



100V P-Channel Trench Power MOSFET

General Description

The SJH01P240 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

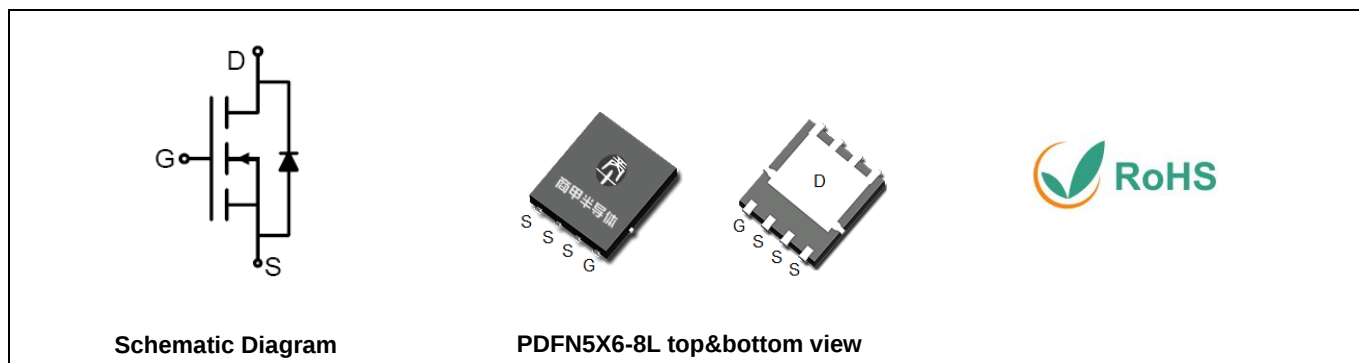
- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handling capability
- Lead free product is acquired

Application

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

Key Performance Parameters

Parameter	Value	Unit
V_{DS}	-100	V
$R_{DS(ON_TYP)}$	22.5	mΩ
I_D	-33	A
Q_G	37	nC



Package Marking and Ordering Information

Device/Ordering Code	Marking	Package	Packing	Reel Size	Tape width	Quantity
SJH01P240	SJH01P240	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 ($V_{GS}=0V$)	-100	V
V_{GS}	Gate-Source Voltage ($V_{DS}=0V$)	± 20	V
I_D	Drain Current-Continuous($T_c=25^\circ\text{C}$)	-33	A
	Drain Current-Continuous($T_c=100^\circ\text{C}$)	-21	A
I_{DM} (pulse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	-132	A
P_D	Maximum Power Dissipation($T_c=25^\circ\text{C}$)	67	W
	Maximum Power Dissipation($T_c=100^\circ\text{C}$)	27	W
E_{AS}	Avalanche energy (Note 2)	676	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 175	$^\circ\text{C}$

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case		1.86	$^\circ\text{C/W}$



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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 =-250μA	-100			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-100V, V _{GS} =0V T _J =25℃			-1	μA
		V _{DS} =-100V, V _{GS} =0V T _J =125℃			-100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1		-2.5	V
g _{FS}	Forward Transconductance	V _{DS} =-5V, I _D =-15A		40		S
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-20A T _J =25℃		22.5	28.1	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-20A T _J =25℃		24	31.9	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-50V,V _{GS} =0V, f=1.0MHz		13400		pF
C _{oss}	Output Capacitance			261		pF
C _{rss}	Reverse Transfer Capacitance			238		pF
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1.0MHz		1.8		Ω
Switching Parameters						
t _{d(on)}	Turn-on Delay Time	V _{GS} =10V, V _{DS} =-50V, R _L =2.5Ω, R _{GEN} =3Ω		14		nS
t _r	Turn-on Rise Time			50		nS
t _{d(off)}	Turn-Off Delay Time			60		nS
t _f	Turn-Off Fall Time			85		nS
Q _g	Total Gate Charge	V _{GS} =-10V, V _{DS} =-50V, I _D =-20A		37		nC
Q _{gs}	Gate-Source Charge			10		nC
Q _{gd}	Gate-Drain Charge			7		nC
Source-Drain Diode Characteristics						
I _{SD}	Source-Drain Current (Body Diode)				-33	A
V _{SD}	Forward on Voltage ^(Note 3)	V _{GS} =0V, I _S =-20A			1.2	V
t _{rr}	Reverse Recovery Time	I _F =-20A, dI/dt=100A/μs		70		ns
Q _{rr}	Reverse Recovery Charge	I _F =-20A, dI/dt=100A/μs		140		nC

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

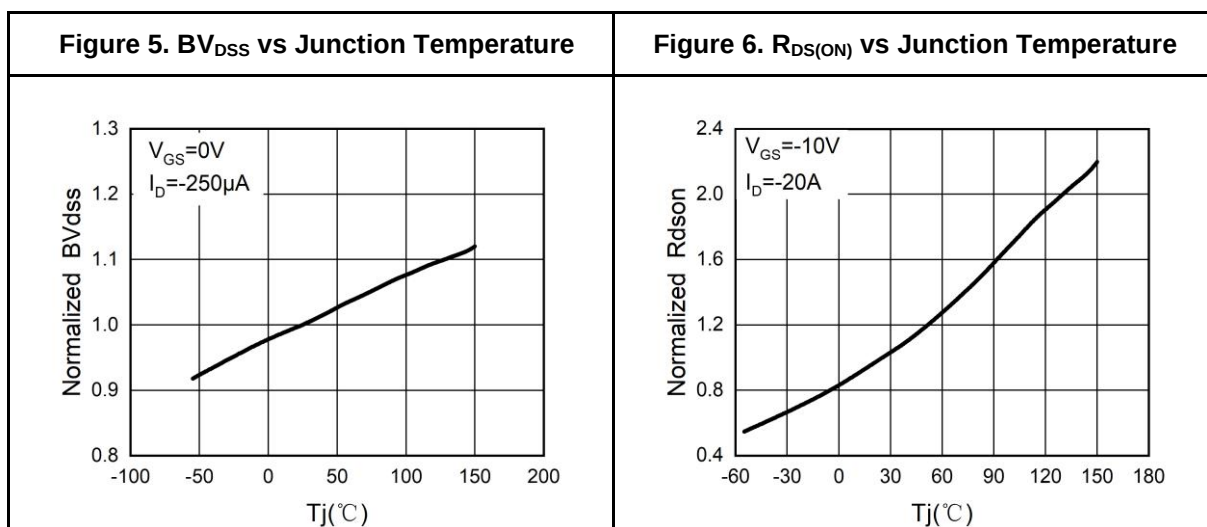
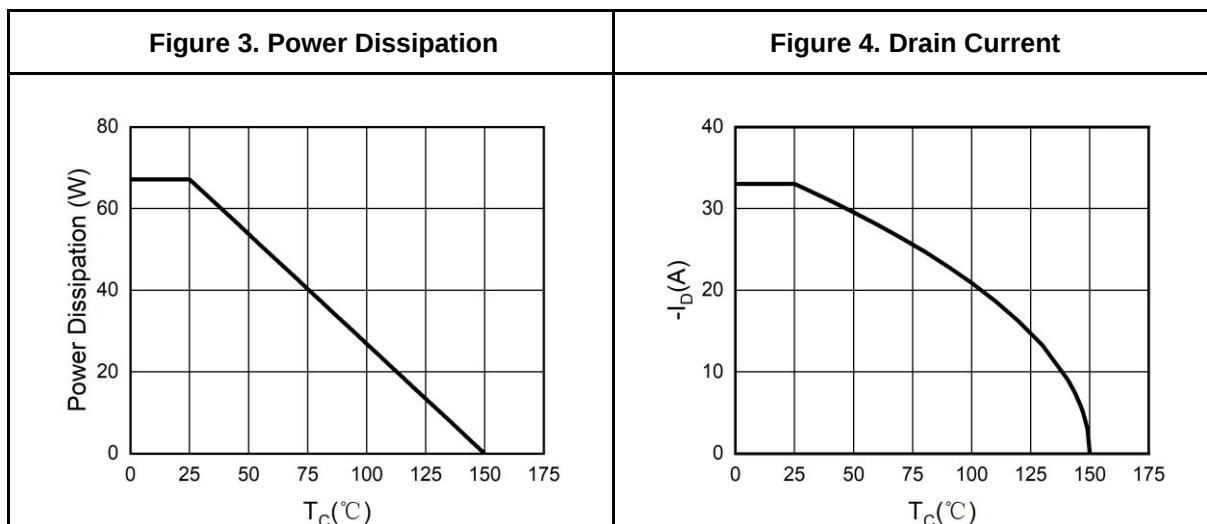
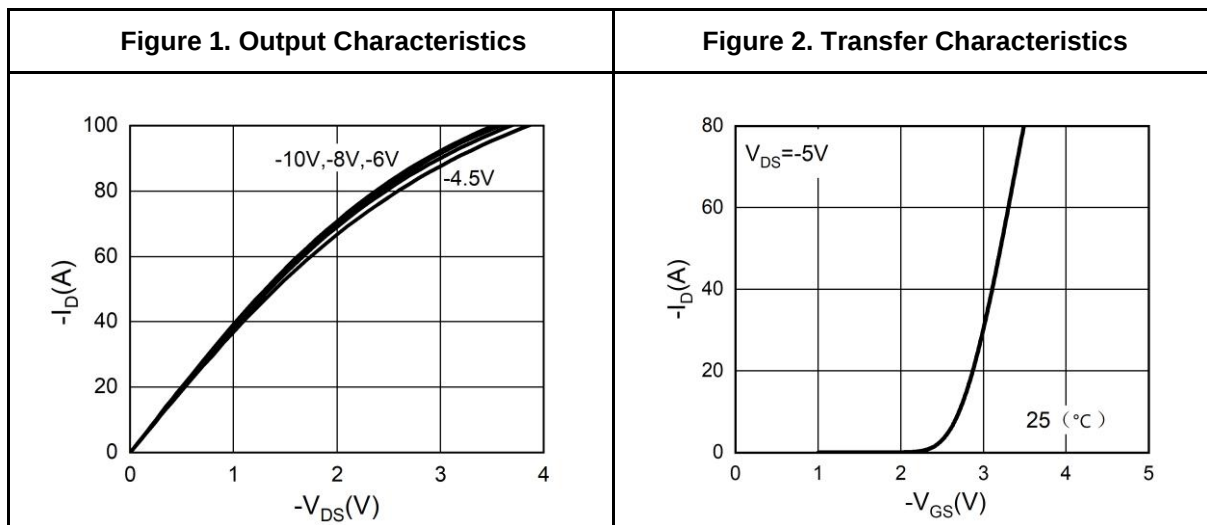
Notes 2.EAS condition: $T_J=25^{\circ}\text{C}, V_{DD}=-60V, V_G=10V, R_g=25\Omega, L=0.5mH$.

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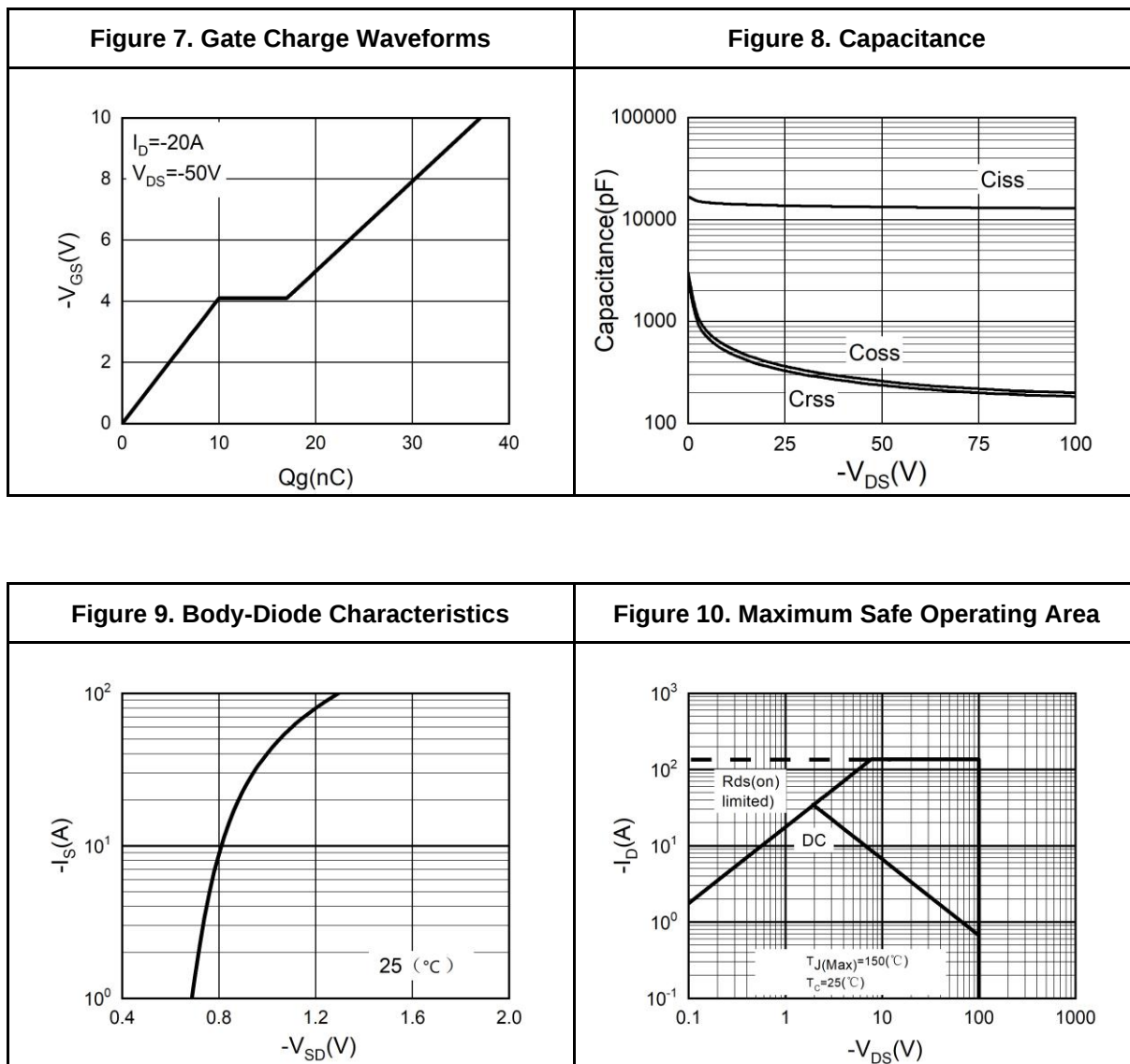
Typical Electrical And Thermal Characteristics (Curves)





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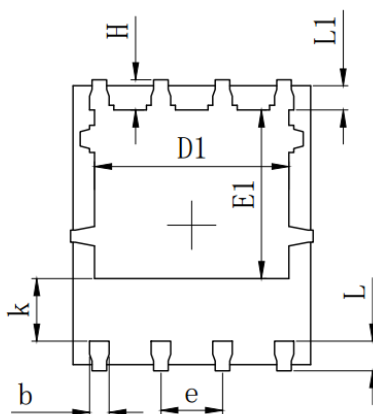
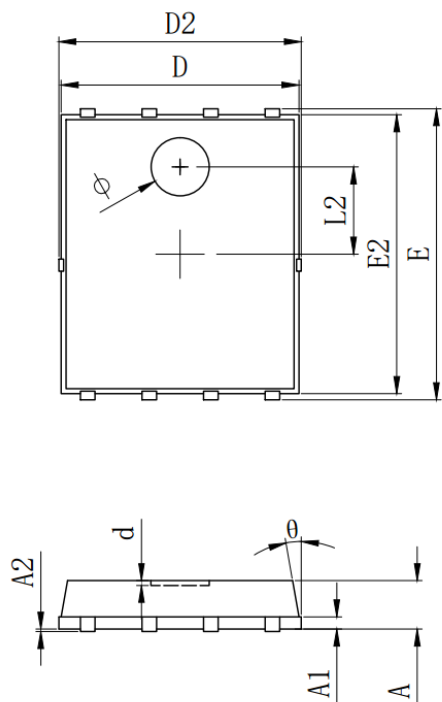
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PDFN5X6 Package Information



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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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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