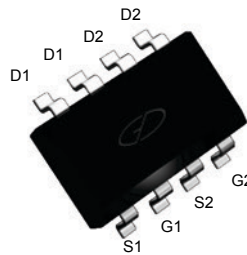
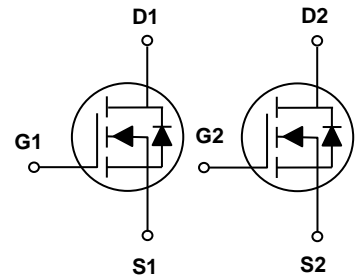


Main Product Characteristics

$V_{(BR)DSS}$	10V
$R_{DS(ON)}$	18m Ω
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

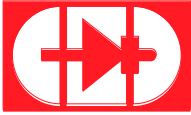


Description

The SSFE 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_C=25°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°C)	I_D	8	A
Drain Current-Continuous(T _A =70°C)		6.4	A
Drain Current-Pulsed ¹	I_{DM}	32	A
Single Pulse Avalanche Energy ²	E_{AS}	4.9	mJ
Single Pulse Avalanche Current ²	I_{AS}	9.9	A
Power Dissipation(T _A =25°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** ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	40	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=40V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	1	μA
		$V_{DS}=32V, V_{GS}=0V, T_J=125^\circ\text{C}$	-	-	10	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=8A$	-	16	18	m Ω
		$V_{GS}=4.5V, I_D=4A$	-	20	25	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.6	2.5	V
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=1A$	-	5	-	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{2,3}	Q_g	$V_{DS}=32V, I_D=3A, V_{GS}=10V$	-	10.8	21.6	nC
Gate-Source Charge ^{2,3}	Q_{gs}		-	1.6	3.2	
Gate-Drain Charge ^{2,3}	Q_{gd}		-	3.3	6.6	
Turn-On Delay Time ^{2,3}	$t_{d(on)}$	$V_{DD}=15V, R_G=3.3\Omega, V_{GS}=10V, I_D=1A$	-	3.8	7.6	nS
Rise Time ^{2,3}	t_r		-	10.5	21	
Turn-Off Delay Time ^{2,3}	$t_{d(off)}$		-	22.2	45	
Fall Time ^{2,3}	t_f		-	6.6	13.2	
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, F=1\text{MHz}$	-	724	1450	PF
Output Capacitance	C_{oss}		-	70	140	
Reverse Transfer Capacitance	C_{rss}		-	109	220	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	-	2.6	-	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	$V_G=V_D=0V, \text{Force Current}$	-	-	8	A
Pulsed Source Current	I_{SM}		-	-	16	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^\circ\text{C}$	-	-	1	V
Reverse Recovery Time	T_{rr}	$V_R=30V, I_S=8A, di/dt=100A/\mu s, T_J=25^\circ\text{C}$	-	33	-	nS
Reverse Recovery Charge	Q_{rr}		-	12	-	nC

Note:

1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. $V_{DD}=25V, V_{GS}=10V, L=0.1\text{mH}, I_{AS}=9.9A, R_G=25\Omega, \text{Starting } T_J=25^\circ\text{C}$.
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

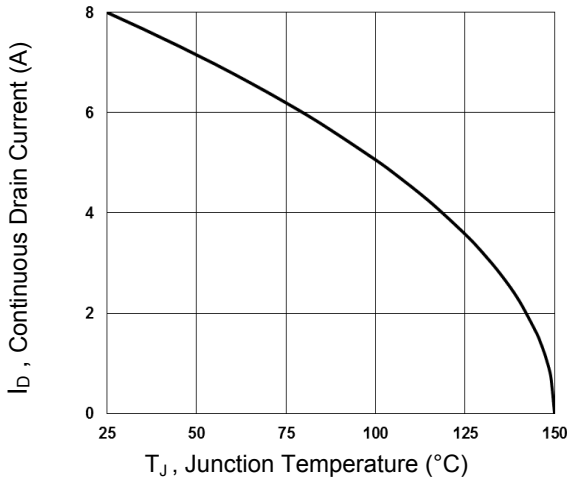


Fig.1 Continuous Drain Current vs. T_c

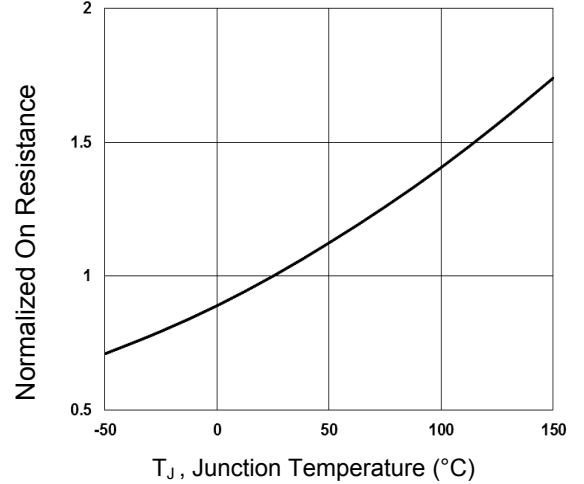


Fig.2 Normalized $R_{DS(ON)}$ vs. T_J

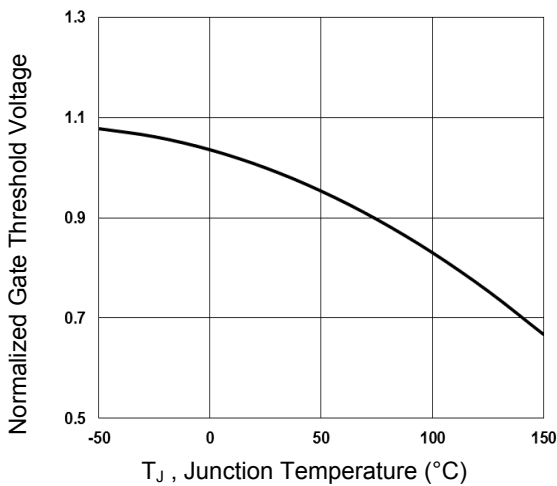


Fig.3 Normalized V_{th} vs. T_J

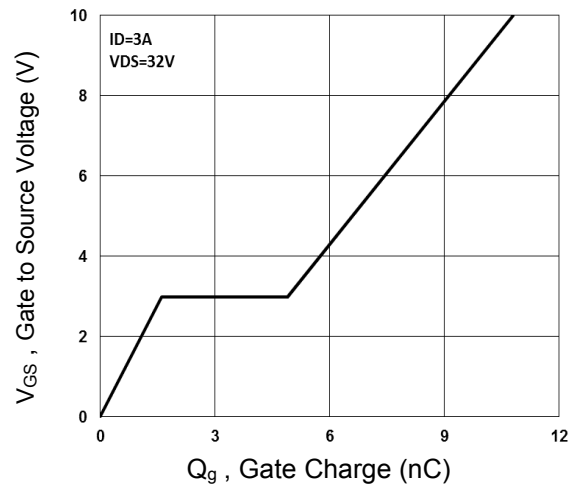


Fig.4 Gate Charge Waveform

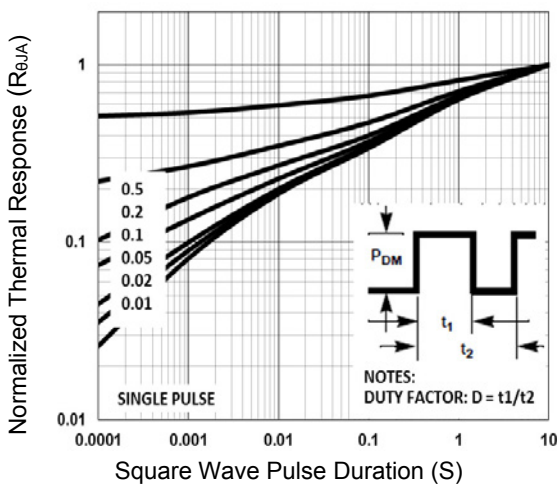


Fig.5 Normalized Transient Impedance

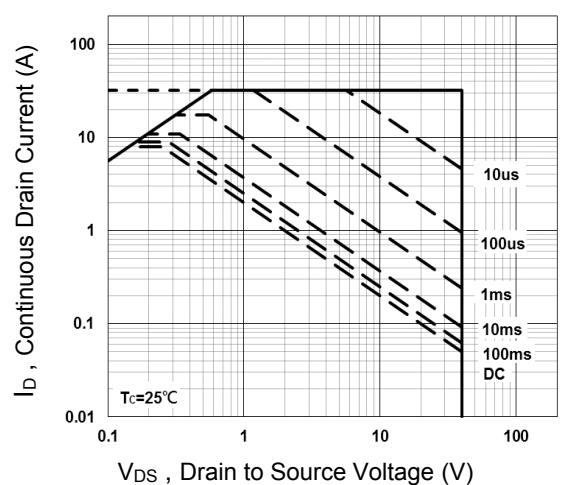


Fig.6 Maximum Safe Operation Area

Typical Electrical and Thermal Characteristic Curves

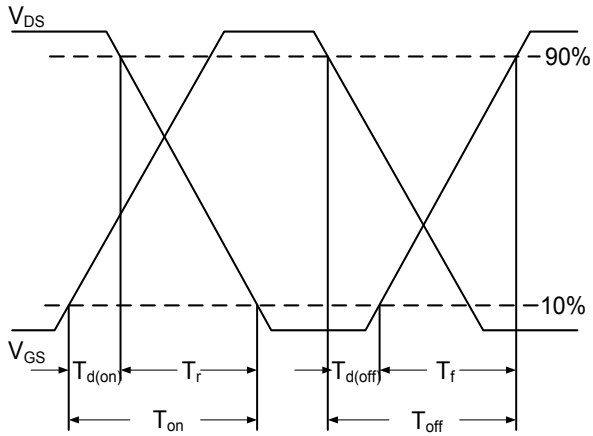


Fig.7 Switching Time Waveform

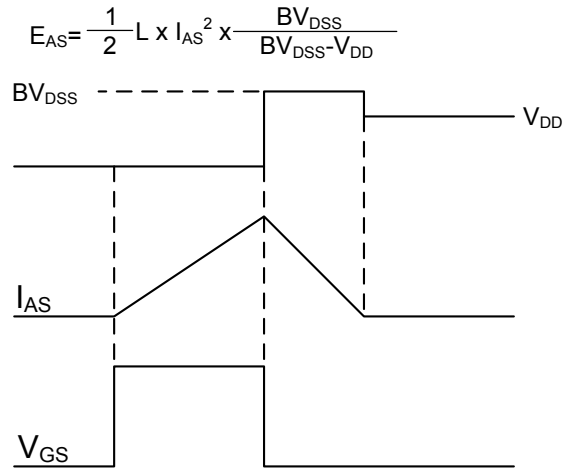
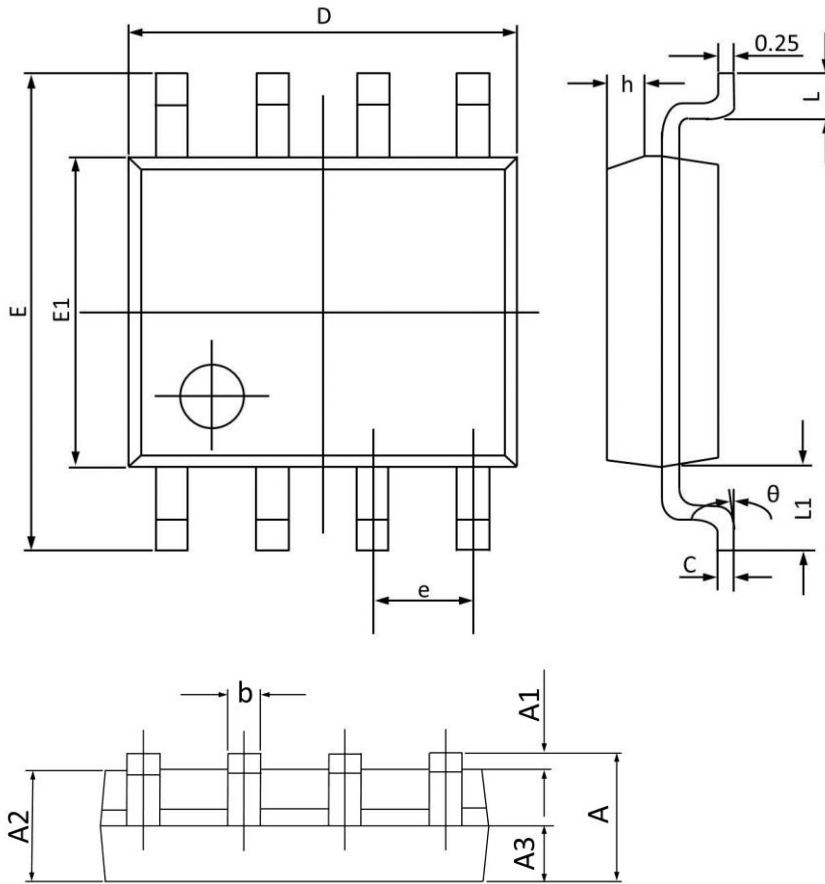


Fig.8 E_{AS} Waveform

Package Outline Dimensions SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.800	0.053	0.069
A1	0.050	0.250	0.002	0.010
A2	1.250	1.650	0.049	0.065
A3	0.500	0.700	0.020	0.028
b	0.300	0.510	0.012	0.020
c	0.150	0.260	0.006	0.010
D	4.700	5.100	0.185	0.201
E	5.800	6.200	0.228	0.244
E1	3.700	4.100	0.146	0.161
e	1.270(BSC)		0.050(BSC)	
h	0.250	0.500	0.010	0.020
L	0.400	1.000	0.016	0.039
L1	1.050(BSC)		0.041(BSC)	
theta	0°	8°	0°	8°