>		---	5.4	10	
Reverse Transfer Capacitance	C <sub>rss</sub>		---	4	8	
<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	---	---	0.2	A
Pulsed Source Current	I <sub>SM</sub>		---	---	0.4	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

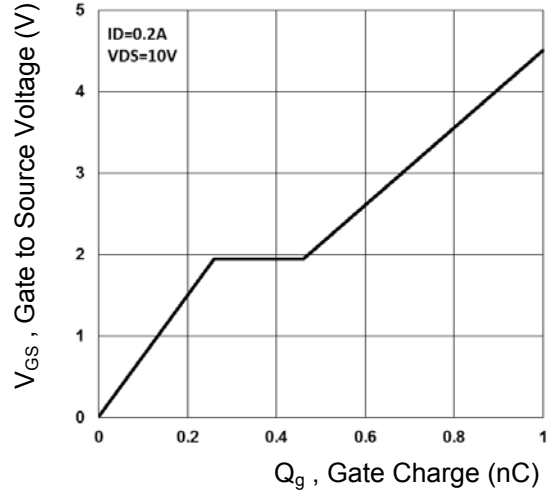
**Notes:**

1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

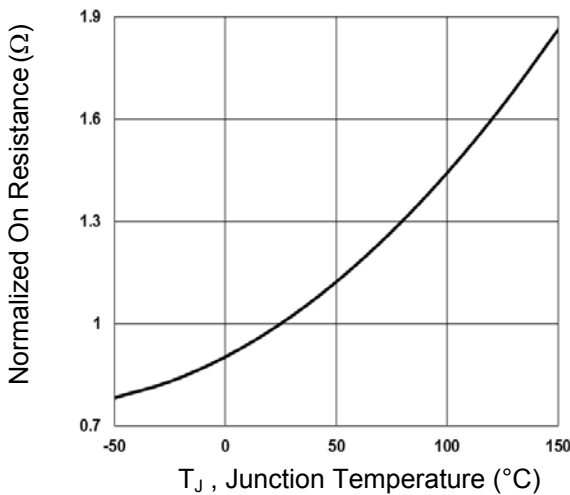
**Typical Electrical and Thermal Characteristic Curves**



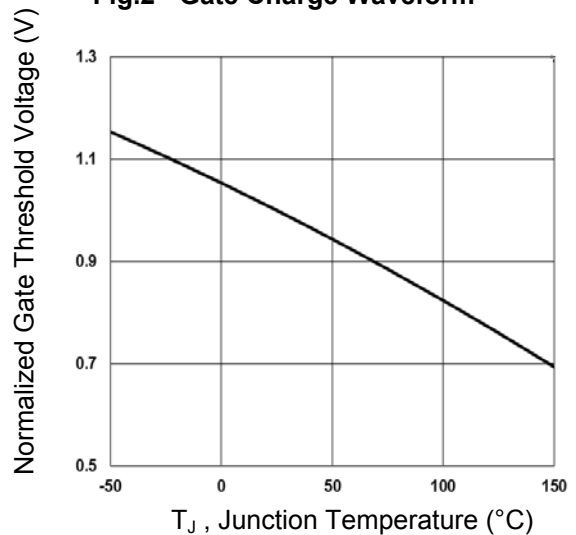
**Fig.1 Continuous Drain Current vs.  $T_C$**



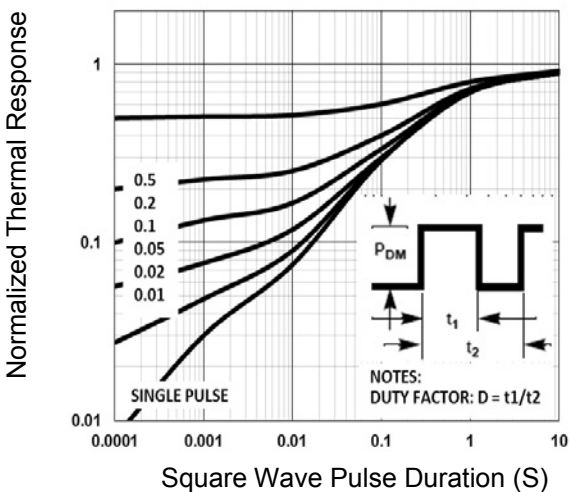
**Fig.2 Gate Charge Waveform**



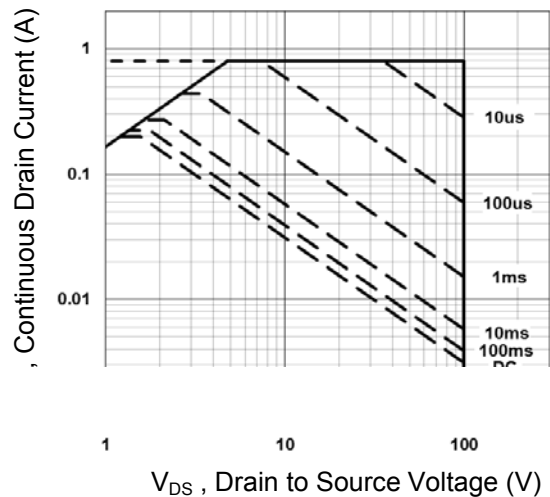
**Fig.3 Normalized  $R_{DS(ON)}$  vs.  $T_J$**



**Fig.4 Normalized  $V_{th}$  vs.  $T_J$**

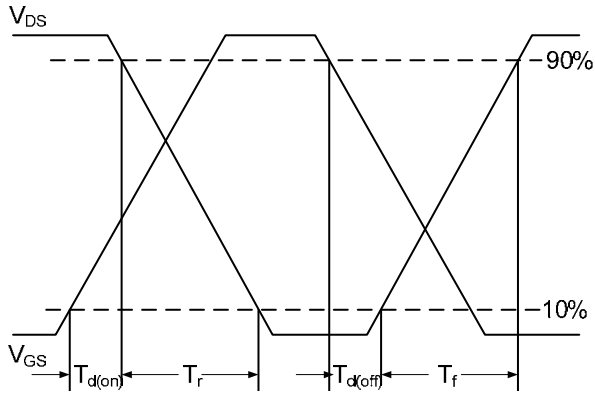


**Fig.5 Normalized Transient Impedance**

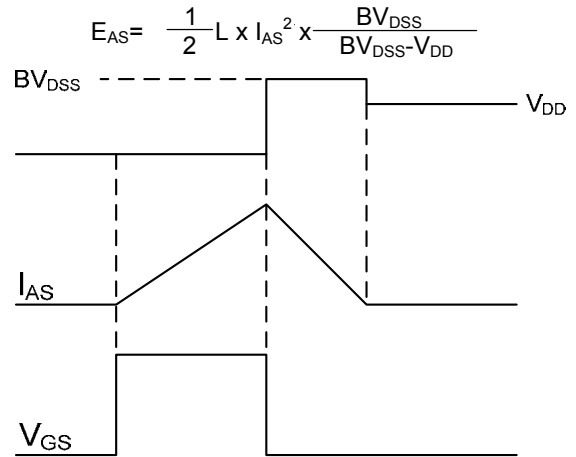


**Fig.6 Maximum Safe Operation Area**

**Typical Electrical and Thermal Characteristic Curves**



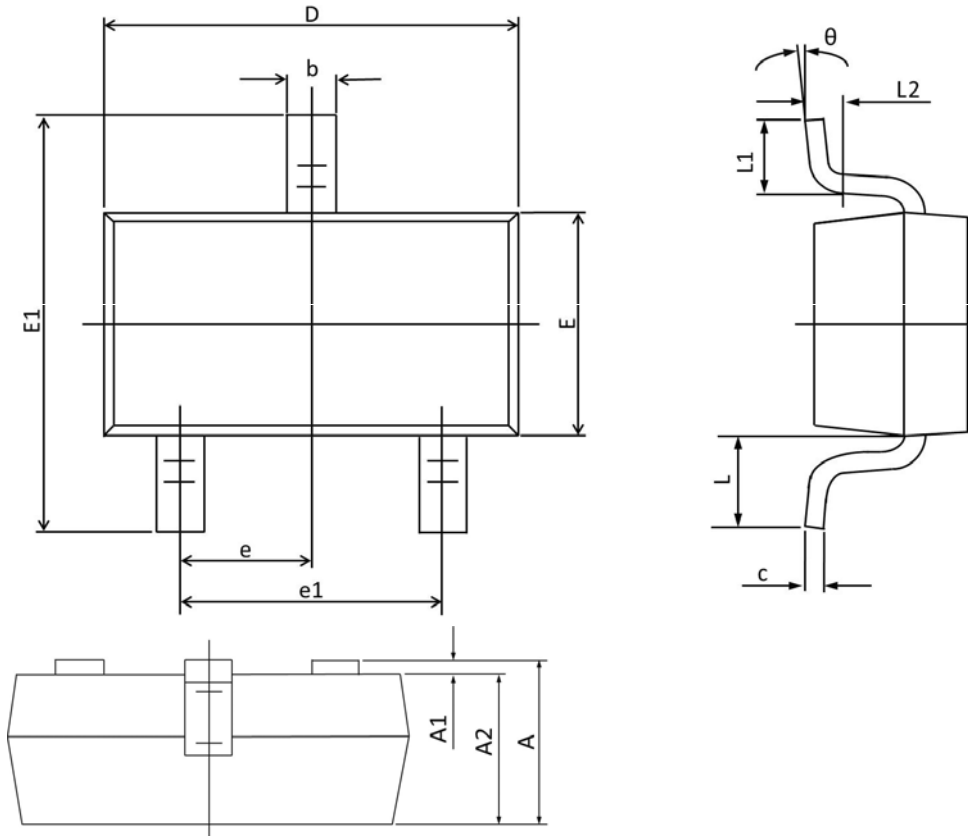
**Fig.7 Switching Time Waveform**



**Fig.8  $E_{AS}$  Waveform**

## Package Outline Dimensions

## SOT-23-3S



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