



## 60V N-Channel SGT Power MOSFET

### General Description

The SJH100N06 uses SGT technology to provide excellent  $R_{DS(ON)}$ , low gate charge and fast switching characteristics. This device is suitable for use as a wide variety of applications.

### Features

- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handling capability
- Lead free product is acquired

### Application

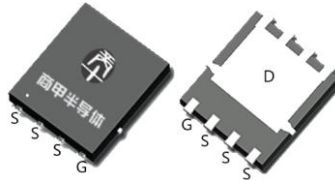
- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

### Key Performance Parametes

Parameter	Value	Unit
$V_{DS}$	60	V
$R_{DS(ON\_TYP)}$	9.5	mΩ
$I_D$	52	A
$Q_G$	12.3	nC



Schematic Diagram



PDFN5X6-8L top&bottom view



### Package Marking and Ordering Information

Device/Ordering Code	Marking	Package	Packing	Reel Size	Tape width	Quantity
SJH100N06	SJH100N06	PDFN5X6-8L	Tape	\	\	5000 Pcs

Table 1. Absolute Maximum Ratings ( $T_C=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Limit	Unit
$V_{DS}$	Drain-Source Voltage ( $V_{GS}=0V$ )	60	V
$V_{GS}$	Gate-Source Voltage ( $V_{DS}=0V$ )	$\pm 20$	V
$I_D$	Drain Current-Continuous( $T_C=25^\circ\text{C}$ )	52	A
	Drain Current-Continuous( $T_C=100^\circ\text{C}$ )	33	A
$I_{DM}$ (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	208	A
$P_D$	Maximum Power Dissipation( $T_C=25^\circ\text{C}$ )	57	W
	Maximum Power Dissipation( $T_C=100^\circ\text{C}$ )	23	W
$E_{AS}$	Avalanche energy (Note 2)	72	mJ
$T_J, T_{STG}$	Operating Junction and Storage Temperature Range	-55 To 150	$^\circ\text{C}$

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case		2.17	$^\circ\text{C/W}$



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**Table 3. Electrical Characteristics ( $T_J=25^{\circ}\text{C}$  unless otherwise noted)**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V I <sub>D</sub> =250μA	60			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V T <sub>J</sub> =25℃			1	μA
		V <sub>DS</sub> =60V, V <sub>GS</sub> =0V T <sub>J</sub> =125℃			100	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1		2.5	V
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =5V, I <sub>D</sub> =20A		39		S
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =20A T <sub>J</sub> =25℃		9.5	12.4	mΩ
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =4.5V, I <sub>D</sub> =15A T <sub>J</sub> =25℃		14.5	19.3	mΩ
Dynamic Characteristics						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =30V,V <sub>GS</sub> =0V, f=1.0MHz		742		pF
C <sub>oss</sub>	Output Capacitance			272		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			19		pF
R <sub>g</sub>	Gate resistance	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1.0MHz		0.94		Ω
Switching Parameters						
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>GS</sub> =10V, V <sub>DS</sub> =30V, R <sub>L</sub> =1.5Ω, R <sub>GEN</sub> =6Ω		7.4		nS
t <sub>r</sub>	Turn-on Rise Time			28		nS
t <sub>d(off)</sub>	Turn-Off Delay Time			17.8		nS
t <sub>f</sub>	Turn-Off Fall Time			2.7		nS
Q <sub>g</sub>	Total Gate Charge	V <sub>GS</sub> =10V, V <sub>DS</sub> =30V, I <sub>D</sub> =20A		12.3		nC
Q <sub>gs</sub>	Gate-Source Charge			2.5		nC
Q <sub>gd</sub>	Gate-Drain Charge			2.7		nC
Source-Drain Diode Characteristics						
I <sub>SD</sub>	Source-Drain Current (Body Diode)				52	A
V <sub>SD</sub>	Forward on Voltage (Note 3)	V <sub>GS</sub> =0V, I <sub>S</sub> =20A			1.2	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> =20A, dI/dt=100A/μs		20		ns
Q <sub>rr</sub>	Reverse Recovery Charge	I <sub>F</sub> =20A, dI/dt=100A/μs		12		nC

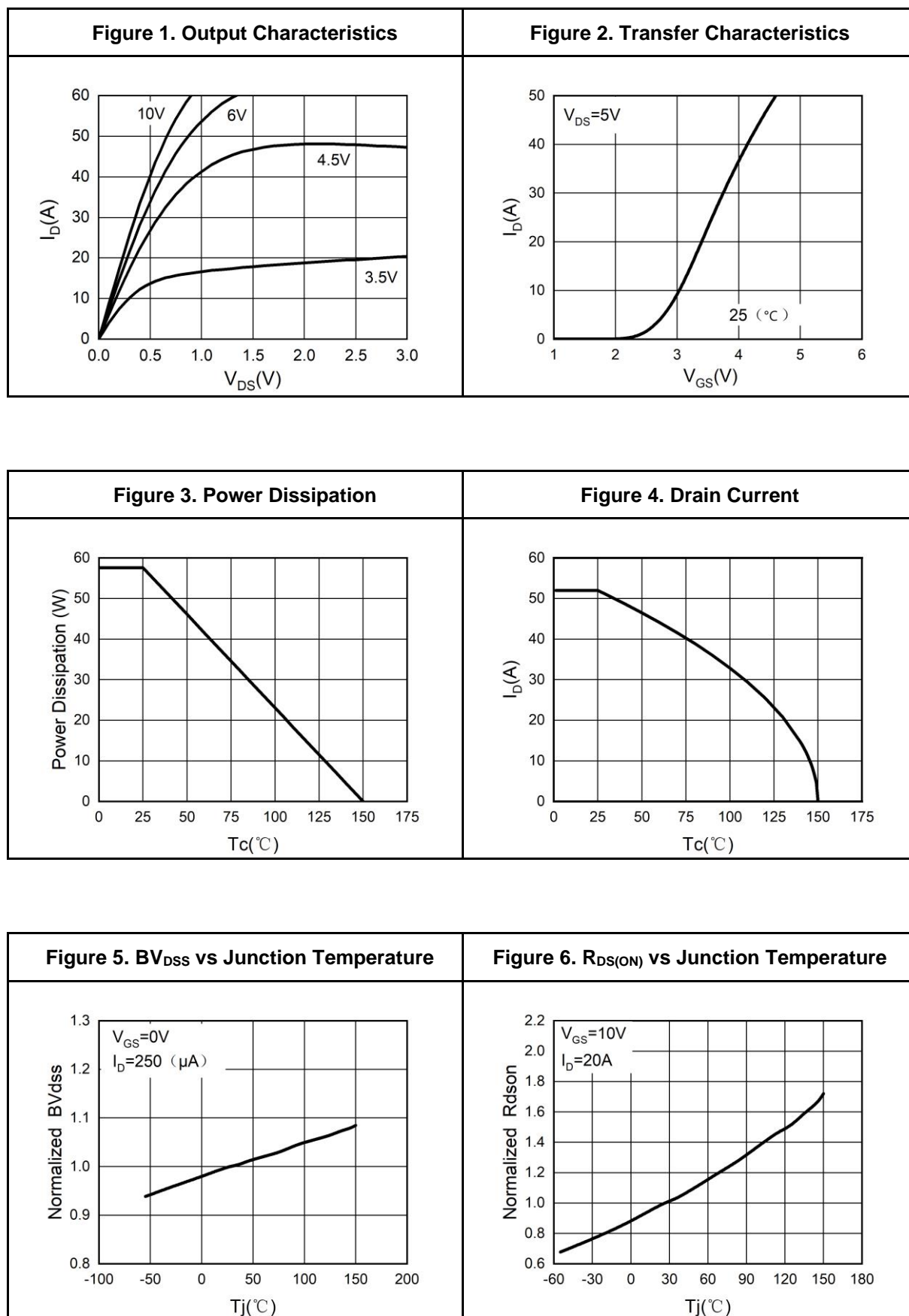
Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

Notes 2.EAS condition:  $T_J=25^{\circ}\text{C}, V_{DD}=40V, V_G=10V, R_g=25\Omega, L=0.5\text{mH}$ .

Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

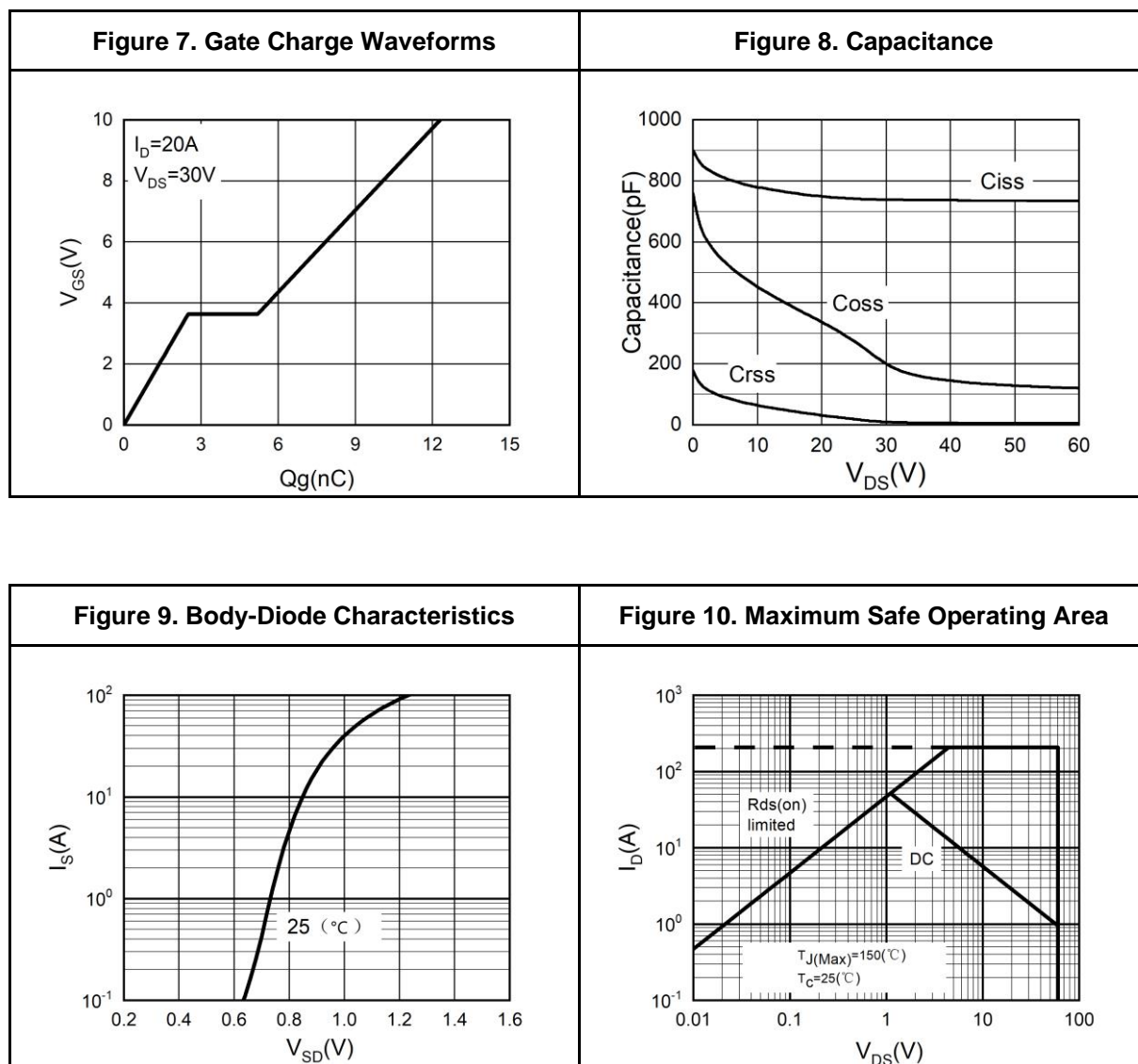


## Typical Electrical And Thermal Characteristics (Curves)



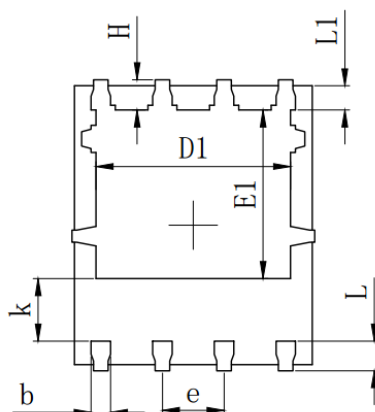
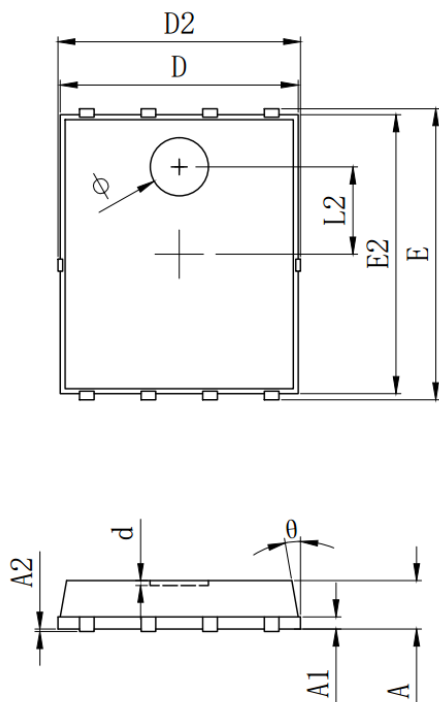


## Typical Electrical And Thermal Characteristics (Curves)





## PDFN5X6 Package Information



SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	0.900	1.000	1.100
A1	0.254 REF.		
A2	0~0.05		
D	4.824	4.900	4.976
D1	3.910	4.010	4.110
D2	4.924	5.000	5.076
E	5.924	6.000	6.076
E1	3.375	3.475	3.575
E2	5.674	5.750	5.826
b	0.350	0.400	0.450
e	1.270 TYP.		
L	0.534	0.610	0.686
L1	0.424	0.500	0.576
L2	1.800 REF.		
k	1.190	1.290	1.390
H	0.549	0.625	0.701
θ	8°	10°	12°
Φ	1.100	1.200	1.300
d			0.100

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H	0.549	0.625	0.701
θ	8°	10°	12°
Φ	1.100	1.200	1.300
d			0.100



## Attention

This product described in this document can not be used in life support devices or systems, aircraft's control systems, and other applications whose failure can be reasonably expected to result in serious physical and/or material damage, apart from that when an application agreement is signed between customer and Wuxi Shangjia Semiconductor

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