

Description

The SX80P01NF uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

$V_{DS} = -12V$ $I_D = -80A$

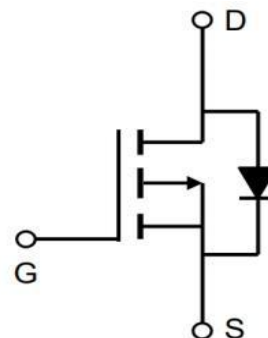
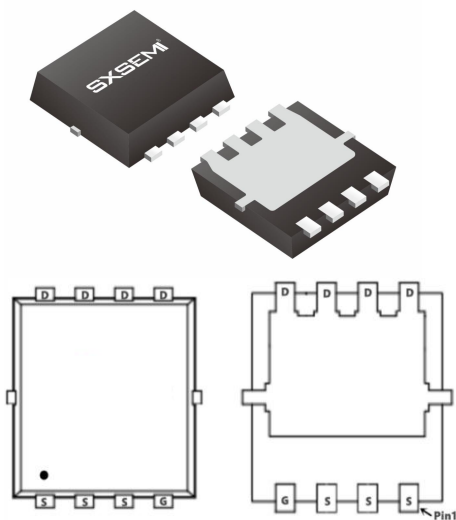
$R_{DS(ON)} < 4.5m\Omega$ @ $V_{GS}=10V$

Application

Load switch

electronic cigarette

PDFN5*6-8L



Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	-12	V
VGS	Gate-Source Voltage	±12	V
ID	Drain Current – Continuous (Tc=25°C)	-80	A
	Drain Current – Continuous (Tc=100°C)	-54	A
IDM	Drain Current – Pulsed ¹	-240	A
P _D	Power Dissipation (Tc=25°C)	41.67	W
	Power Dissipation – Derate above 25°C	0.33	W/°C
TSTG	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C
R _{θJA}	Thermal Resistance Junction to ambient	62	°C/W
R _{θJC}	Thermal Resistance Junction to Case	3	°C/W

Electrical Characteristics (T_J=25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BVDSS	Drain-Source Breakdown Voltage	VGS=0V , ID=-250uA	-15	-17	---	V
ΔBVDSS/ΔTJ	BVDSS Temperature Coefficient	Reference to 25°C , ID=-1mA	---	-0.008	---	V/°C
RDS(ON)	Static Drain-Source On-Resistance	VGS=-4.5V , ID=-20A	---	3.5	4.5	mΩ
		VGS=-2.5V , ID=-20A	---	4.8	6.0	
VGS(th)	Gate Threshold Voltage	VGS=VDS , ID =-250uA	-0.4	-0.6	-1.0	V
ΔVGS	VGS(th) Temperature Coefficient		---	-3.44	---	mV/°C
IDSS	Drain-Source Leakage Current	VDS=-20V , VGS=0V , TJ=25°C	---	---	-1	uA
		VDS=-16V , VGS=0V , TJ=125°C	---	---	-30	uA
IGSS	Gate-Source Leakage Current	VGS=±12V , VDS=0V	---	---	±500	nA
gfs	Forward Transconductance	VDS=-10V , IS=-3A	---	30	---	S
Qg	Total Gate Charge2 , 3	VDS=-16V , VGS=-4.5V , ID=-5A	---	149	225	nC
Qgs	Gate-Source Charge2 , 3		---	14.4	22	
Qgd	Gate-Drain Charge2 , 3		---	42.8	65	
Td(on)	Turn-On Delay Time2 , 3	VDD=-15V , VGS=-4.5V , RG=25 ID=-1A	---	21.2	42	nS
Tr	Rise Time2 , 3		---	20.6	40	
Td(off)	Turn-Off Delay Time2 , 3		---	26	52	
Tf	Fall Time2 , 3		---	400	600	
Ciss	Input Capacitance	VDS=-15V , VGS=0V , F=1MHz	---	6800		pF
Coss	Output Capacitance		---	769		
Crss	Reverse Transfer Capacitance		---	726		
Rg	Gate resistance	VGS=0V, VDS=0V, F=1MHz	---	2.6	---	Ω
IS	Contineous Source Current	Vg=Vd=0V, Force Current	--	--	-90	A
ISM	Pulsed Source Current		--	--	-180	
VSD	Diode Forward Voltage	Vgs=0V Is=1ATj=25°C	--	--	-1	V

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

Typical Characteristics

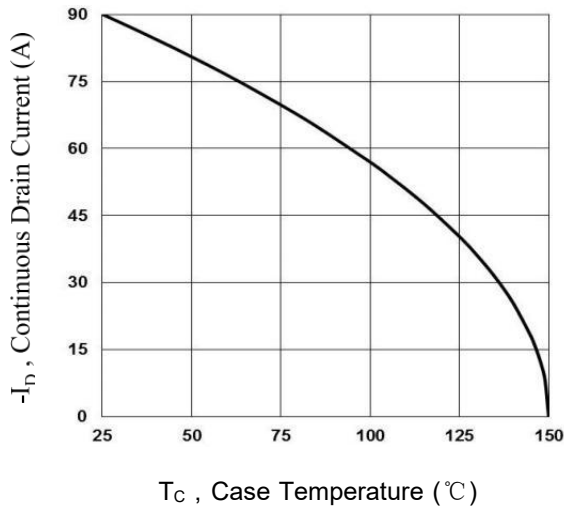


Fig.1 Continuous Drain Current

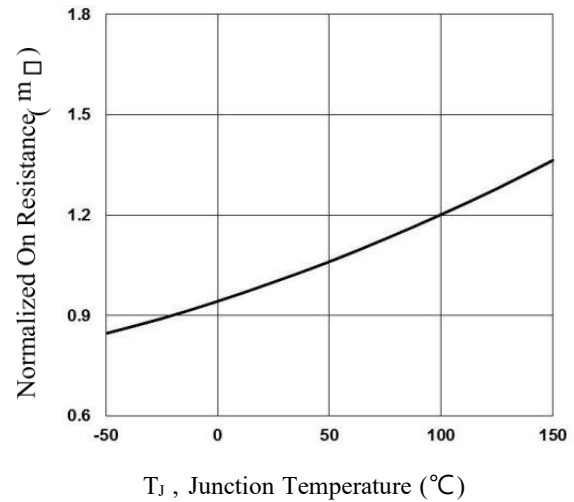


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

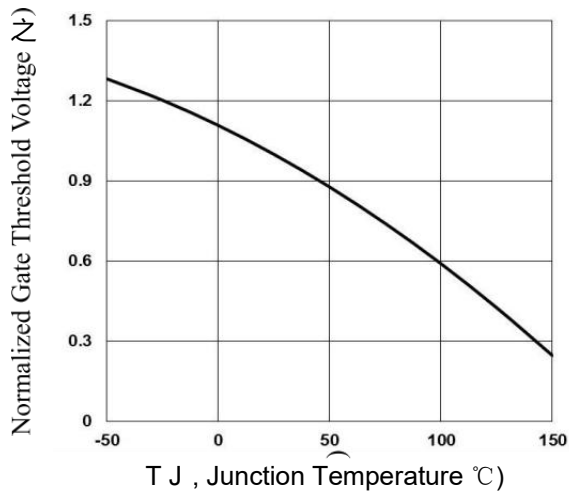


Fig.3 Normalized V_{th} vs. T_J

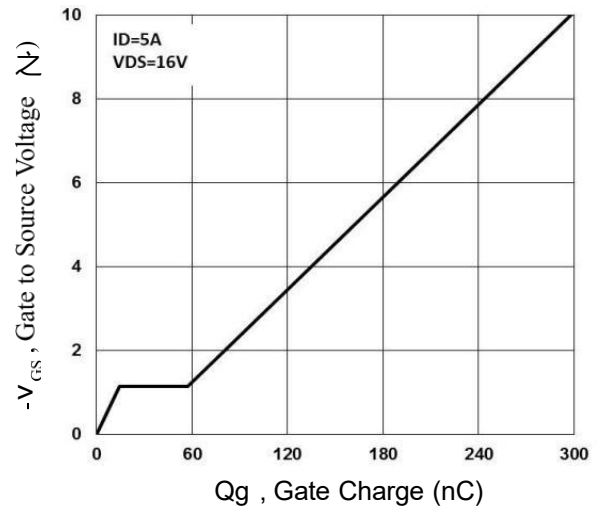


Fig.4 Gate Charge Waveform

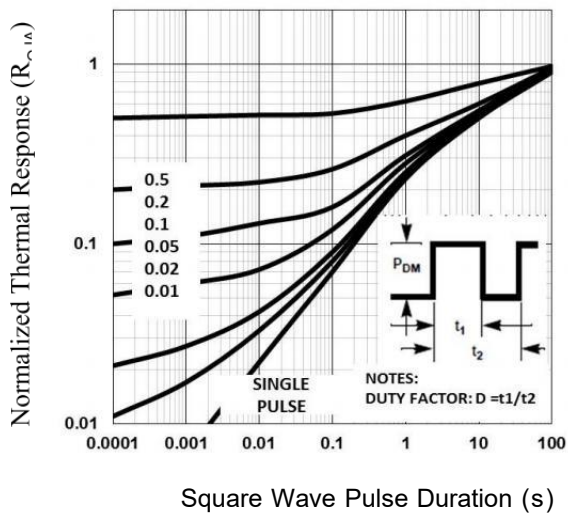


Fig.5 Normalized Transient Response

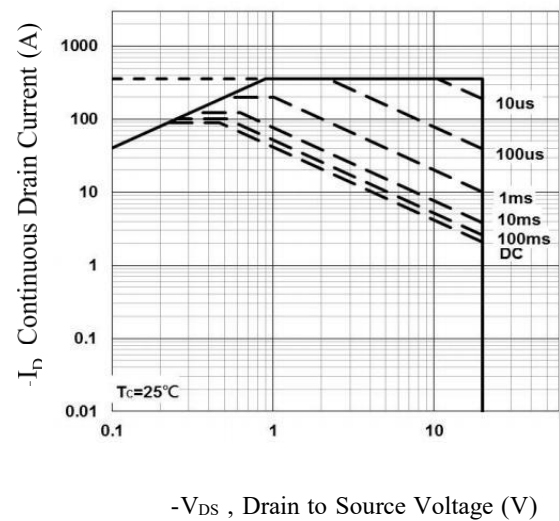


Fig.6 Maximum Safe Operation Area

Typical Characteristics

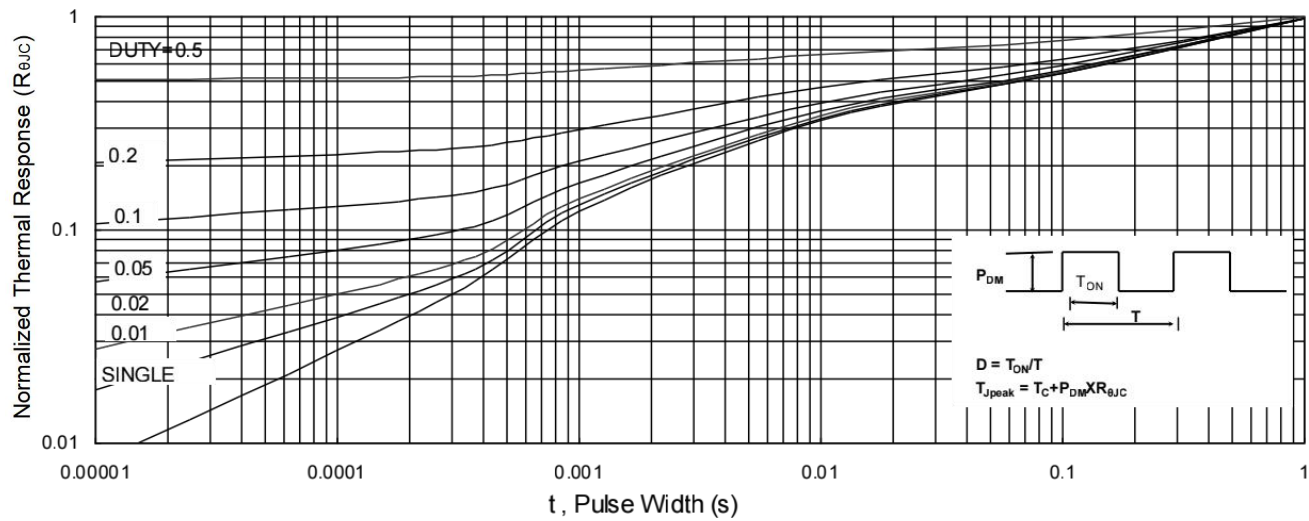


Fig.9 Normalized Maximum Transient Thermal Impedance

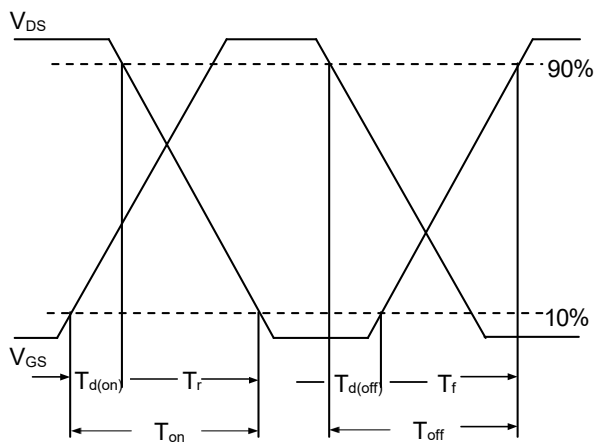


Fig.10 Switching Time Waveform

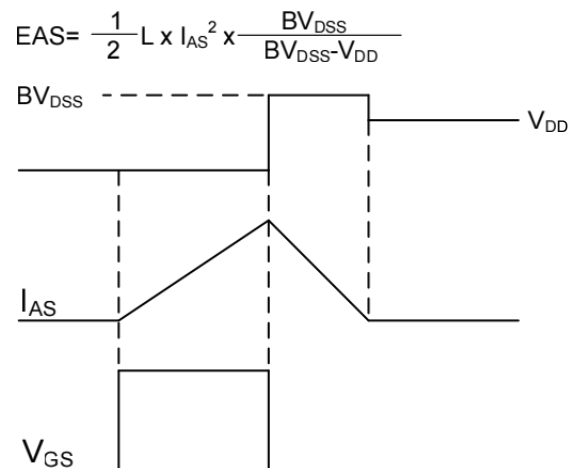
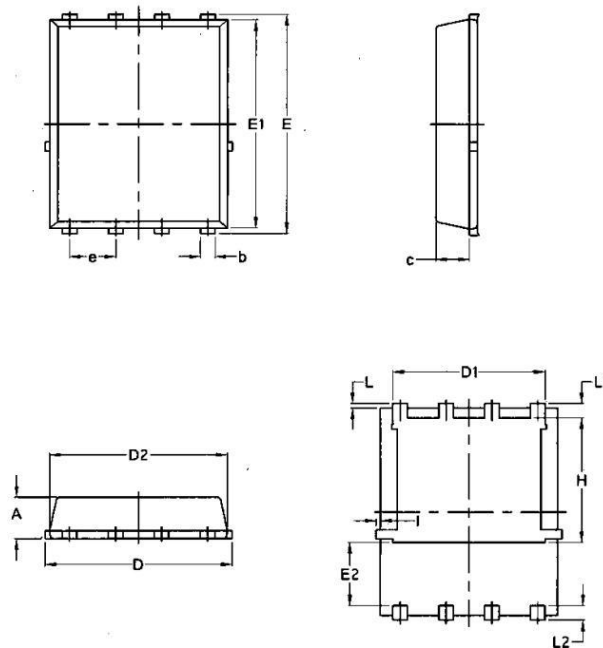


Fig.11 Unclamped Inductive Switching Waveform

Package Mechanical Data-PDFN5*6-8L-JQ Single



Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070

Package Marking and Ordering Information

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