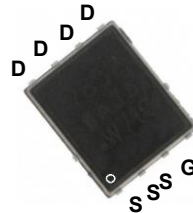
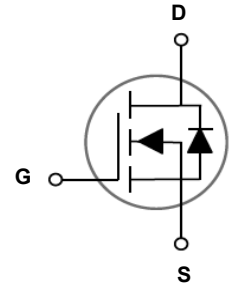


Main Product Characteristics

$V_{(BR)DSS}$	60V
$R_{DS(ON)}$	4.6mΩ
I_D	100A



PPAK5X6



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 SSFP6902 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 ($T_C=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current – Continuous ($T_C=25^{\circ}C$)	I_D	100	A
Drain Current – Continuous ($T_C=100^{\circ}C$)		63	A
Drain Current – Pulsed ¹	I_{DM}	400	A
Single Pulse Avalanche Energy ²	E_{AS}	450	mJ
Single Pulse Avalanche Current ²	I_{AS}	95	A
Power Dissipation ($T_C=25^{\circ}C$)	P_D	142	W
Power Dissipation – Derate above 25°C		1.14	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	$R_{\theta JA}$	---	62	°C/W
Thermal Resistance Junction to Case	$R_{\theta JC}$	---	0.88	°C/W

Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Leakage Current	I_{DSS}	$V_{GS}=0V, V_{DS}=60V$	0	1	1	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=20V, V_{DS}=0V$	0	1	1	μA
On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=95A$	0.015	0.015	0.015	Ω
Transconductance	g_m	$V_{GS}=10V, I_D=95A$	1.5	1.5	1.5	A/V
Switching Time	$t_{d(on)}$	$V_{GS}=10V, I_D=95A, V_{DS}=60V$	10	10	10	μs
Storage Time	$t_{d(off)}$	$V_{GS}=10V, I_D=95A, V_{DS}=60V$	10	10	10	μs
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, I_D=95A, V_{DS}=60V$	10	10	10	μs
Turn-Off Delay Time	$t_{d(off)}$	$V_{GS}=10V, I_D=95A, V_{DS}=60V$	10	10	10	μs
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=0V$	1000	1000	1000	pF
Output Capacitance	C_{oss}	$V_{GS}=0V, V_{DS}=60V$	100	100	100	pF
Reverse Transfer Capacitance	C_{rfs}	$V_{GS}=0V, V_{DS}=60V$	10	10	10	pF
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Drain-Source Voltage	V_{DS}	$I_D=0A, V_{GS}=0V$	60	60	60	V
Maximum Drain Current	I_D	$V_{GS}=10V, V_{DS}=0V$	95	95	95	A
Maximum Power Dissipation	P_D	$V_{GS}=10V, V_{DS}=0V$	1.5	1.5	1.5	W

- Note:
1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
 2. $V_{DS}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=95A$, 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

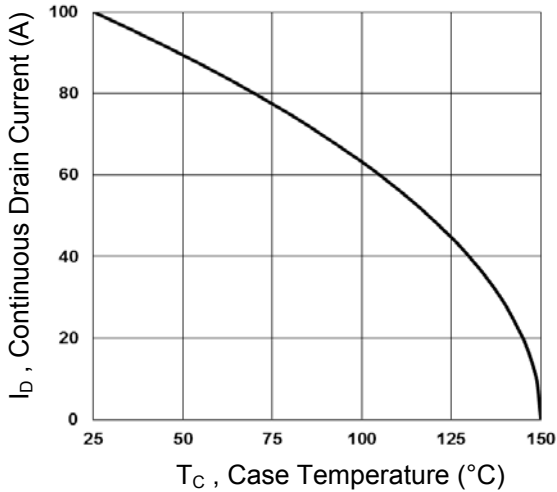


Fig.1 Continuous Drain Current vs. T_C

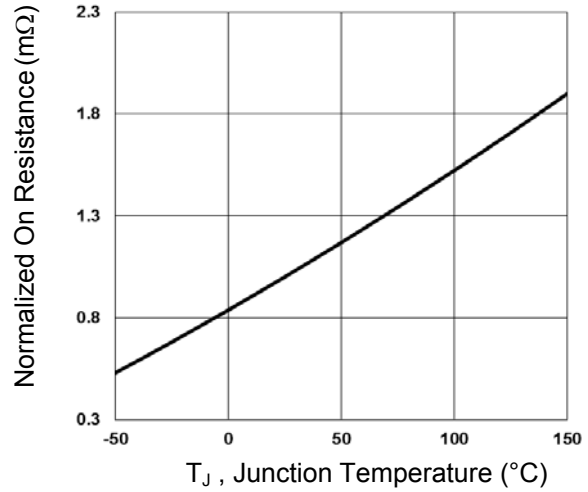


Fig.2 Normalized $R_{DS(ON)}$ vs. T_J

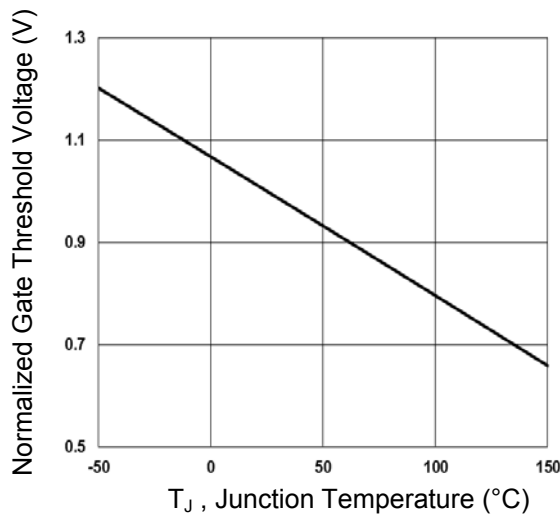


Fig.3 Normalized V_{th} vs. T_J

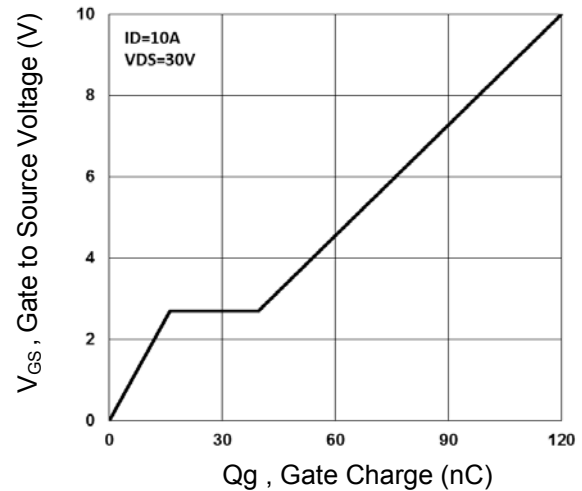


Fig.4 Gate Charge Characteristics

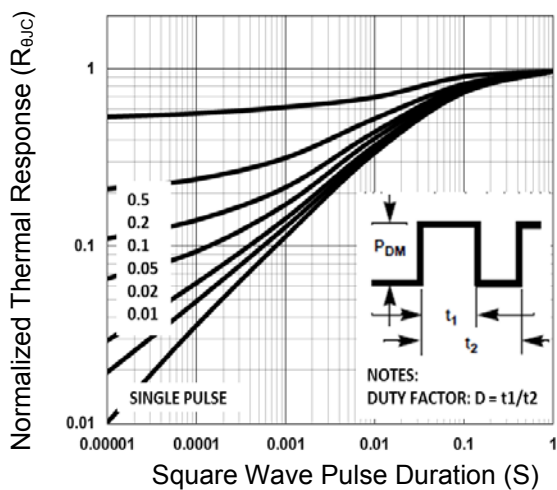


Fig.5 Normalized Transient Impedance

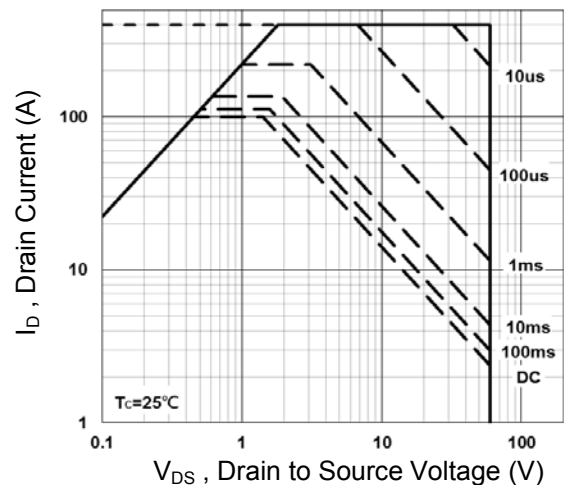


Fig.6 Maximum Safe Operation Area

Typical Electrical and Thermal Characteristic Curves

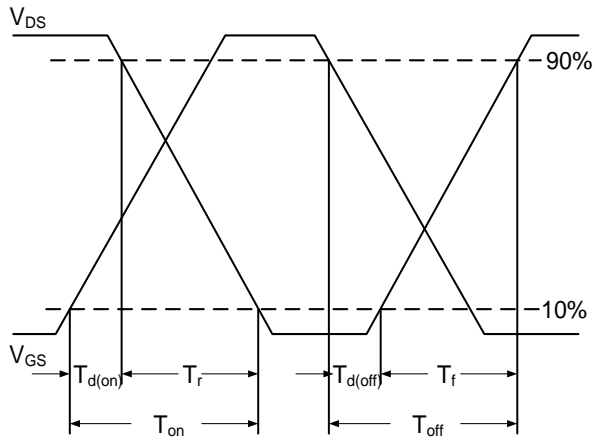


Fig.7 Switching Time Waveform

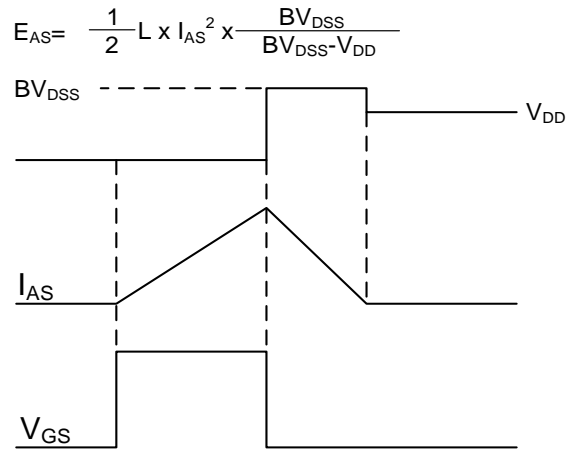
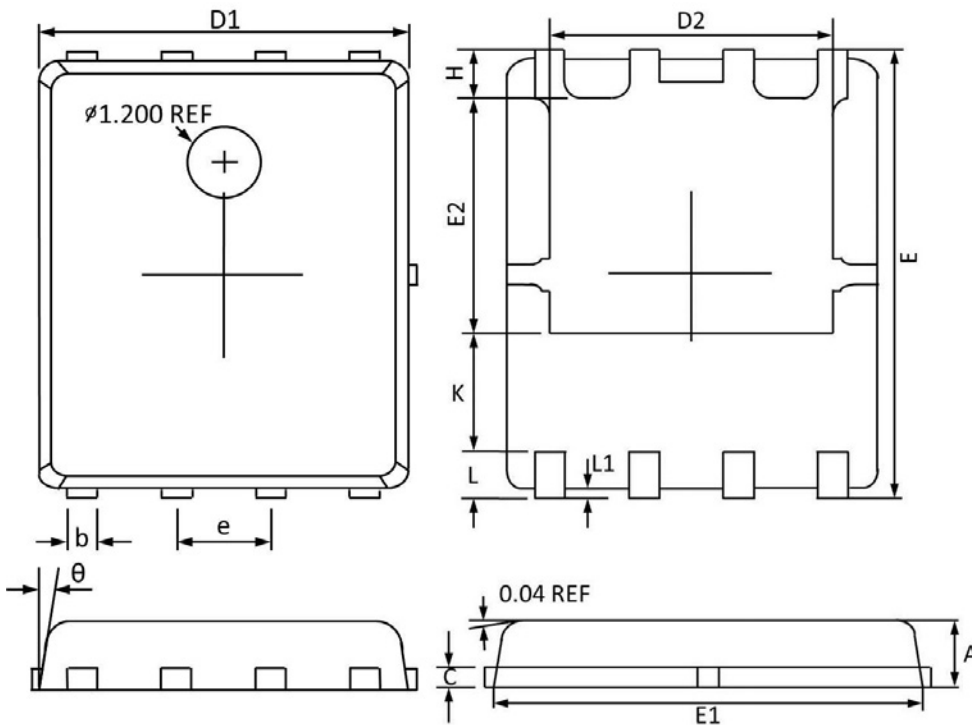


Fig. 8 E_{AS} Waveform

Package Outline Dimensions

PPAK5X6



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.100	0.800	0.043	0.031
b	0.510	0.330	0.020	0.013
C	0.300	0.200	0.012	0.008
D1	5.100	4.800	0.201	0.189
D2	4.100	3.610	0.161	0.142
E	6.200	5.900	0.244	0.232
E1	5.900	5.700	0.232	0.224
E2	3.780	3.350	0.149	0.132
e	1.27BSC		0.05BSC	
H	0.700	0.410	0.028	0.016
K	1.500	1.100	0.059	0.043
L	0.710	0.510	0.028	0.020
L1	0.200	0.060	0.008	0.002