



80V N-Channel SGT Power MOSFET

General Description

The SJH033N08 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

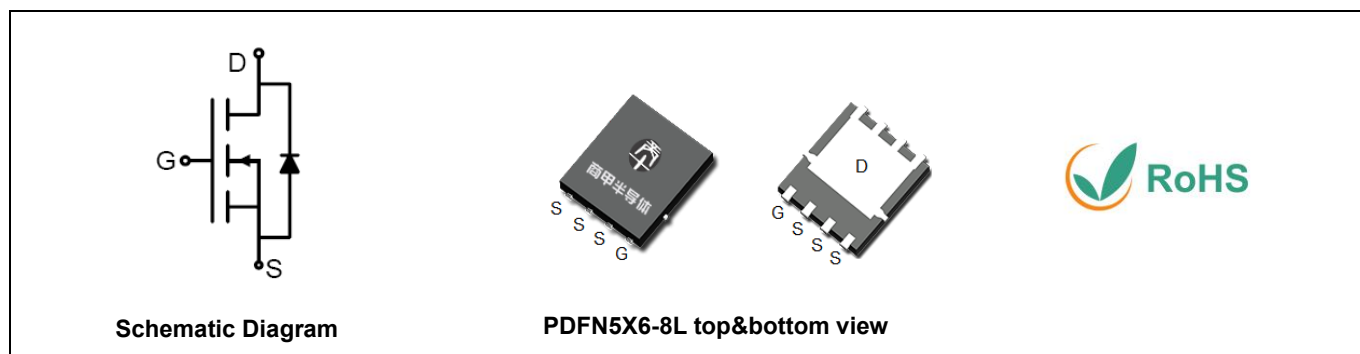
- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handling capability
- Lead free product is acquired

Application

- DC/DC Converter
- Load Switch
- Power Management

Key Performance Parameters

Parameter	Value	Unit
V_{DS}	80	V
$R_{DS(ON_TYP)}$	3	m Ω
I_D	130	A
Q_G	64	nC



Package Marking and Ordering Information

Device/Ordering Code	Marking	Package	Packing	Reel Size	Tape width	Quantity
SJH033N08	SJH033N08	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 ($V_{GS}=0V$)	80	V
V_{GS}	Gate-Source Voltage ($V_{DS}=0V$)	± 20	V
I_D	Drain Current-Continuous($T_C=25^\circ\text{C}$)	130	A
	Drain Current-Continuous($T_C=100^\circ\text{C}$)	82	A
I_{DM} (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	520	A
P_D	Maximum Power Dissipation($T_C=25^\circ\text{C}$)	114	W
	Maximum Power Dissipation($T_C=100^\circ\text{C}$)	45	W
E_{AS}	Avalanche energy (Note 2)	729	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		1.1	$^\circ\text{C}/\text{W}$



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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_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	80			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=80V, V_{GS}=0V$			1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	V
g_{FS}	Forward Transconductance	$V_{DS}=10V, I_D=20A$		26		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=10V, I_D=20A$		3	3.9	m Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=40V, V_{GS}=0V,$ $f=1.0MHz$		4760		pF
C_{oss}	Output Capacitance			2010		pF
C_{riss}	Reverse Transfer Capacitance			81		pF
R_g	Gate resistance	$V_{GS}=0V, V_{DS}=0V, f=1.0MHz$		3		Ω
Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	$V_{GS}=10V, V_{DS}=40V,$ $R_L=2\Omega, R_{GEN}=3\Omega$		18		nS
t_r	Turn-on Rise Time			29		nS
$t_{d(off)}$	Turn-Off Delay Time			49		nS
t_f	Turn-Off Fall Time			20		nS
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DS}=40V, I_D=20A$		64		nC
Q_{gs}	Gate-Source Charge			22		nC
Q_{gd}	Gate-Drain Charge			13		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode) (Note 3)				130	A
V_{SD}	Forward on Voltage	$V_{GS}=0V, I_S=20A$			1.2	V
t_{rr}	Reverse Recovery Time	$I_F=20A, dI/dt=500A/\mu s$		57		ns
Q_{rr}	Reverse Recovery Charge	$I_F=20A, dI/dt=500A/\mu s$		92		nC

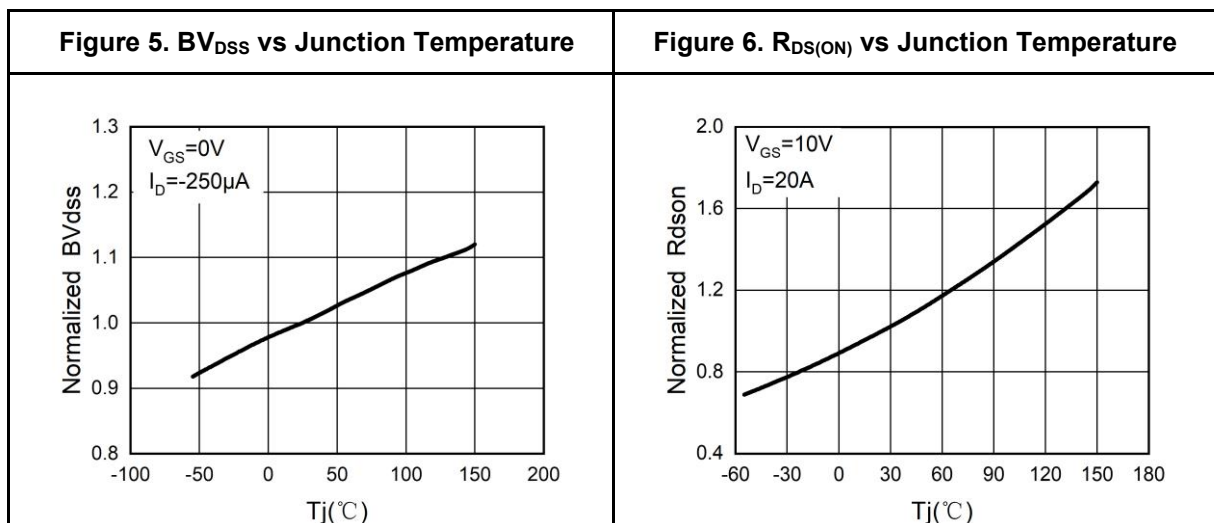
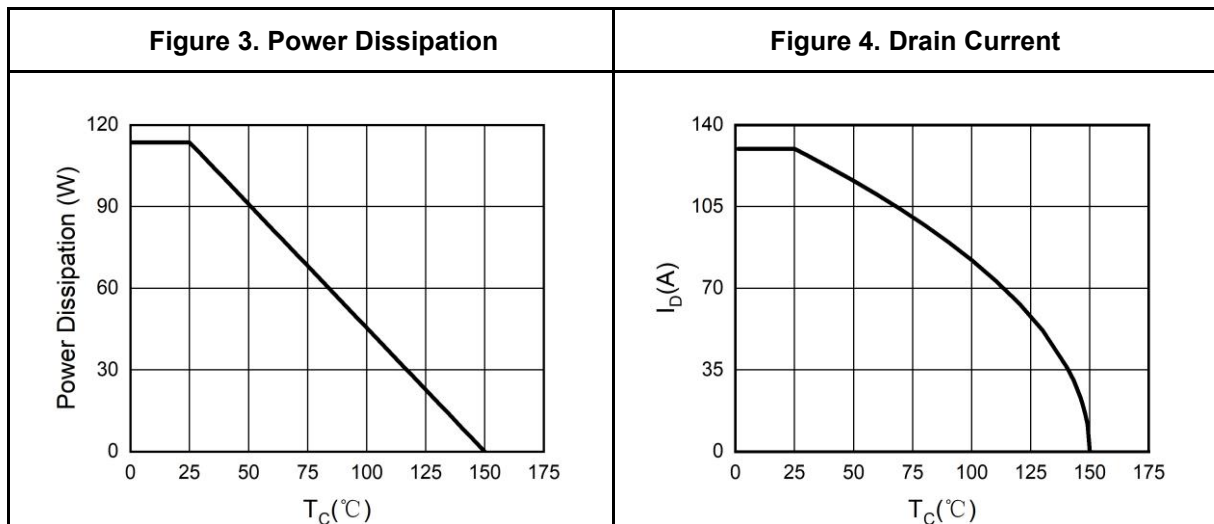
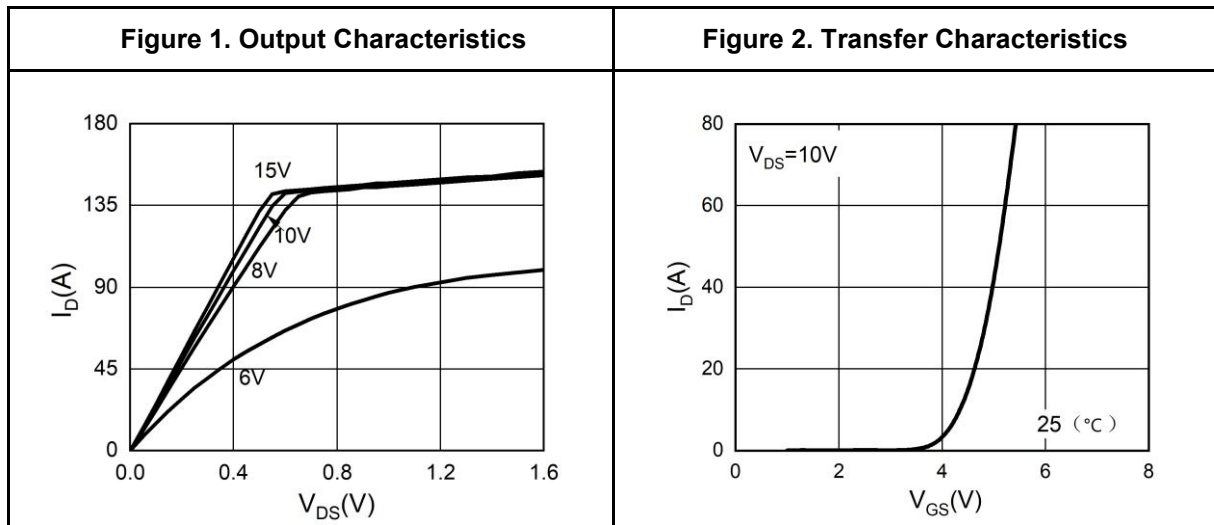
Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

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

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

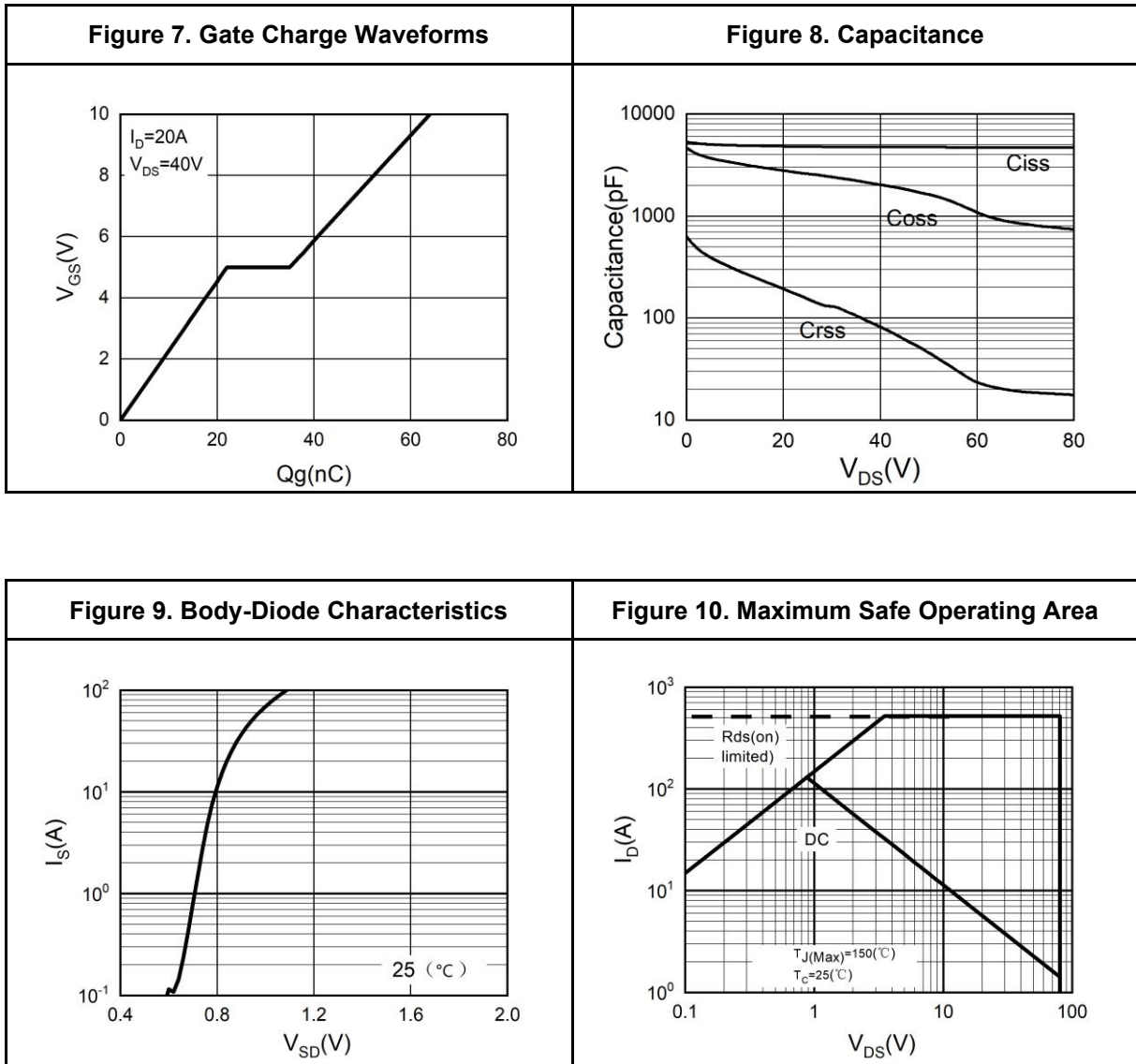


Typical Electrical And Thermal Characteristics (Curves)



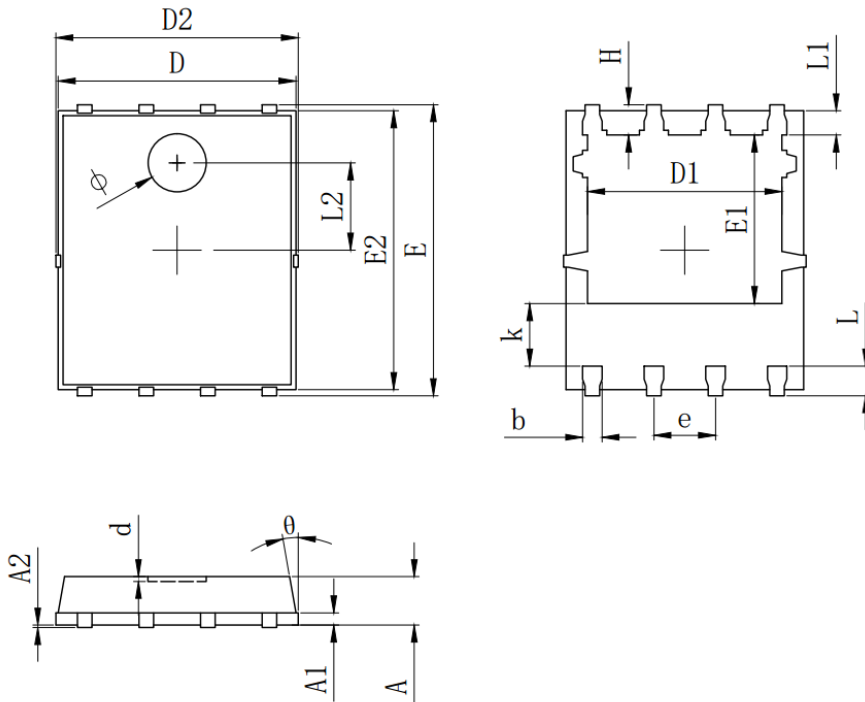


Typical Electrical And Thermal Characteristics (Curves)





PDFN5X6-8L 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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d			0.100



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