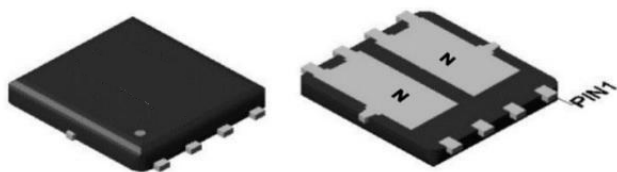
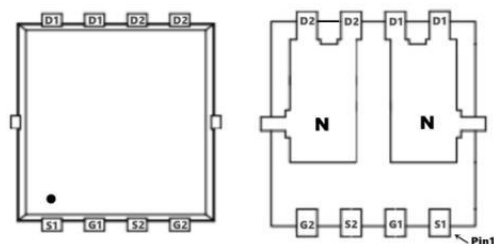


Description

The SX70H06NF uses advanced 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 Battery protection or in other Switching application.



General Features

$V_{DS} = 60V$ $I_D = 70A$

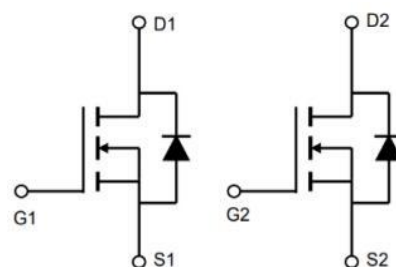
$R_{DS(ON)} < 10m\Omega$ @ $V_{GS}=10V$

Application

Battery protection

Load switch

Uninterruptible power supply



Absolute Maximum Ratings@ $T_J=25^\circ C$ (unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{DS}	Drain source voltage	60	V
V_{GS}	Gate source voltage	± 20	V
$I_D @ T_A = 25^\circ C$	Continuous drain current	70	A
$I_D @ T_A = 70^\circ C$	Continuous drain current	45	A
I_{DM}	Pulsed drain current	280	A
$P_D @ T_A = 25^\circ C$	Power dissipation	60	W
EAS	Single pulsed avalanche energy	30	mJ
TSTG	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operation and storage temperature	-55 to 150	$^\circ C$
$R_{\theta JC}$	Thermal resistance, junction-case	2.1	$^\circ C/W$
$R_{\theta JA}$	Thermal resistance, junction-ambient5)	25	$^\circ C/W$

Electrical Characteristics (T_J=25℃, unless otherwise noted)

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
BVDSS	Drain-source breakdown voltage	V _{GS} =0 V, I _D =250 μA	60	68		V
V _{GS(th)}	Gate threshold voltage	V _{DS} =V _{GS} , I _D =250 μA	1.2	1.5	2.5	V
R _{DS(ON)}	Drain-source on-state resistance	V _{GS} =10 V, I _D =20 A		7.5	10	mΩ
R _{DS(ON)}	Drain-source on-state resistance	V _{GS} =4.5 V, I _D =10 A		10	13	mΩ
I _{GSS}	Gate-source leakage current	V _{GS} =±20 V			±100	nA
I _{DSS}	Drain-source leakage current	V _{DS} =60 V, V _{GS} =0 V			1	μA
C _{iss}	Input capacitance	V _{GS} =0 V, V _{DS} =50 V, f=100 kHz		1182.1		pF
C _{oss}	Output capacitance			199.5		pF
C _{rss}	Reverse transfer capacitance			4.1		pF
t _{d(on)}	Turn-on delay time	V _{GS} =10 V, V _{DS} =50 V, R _G =2 Ω, I _D =10 A		17.9		ns
t _r	Rise time			4.0		ns
t _{d(off)}	Turn-off delay time			34.9		ns
t _f	Fall time			5.5		ns
Q _g	Total gate charge	I _D =10 A, V _{DS} =50 V, V _{GS} =10 V		18.4		nC
Q _{gs}	Gate-source charge			3.3		nC
Q _{gd}	Gate-drain charge			3.1		nC
V _{plateau}	Gate plateau voltage			2.8		V
I _S	Diode forward current	V _{GS} <V _{th}			60	A
I _{SP}	Pulsed source current				180	
V _{SD}	Diode forward voltage	I _S =20 A, V _{GS} =0 V			1.3	V
t _{rr}	Reverse recovery time	I _S =10 A, di/dt=100 A/μs		41.8		ns
Q _{rr}	Reverse recovery charge			36.1		nC
I _{rrm}	Peak reverse recovery current			1.4		A

Note

- 1、Calculated continuous current based on maximum allowable junction temperature.
- 2、Repetitive rating; pulse width limited by max. junction temperature.
- 3、P_d is based on max. junction temperature, using junction-case thermal resistance.
- 4、V_{DD}=50 V, R_G=50 Ω, L=0.3 mH, starting T_J=25 ℃.
- 5、The value of R_{θJA} is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25 ℃.

Typical Characteristics

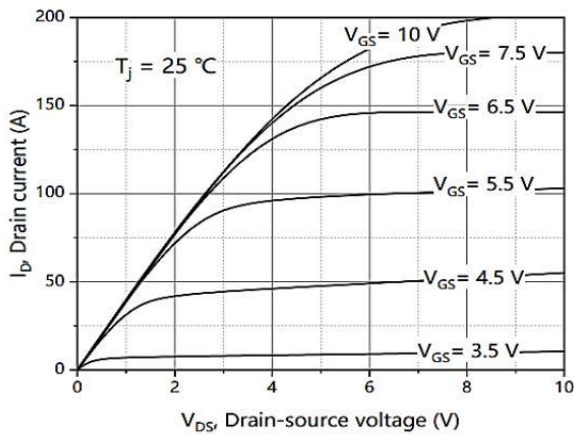


Figure 1. Typ. output characteristics

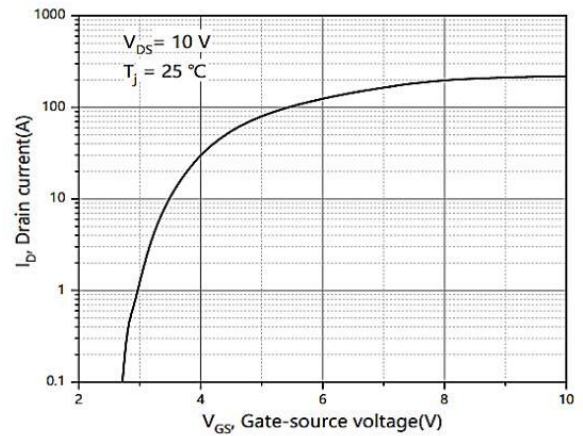


Figure 2. Typ. transfer characteristics

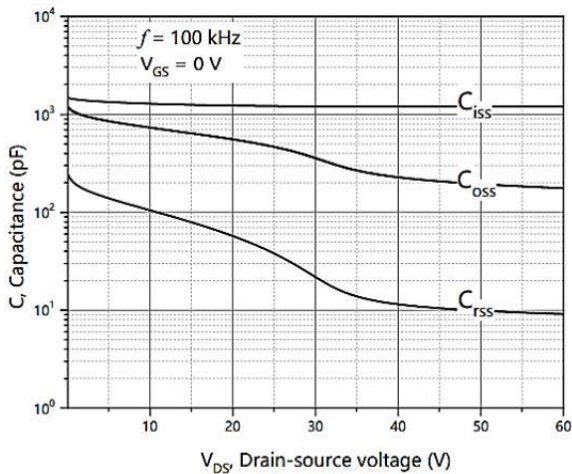


Figure 3. Typ. capacitances

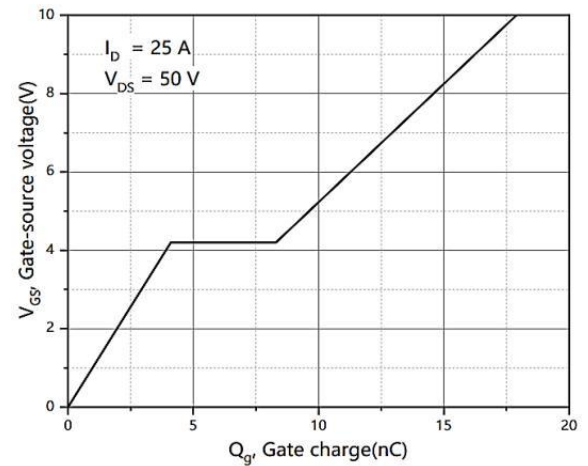


Figure 4. Typ. gate charge

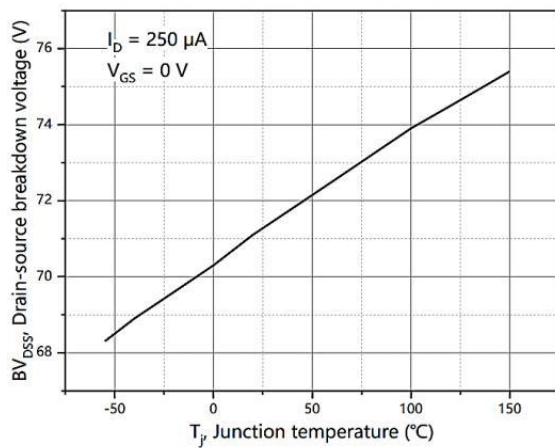


Figure 5. Drain-source breakdown voltage

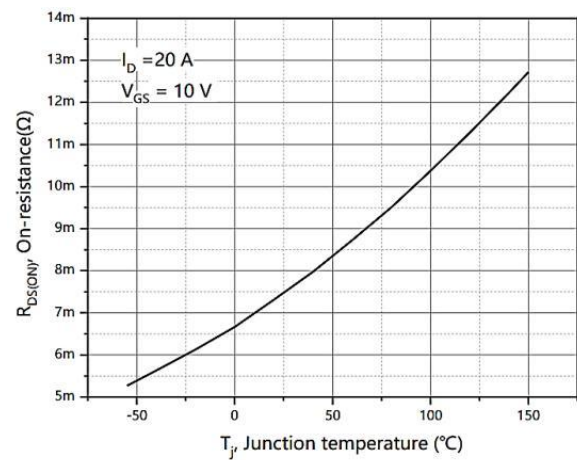


Figure 6. Drain-source on-state resistance

Typical Characteristics

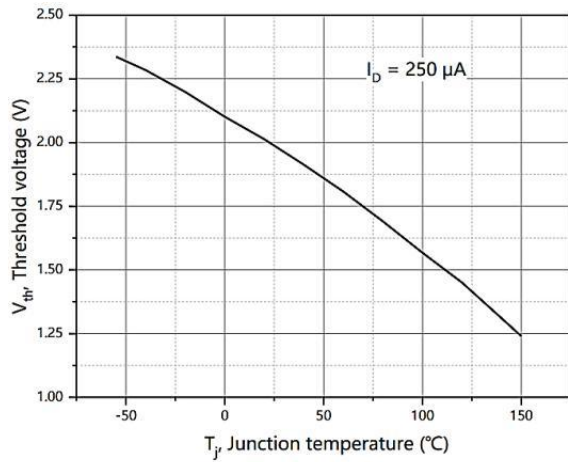


Figure 7. Threshold voltage

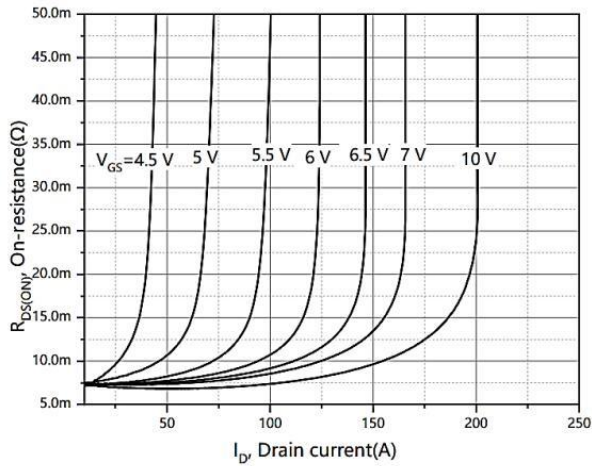


Figure 9. Drain-source on-state resistance

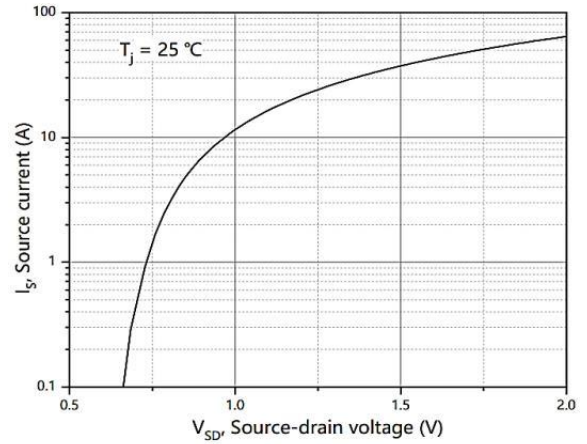


Figure 8. Forward characteristic of body diode

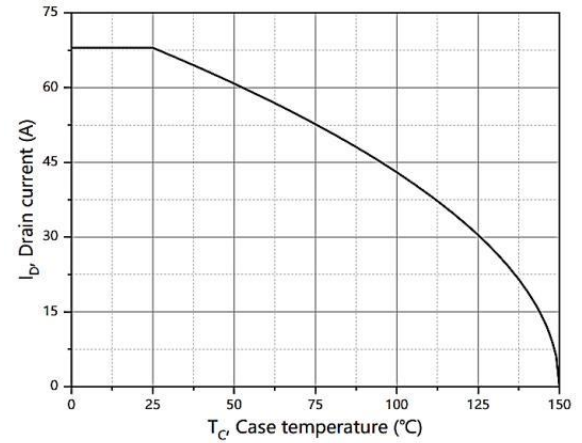


Figure 10. Drain current

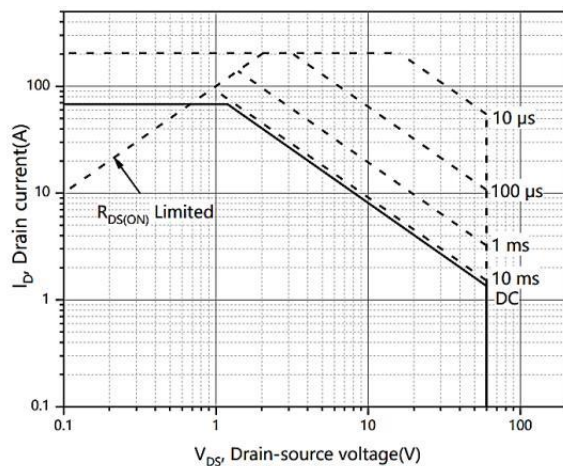


Figure 11. Safe operation area $T_C=25\text{ }^{\circ}\text{C}$

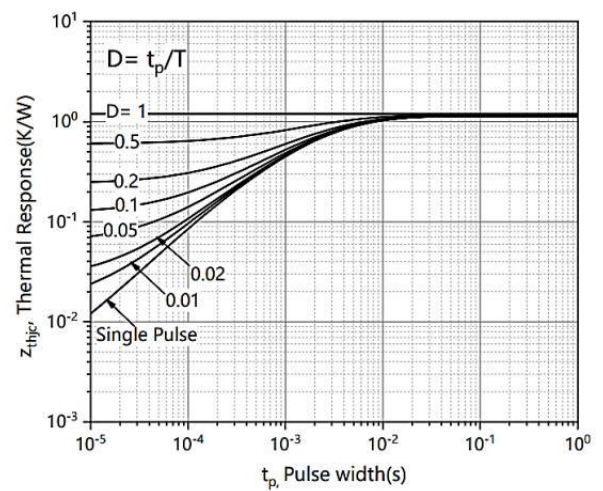
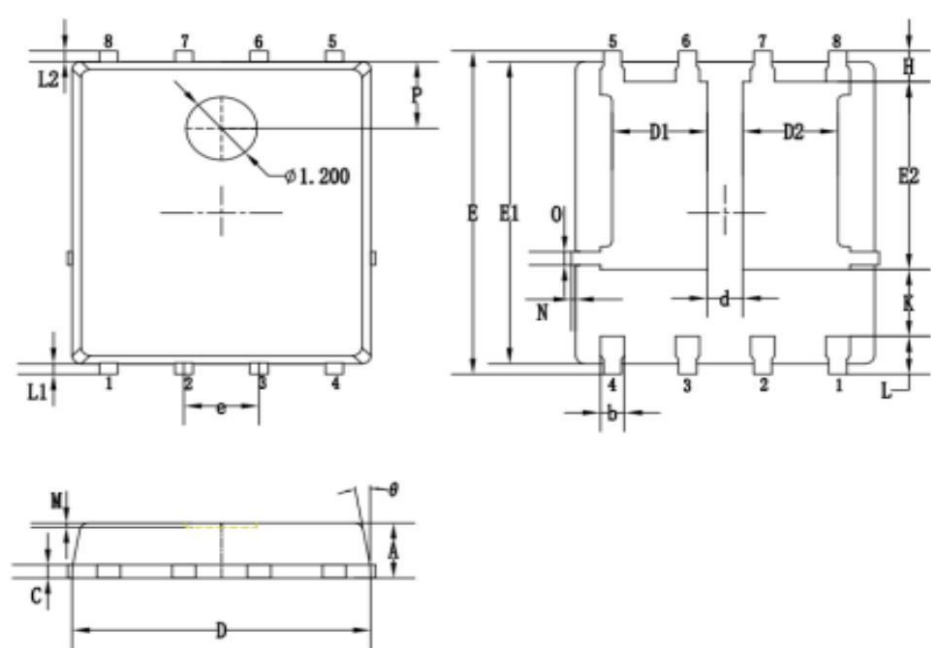


Figure 12. Max. transient thermal impedance

Package Mechanical Data-PDFN5*6-8L Double



Symbols	Millimeters		
	MIN.	NOM.	MAX.
A	0.9	1.05	1.2
b	0.35	0.4	0.5
C	0.2	0.25	0.35
D	4.9	5.05	5.2
D1/D2	1.51	1.61	1.71
d	0.5	0.6	0.7
E	6	6.15	6.3
E1	5.6	5.75	5.9
E2	3.47	3.57	3.67
e	1.27 BSC,		
H	0.48	0.58	0.68
K	1.17	1.27	1.37
L	0.64	0.74	0.84
L1/L2	0.20 REF.		
θ	8°	10°	12°
M	0.08 REF.		
N	0	-	0.15
O	0.25 REF.		
P	1.28 REF.		

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
TAPING	PDFN5*6-8L		5000