



30V P-Channel Trench Power MOSFET

General Description

The SJH30P055 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as -4.5V. This device is suitable for use as a wide variety of applications.

Features

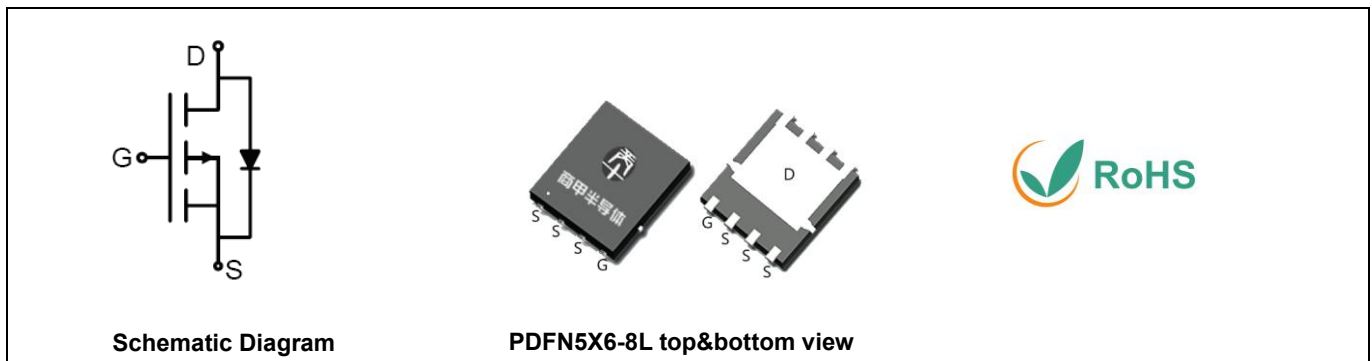
- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handing capability
- Lead free product is acquired

Application

- PWM Applications
- Load Switch
- Power Management

Key Performance Parametes

Parameter	Value	Unit
V_{DS}	-30	V
$R_{DS(ON_TYP)}$	6.4	m Ω
I_D	-67	A
Q_G	38	nC



Package Marking and Ordering Information

Device/Ordering Code	Marking	Package	Packing	Reel Size	Tape width	Quantity
SJH30P055	SJH30P055	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 ($V_{GS}=0V$)	-30	V
V_{GS}	Gate-Source Voltage ($V_{DS}=0V$)	± 20	V
I_D	Drain Current-Continuous($T_C=25^\circ\text{C}$)	-67	A
	Drain Current-Continuous($T_C=100^\circ\text{C}$)	-42	A
I_{DM} (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	-268	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)	289	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		2.2	$^\circ\text{C/W}$



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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_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-30V, V_{GS}=0V, T_J=25^\circ\text{C}$			-1	μA
		$V_{DS}=-30V, V_{GS}=0V, T_J=125^\circ\text{C}$			-100	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.5	-2.5	V
g_{FS}	Forward Transconductance	$V_{DS}=-5V, I_D=-20A$		34		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=-10V, I_D=-20A, T_J=25^\circ\text{C}$		6.4	8	m Ω
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=-4.5V, I_D=-15A, T_J=25^\circ\text{C}$		10.2	13.3	m Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=-15V, V_{GS}=0V, f=1.0\text{MHz}$		3240		pF
C_{oss}	Output Capacitance			380		pF
C_{rss}	Reverse Transfer Capacitance			231		pF
Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	$V_{GS}=-10V, V_{DS}=-15V, R_L=0.75\Omega, R_{GEN}=3\Omega$		21		nS
t_r	Turn-on Rise Time			18		nS
$t_{d(off)}$	Turn-Off Delay Time			26		nS
t_f	Turn-Off Fall Time			8		nS
Q_g	Total Gate Charge	$V_{GS}=-10V, V_{DS}=-15V, I_D=-20A$		38		nC
Q_{gs}	Gate-Source Charge			5.5		nC
Q_{gd}	Gate-Drain Charge			8		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode)				-67	A
V_{SD}	Forward on Voltage (Note 3)	$V_{GS}=0V, I_S=-20A$			-1.2	V
t_{rr}	Reverse Recovery Time	$I_F=-10A, dI/dt=-100A/\mu s$		15		ns
Q_{rr}	Reverse Recovery Charge	$I_F=-10A, dI/dt=-100A/\mu s$		20		nC

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

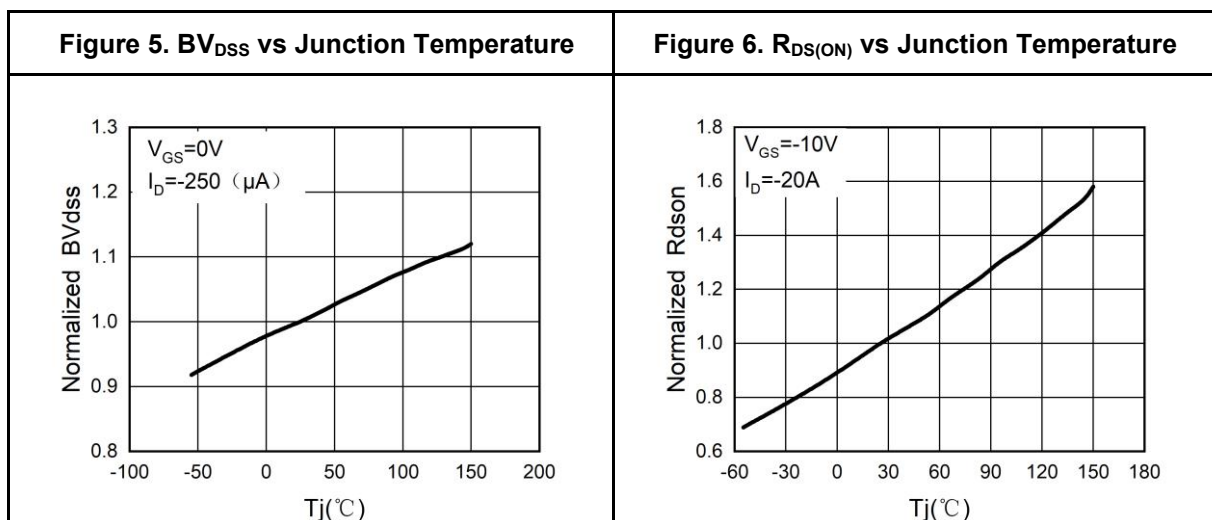
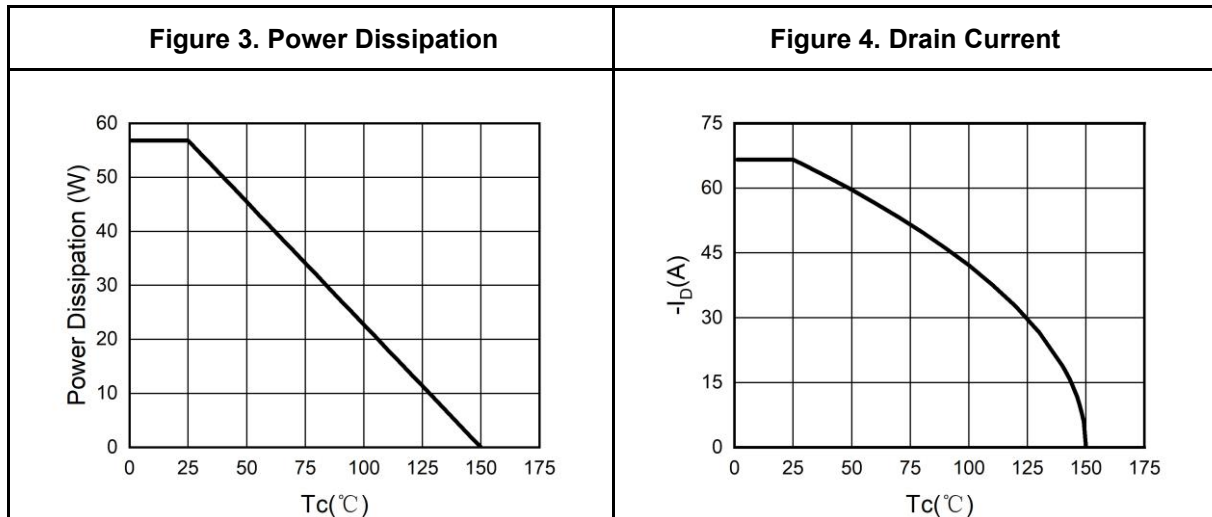
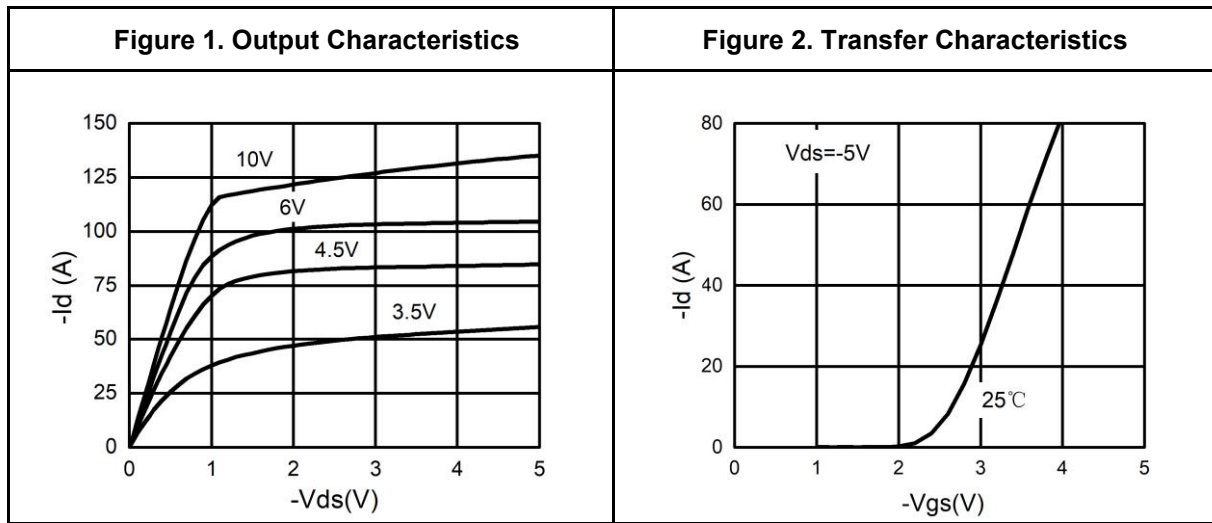
Notes 2.EAS condition: $T_J=25^\circ\text{C}, V_{DD}=-30V, V_G=-10V, R_g=25\Omega, L=0.5\text{mH}$.

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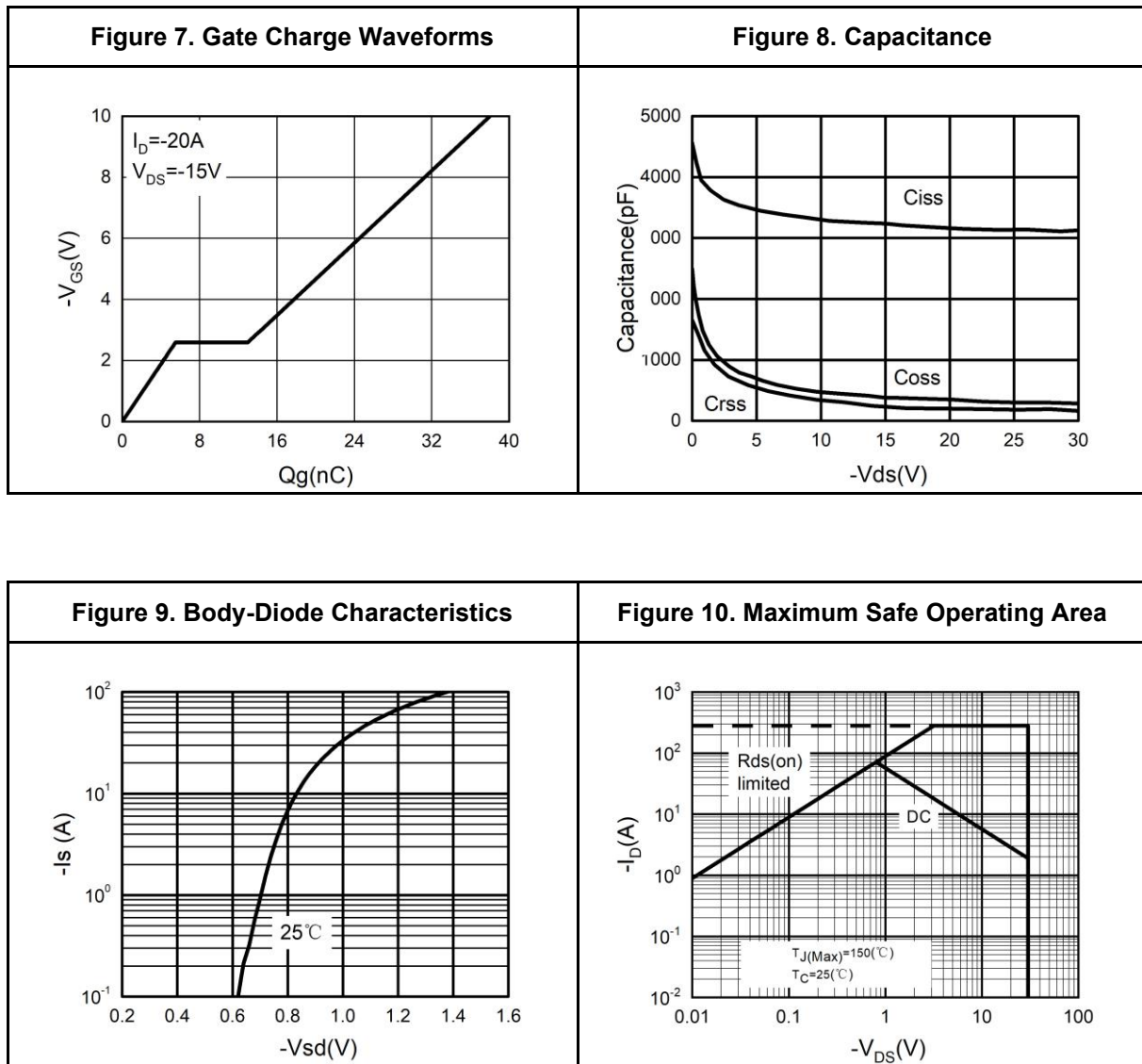
Typical Electrical And Thermal Characteristics (Curves)





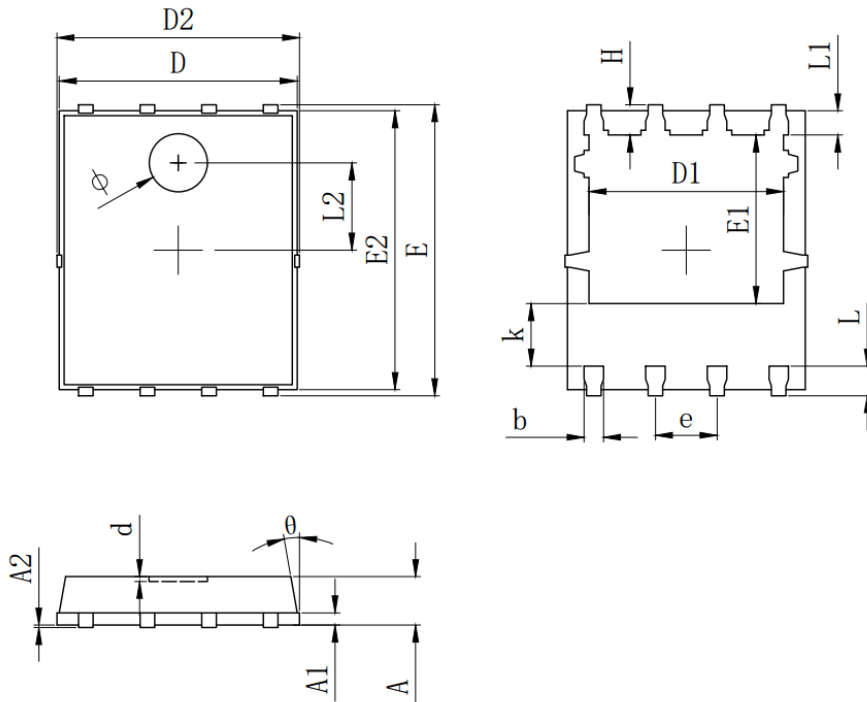
30V P-Channel Trench Power MOSFET

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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