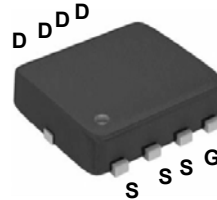
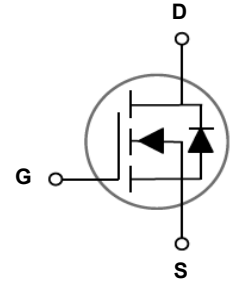


Main Product Characteristics

$V_{(BR)DSS}$	60V
$R_{DS(ON)}$	21m Ω
I_D	33A



PPAK3X3



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 GSFN6906 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	Rating	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current – Continuous (T _C =25°C)	I _D	33	A
Drain Current – Continuous (T _C =100°C)		20	A
Drain Current – Pulsed ¹	I _{DM}	132	A
Single Pulse Avalanche Energy ²	E _{AS}	42	mJ
Single Pulse Avalanche Current ²	I _{AS}	29	A
Power Dissipation (T _C =25°C)	P _D	44.6	W
Power Dissipation – Derate above 25°C		0.36	W/°C
Storage Temperature Range	T _{STG}	-50 to +150	°C
Operating Junction Temperature Range	T _J	-50 to +150	°C

Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to Ambient	R _{θJA}	---	62	°C/W
Thermal Resistance Junction to Case	R _{θJC}	---	2.8	°C/W

Electrical Characteristics (T_J=25°C unless otherwise specified)

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- Note:
1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
 2. V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=29A, R_G=25Ω, Starting T_J=25°C.
 3. The data tested by pulsed, pulse width ≤ 300uS, duty cycle ≤ 2%.
 4. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

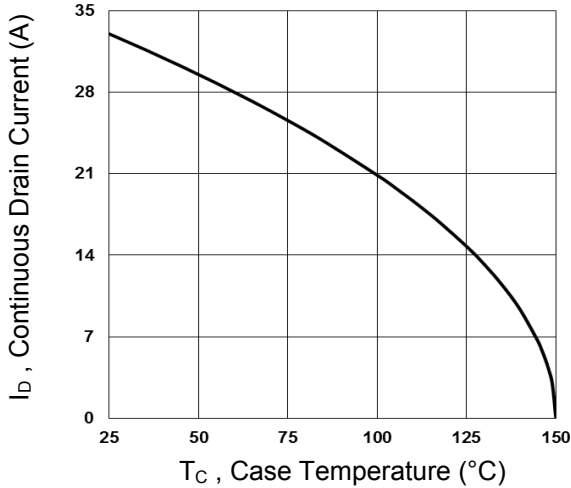


Fig.1 Continuous Drain Current vs. T_C

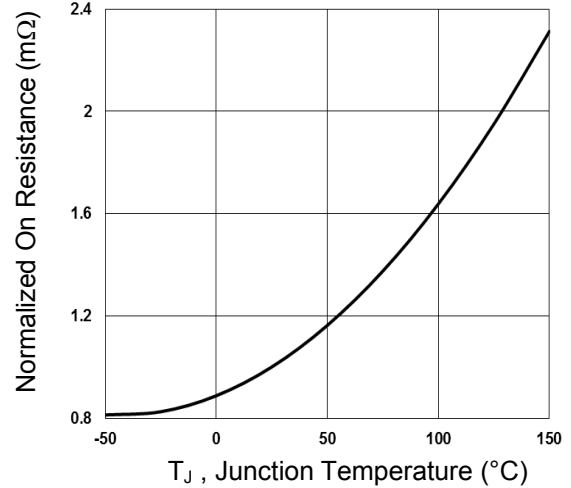


Fig.2 Normalized $R_{DS(ON)}$ vs. T_J

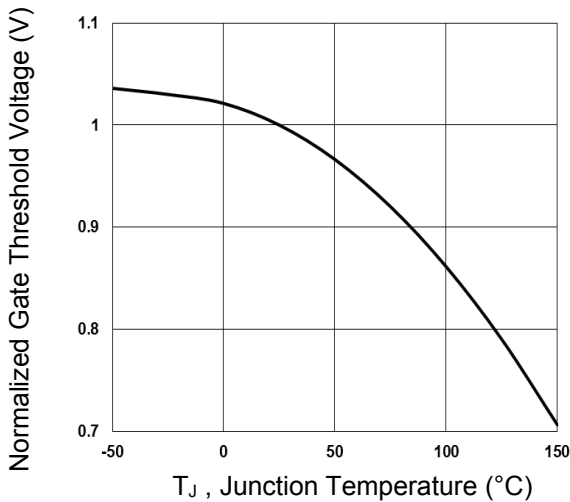


Fig.3 Normalized V_{th} vs. T_J

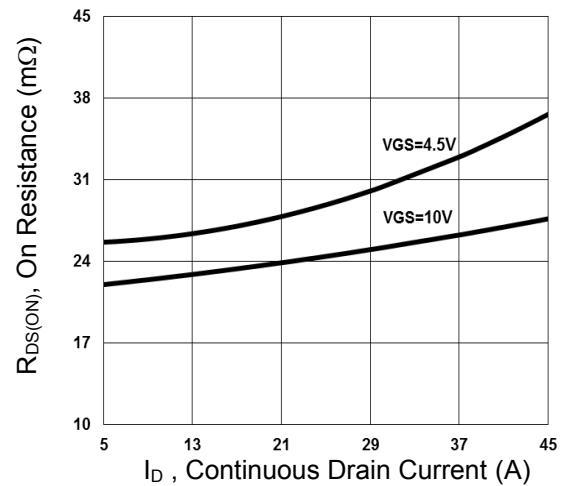


Fig.4 $R_{DS(ON)}$ vs. Continuous Drain Current

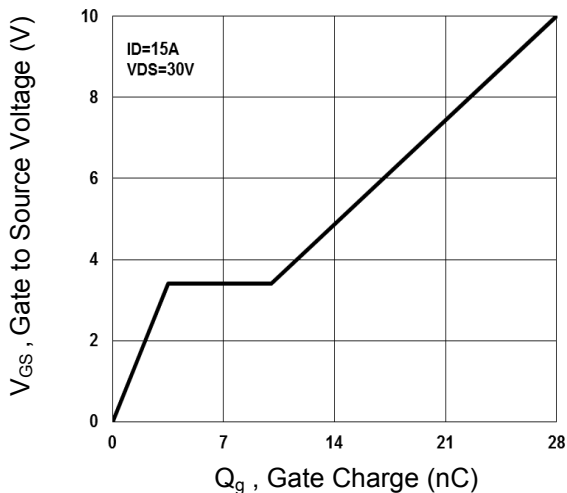


Fig.5 Gate Charge Waveform

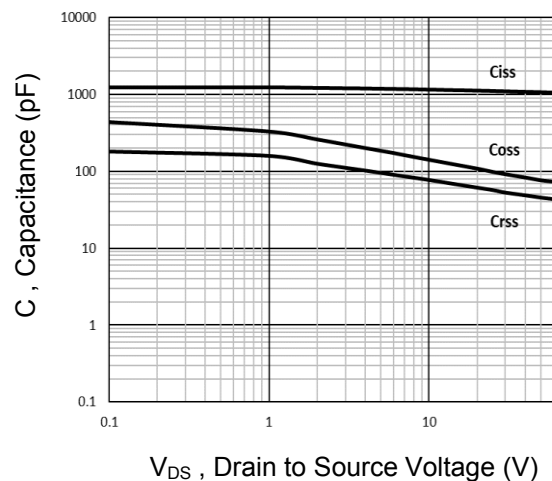


Fig.6 Capacitance Characteristics

Typical Electrical and Thermal Characteristic Curves

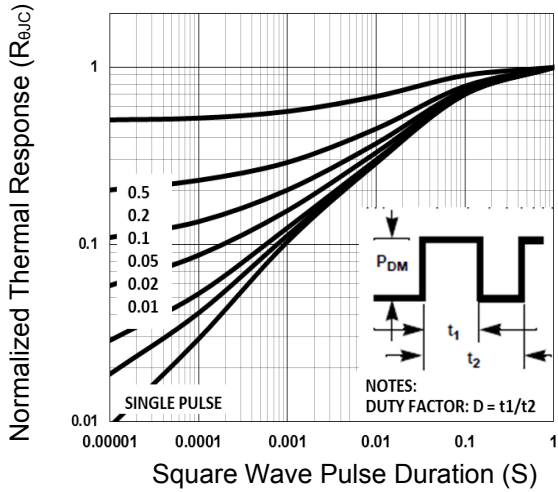


Fig.7 Normalized Transient Impedance

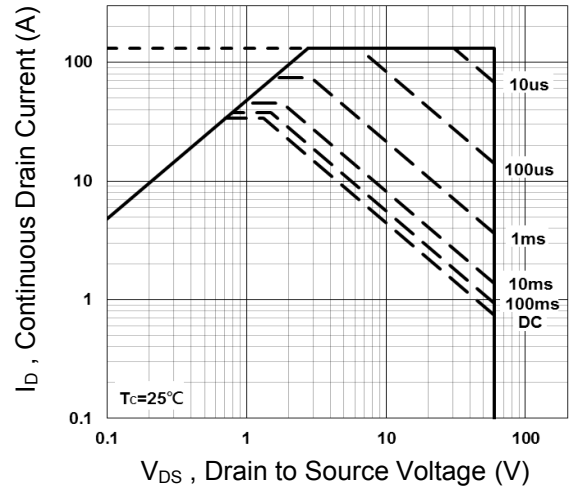


Fig.8 Maximum Safe Operation Area

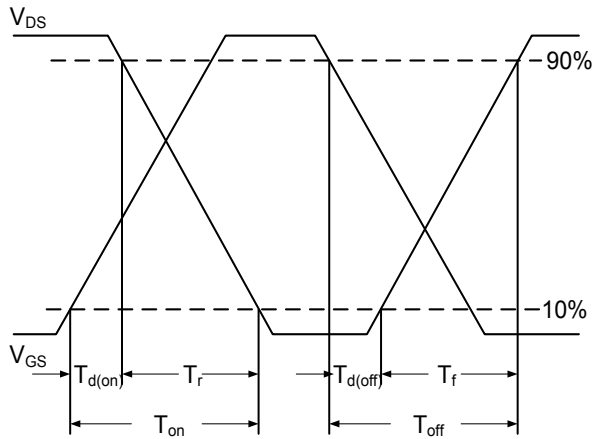


Fig.9 Switching Time Waveform

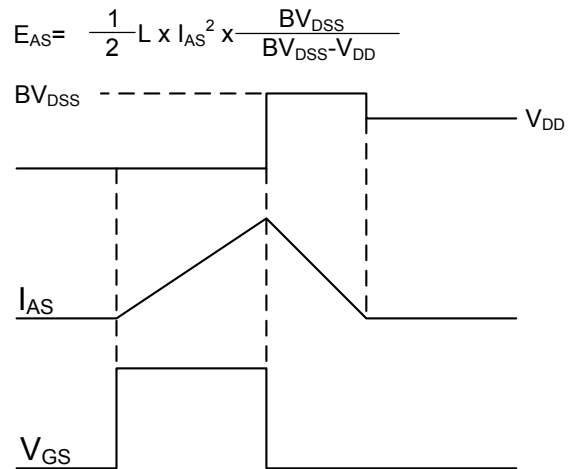
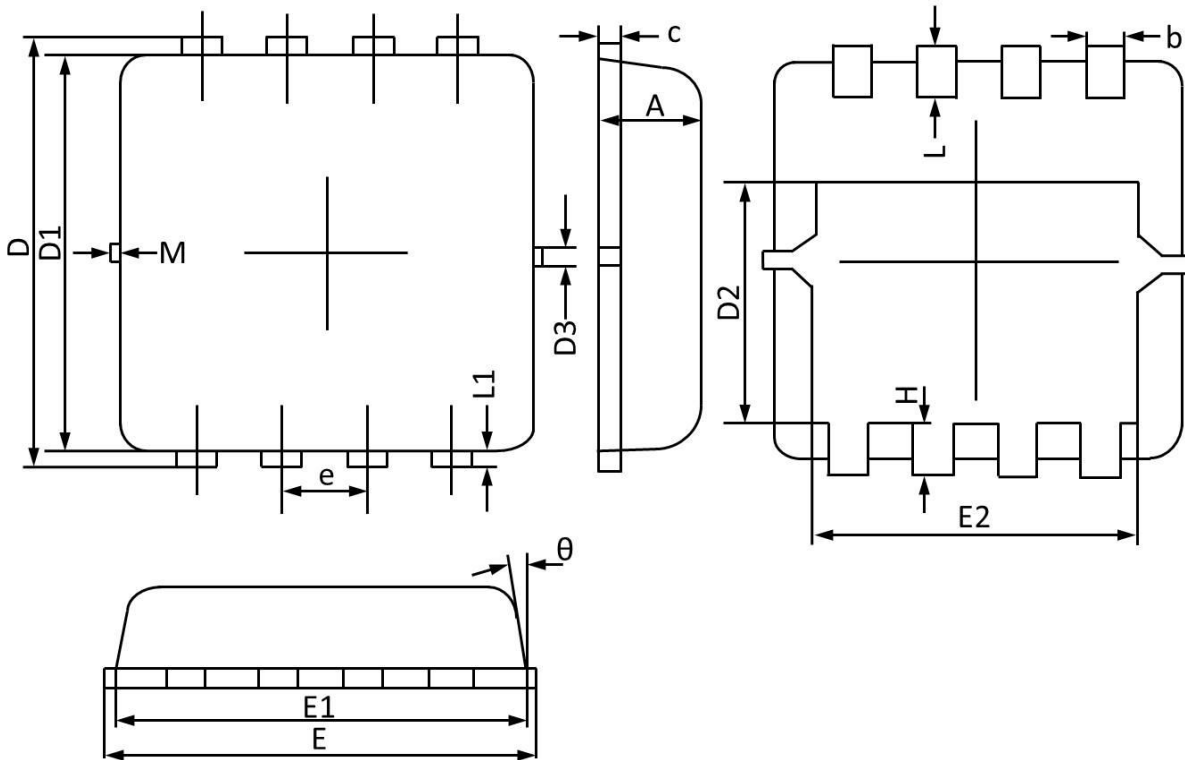


Fig.10 E_{AS} Waveform

Package Outline Dimensions

PPAK3X3



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.800	0.028	0.031
b	0.250	0.350	0.010	0.013
c	0.100	0.250	0.004	0.009
D	3.250	3.450	0.128	0.135
D1	3.000	3.200	0.119	0.125
D2	1.780	1.980	0.070	0.077
D3	0.130 REF		0.005 REF	
E	3.200	3.400	0.126	0.133
E1	3.000	3.200	0.119	0.125
E2	2.390	2.590	0.094	0.102
e	0.650 BSC		0.026 BSC	
H	0.300	0.500	0.011	0.019
L	0.300	0.500	0.011	0.019
L1	0.130 REF		0.005 REF	
theta	0°	12°	0°	12°
M	0.150 REF		0.006 REF	