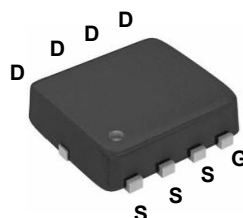
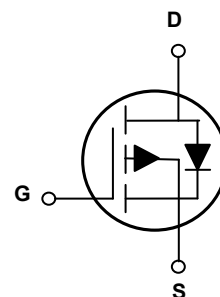


Main Product Characteristics

BV_{DSS}	-60V
$R_{DS(ON)}$	65mΩ (Max.)
I_D	-14A



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 SSFN6907 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 ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ($T_C=25^{\circ}\text{C}$)	I_D	-14	A
Drain Current-Continuous ($T_C=100^{\circ}\text{C}$)		-8.9	
Drain Current-Pulsed ¹	I_{DM}	-56	A
Single Pulse Avalanche Energy ²	E_{AS}	31	mJ
Single Pulse Avalanche Current ²	I_{AS}	-25	A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	33.8	W
Power Dissipation-De-rate above 25°C		0.27	W/ $^{\circ}\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.7	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature Range	T_J	-55 To +150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 To +150	$^{\circ}\text{C}$

Electrical Characteristics (T_J=25°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 =-250μA	-60	-	-	V
BV _{DSS} Temperature Coefficient	ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =-1mA	-	-0.05	-	V/°C
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V, T _J =25°C	-	-	-1	μA
		V _{DS} =-48V, V _{GS} =0V, T _J =125°C	-	-	-10	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-8A	-	54	65	mΩ
		V _{GS} =-4.5V, I _D =-6A	-	70	90	
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250μA	-1.2	-1.6	-2.2	V
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)}		-	5	-	mV/°C
Forward Transconductance	g _{fs}	V _{DS} =-10V, I _D =-3A	-	7	-	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{3,4}	Q _g	V _{DS} =-30V, I _D =-3A, V _{GS} =-10V	-	16.4	23	nC
Gate-Source Charge ^{3,4}	Q _{gs}		-	2.8	4	
Gate-Drain Charge ^{3,4}	Q _{gd}		-	3.6	6	
Turn-On Delay Time ^{3,4}	t _{d(on)}	V _{DD} =-30V, R _G =6Ω, V _{GS} =-10V, I _D =-1A	-	8.3	16	nS
Rise Time ^{3,4}	t _r		-	29.6	56	
Turn-Off Delay Time ^{3,4}	t _{d(off)}		-	51.7	98	
Fall Time ^{3,4}	t _f		-	15.6	30	
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, F=1MHz	-	870	1260	pF
Output Capacitance	C _{oss}		-	70	100	
Reverse Transfer Capacitance	C _{rss}		-	42	60	
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	16	32	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I _S	V _G =V _D =0V,	-	-	-14	A
Pulsed Source Current	I _{SM}	Force Current	-	-	-28	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-1A, T _J =25°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}=-25A, 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

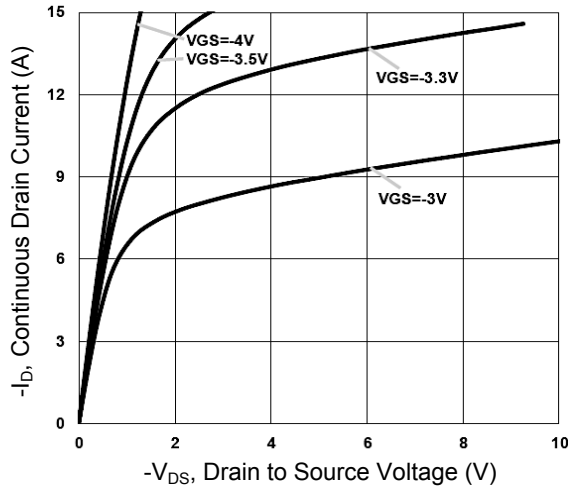


Figure 1. Typical Output Characteristics

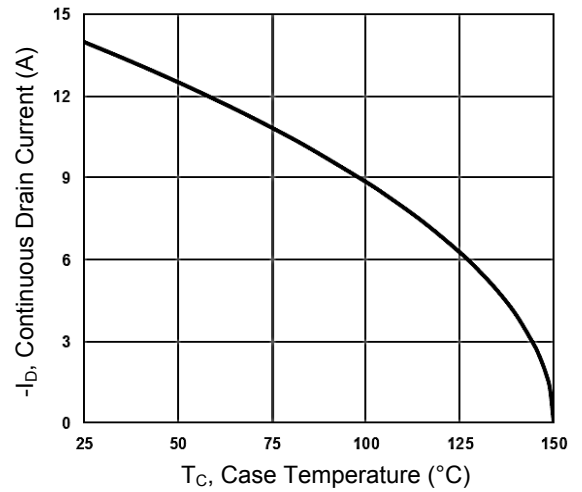


Figure 2. Continuous Drain Current vs. T_c

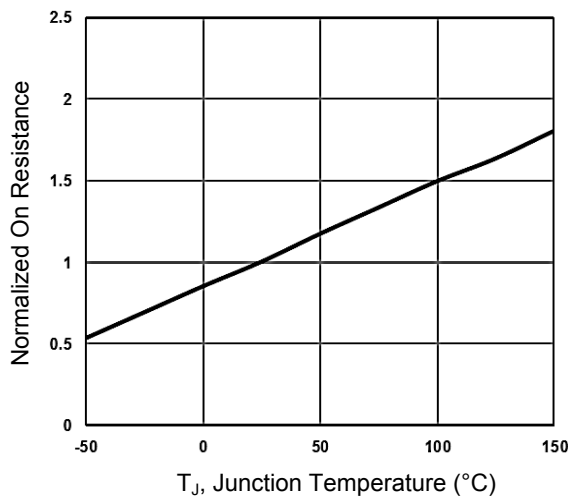


Figure 3. Normalized $R_{DS(ON)}$ vs. T_J

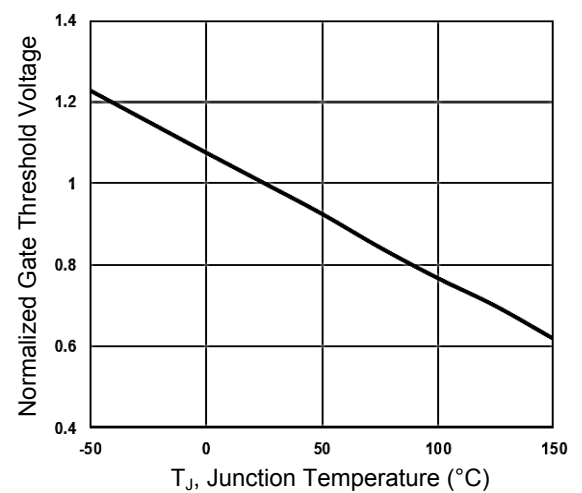


Figure 4. Normalized V_{th} vs. T_J

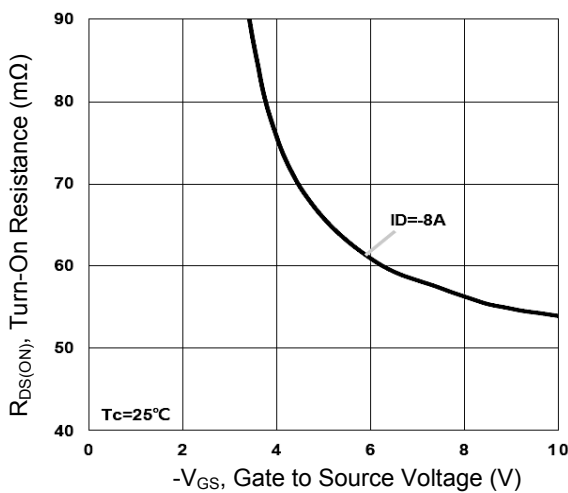


Figure 5. Turn-On Resistance vs. V_{GS}

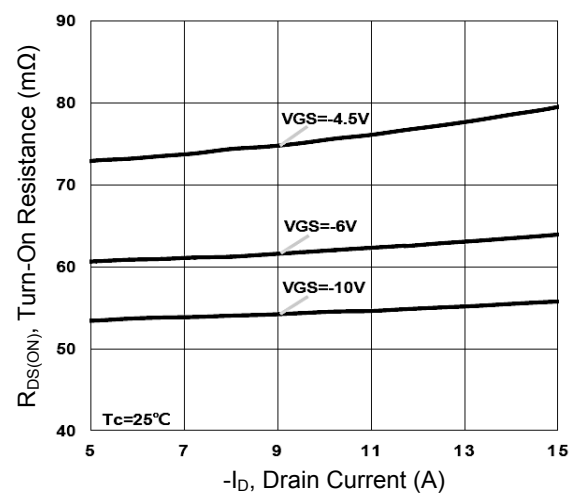


Figure 6. Turn-On Resistance vs. I_D

Typical Electrical and Thermal Characteristic Curves

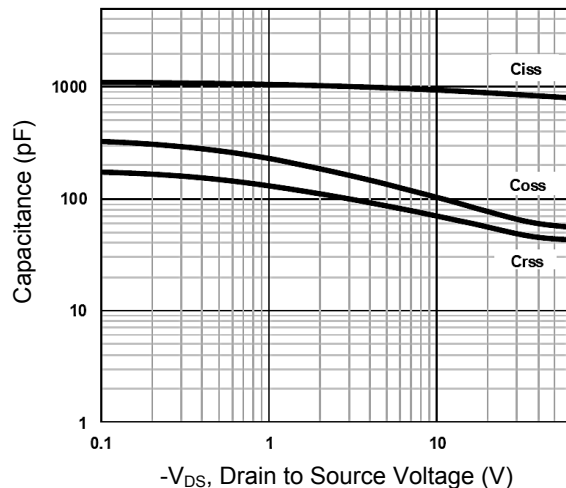


Figure 7. Capacitance Characteristics

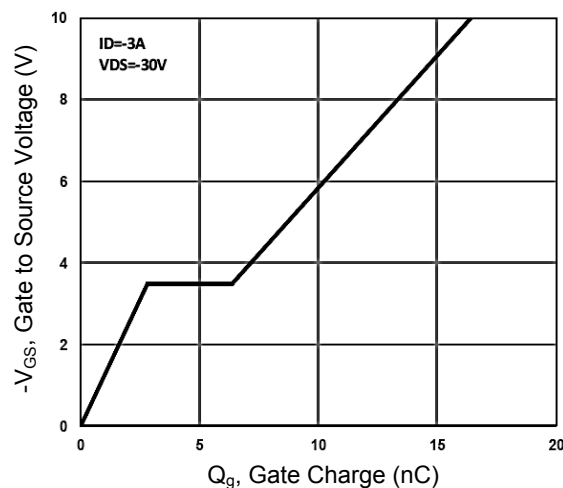


Figure 8. Gate Charge Characteristics

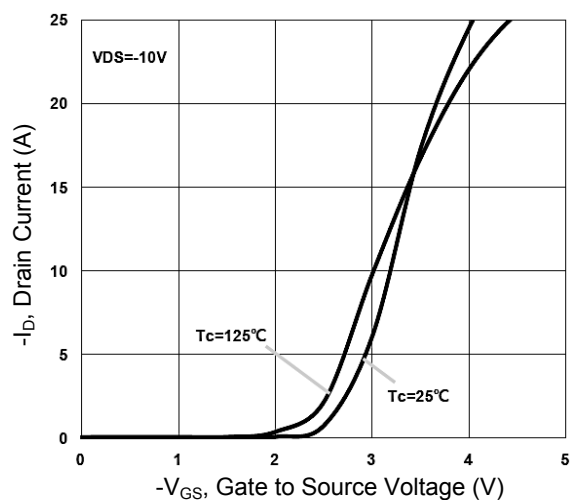


Figure 9. Transfer Characteristics

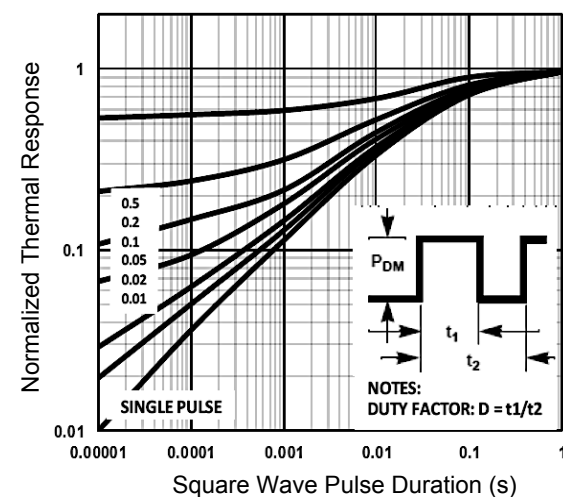


Figure 10. Normalized Transient Impedance

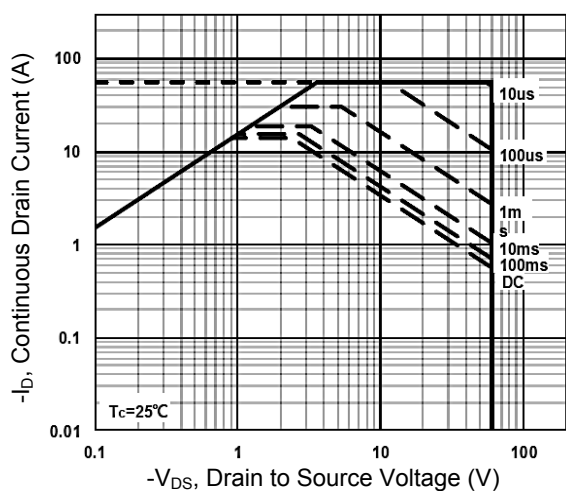
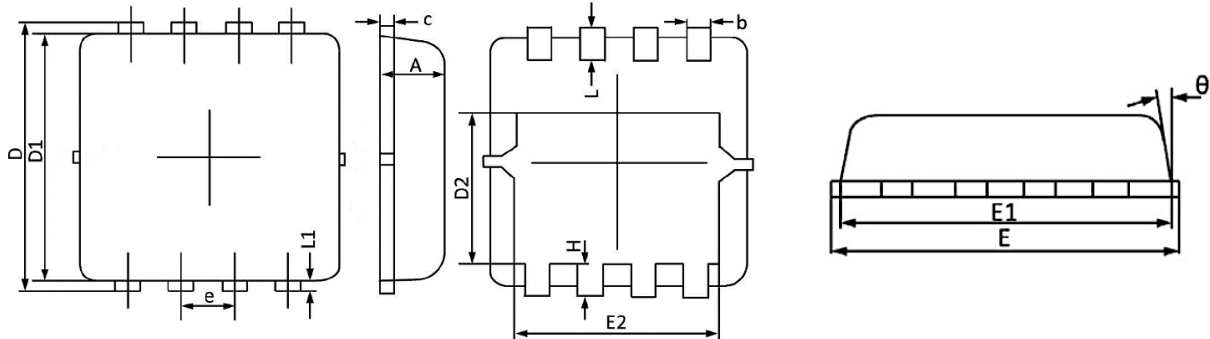


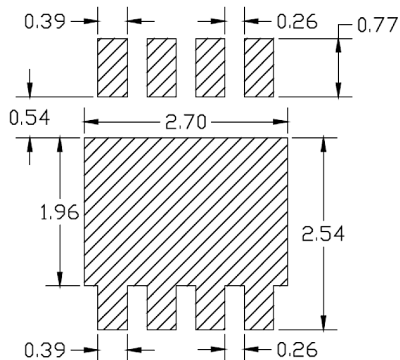
Figure 11. Maximum Safe Operation Area

Package Outline Dimensions (PPAK3x3)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
b	0.250	0.350	0.010	0.014
c	0.100	0.250	0.004	0.010
D	3.050	3.500	0.120	0.138
D1	2.900	3.200	0.114	0.126
D2	1.350	1.950	0.053	0.077
E	3.000	3.400	0.118	0.134
E1	2.900	3.300	0.114	0.130
E2	2.350	2.600	0.093	0.102
e	0.650 BSC		0.026 BSC	
H	0.300	0.750	0.012	0.030
L	0.300	0.600	0.012	0.024
L1	0.060	0.200	0.002	0.008
θ	6°	14°	6°	14°

Recommended Pad Layout



Unit: mm

Order Information

Device	Package	Marking	Carrier	Quantity
SSFN6907	PPAK3x3	DC6907	Tape & Reel	3,000 Pcs / Reel