

Description

The SX85N08T uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and

operation with gate voltages as low as 10V.

This device is suitable for use as a Battery protection or in other Switching application.

General Features

$V_{DS} = 80V$ $I_D = 85A$

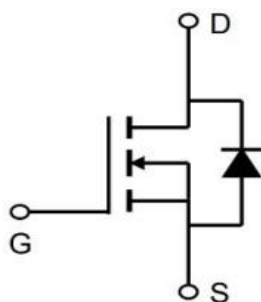
$R_{DS(ON)} < 8.5m\Omega$ $V_{GS} = 10V$

Application

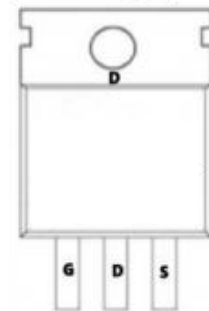
Battery protection

Load switch

Uninterruptible power supply



TO-263-3L



Absolute Maximum Ratings ($T_c = 25^\circ C$ unless otherwise noted)

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage ($V_{GS}=0V$)	80	V
VGS	Gate-Source Voltage ($V_{DS}=0V$)	± 20	V
ID@TC=25°C	Continuous Drain Current, V_{GS} @ 10V	85	A
ID@TC=100°C	Continuous Drain Current, V_{GS} @ 10V	55	A
IDM	Drain Current-Continuous@ Current-Pulsed	300	A
PD@TC=25°C	Maximum Power Dissipation($T_c=25^\circ C$)	133	W
EAS	Single pulse avalanche energy	550	mJ
Tstg, Tj	Operation and storage temperature	-55 to 150	°C
RθJC	Thermal Resistance Junction-Case	0.94	°C/W
RθJA	Thermal Resistance Junction-Ambient	62.5	°C/W

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V(BR)DSS	Drain-source breakdown voltage	V _{GS} =0V, I _D =250uA	80	85		V
VGS(th)	Gate threshold voltage	V _{DS} =V _{GS} , I _D =250uA T _J =25°C	2.0	3.0	4.0	V
IDSS	Zero gate voltage drain current	V _{DS} =80V, V _{GS} =0V T _J =25°C	-		1	μA
IDSS	Zero gate voltage drain current	V _{DS} =80V, V _{GS} =0V T _J =125°C		- 5		μA
IGSS	Gate-source leakage current	V _{GS} =20V, V _{DS} =0V	-	-	100	nA
RDS(on)	Drain-source on-state resistance	V _{GS} = 10V, I _D =50A, T _J =25°C	-	6.5	8.5	mΩ
gfs	Transconductance	V _{DS} =5V, I _D =50A	-	80	-	S
Ciss	Input Capacitance	V _{GS} =0V, V _{DS} =40V, f= 1MHz	-	2948	-	pF
Coss	Output Capacitance		-	354	-	pF
Crss	Reverse Transfer Capacitance		-	198	-	pF
Q _G	Gate Total Charge	V _{GS} = 10V, V _{DS} =40V, I _D =50A	-	61	-	nC
Q _{gs}	Gate-Source charge		-	13	-	nC
Q _{gd}	Gate-Drain charge		-	24	-	nC
td(on)	Turn-on delay time	T _J =25°C, V _{GS} = 10V, V _{DS} =40V, R _L =3Ω	-	24	-	ns
t _r	Rise time		-	15	-	ns
td(off)	Turn-off delay time		-	52	-	ns
t _f	Fall time		-	17	-	ns
R _G	Gate resistance	V _{GS} =0V, V _{DS} =0V, f= 1MHz	-	1.2	-	Ω
VSD	Body Diode Forward Voltage	V _{GS} =0V, I _{SD} =50A	-	0.9	1.2	V
trr	Body Diode Reverse Recovery Time	I _F =20A, dI/dt=500A/μs	-	40	-	ns
Qrr	Body Diode Reverse Recovery Charge	I _F =20A, dI/dt=500A/μs	-	61	-	nC

Note :

- 1、The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2、The data tested by pulsed , pulse width .The EAS data shows Max. rating .
- 3、The test cond ≅ 300us duty cycle ≅ 2%, duty cycle ition is V_{DD}=64V_{GS}=10V, L=0. 1mH, I_{AS}=41A
- 4、The power dissipation is limited by 175°C junction temperature
- 5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Typical Characteristics

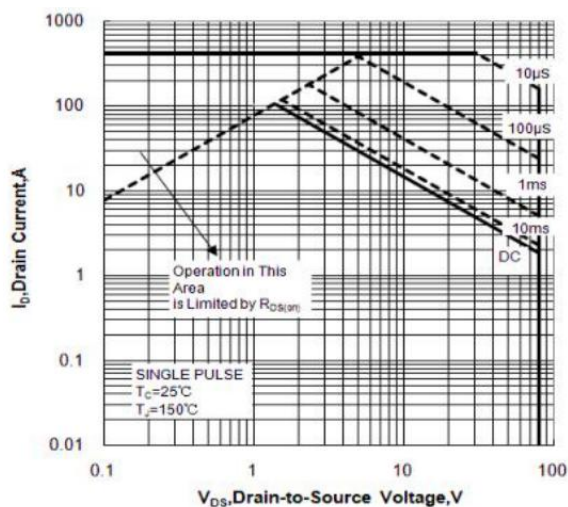


Figure 1. Maximum Safe Operating Area

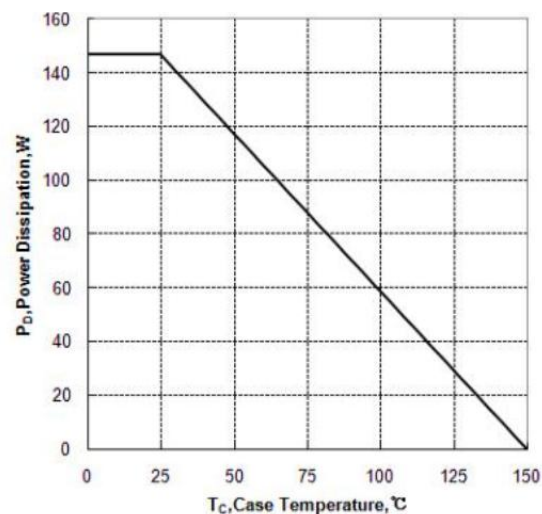


Figure 2. Maximum Power Dissipation vs Case Temperature

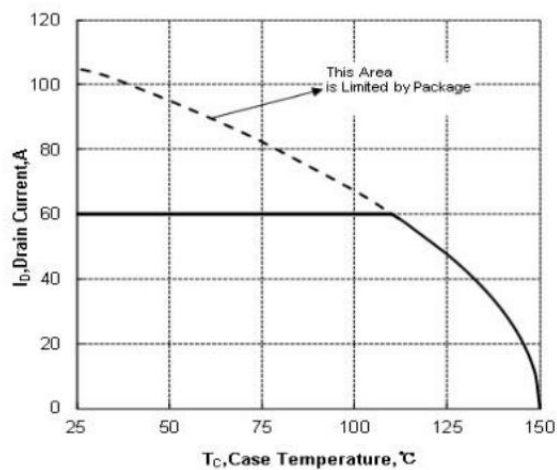


Figure 3. Maximum Continuous Drain Current vs

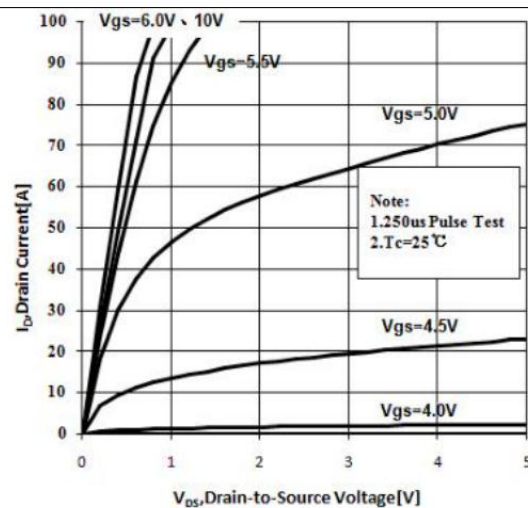


Figure 4. Typical output Characteristics

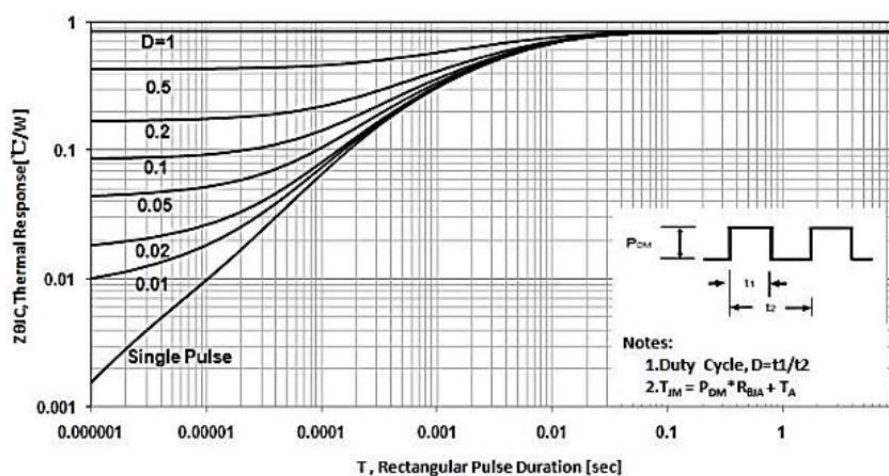


Figure 5 Maximum Effective Thermal Impedance, Junction to Case

Typical Characteristics

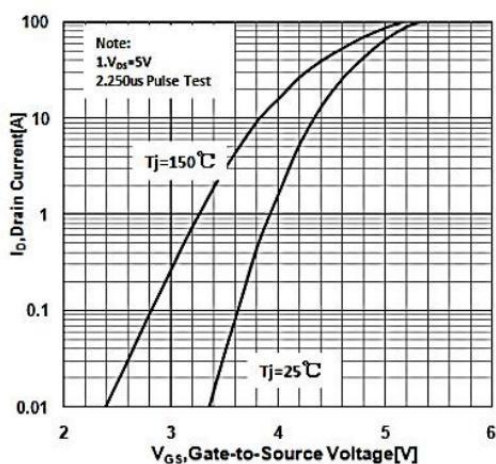


Figure 6 Typical Transfer Characteristics

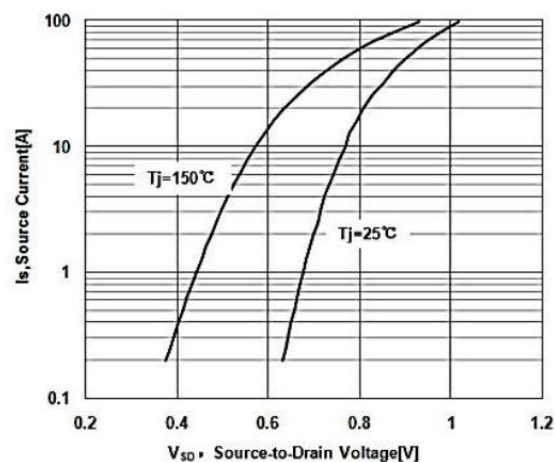


Figure 7 Typical Body Diode Transfer Characteristics

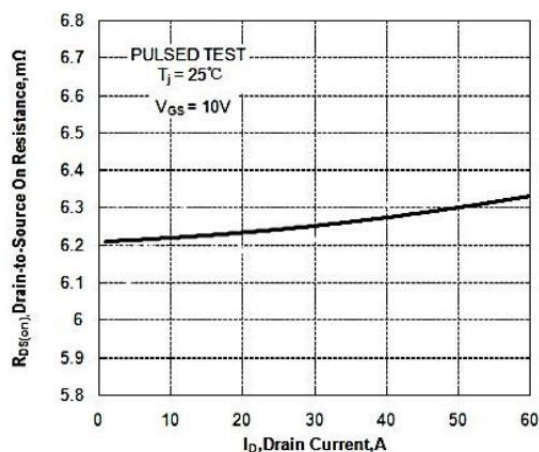


Figure 8. Drain-to-Source On Resistance vs Drain Current

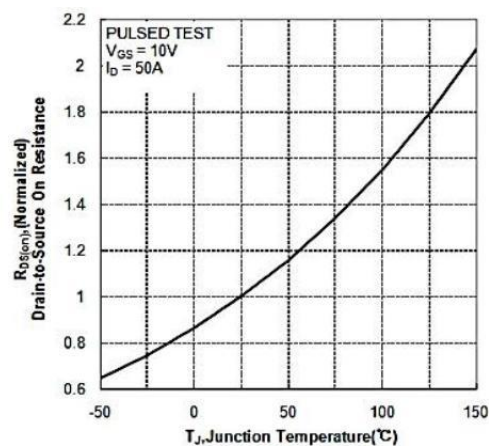


Figure 9. Normalized On Resistance vs Junction Temperature

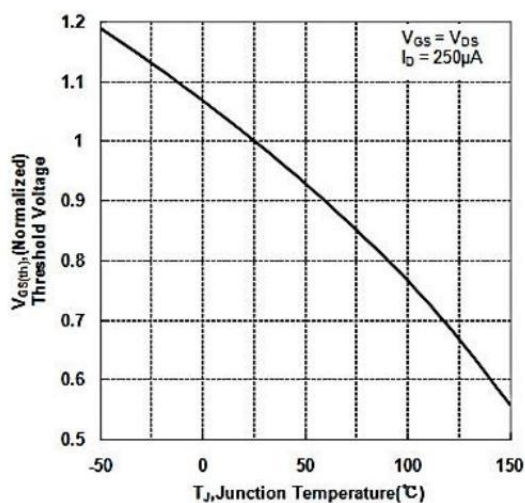


Figure10. Normalized Threshold Voltage vs Junction Temperature

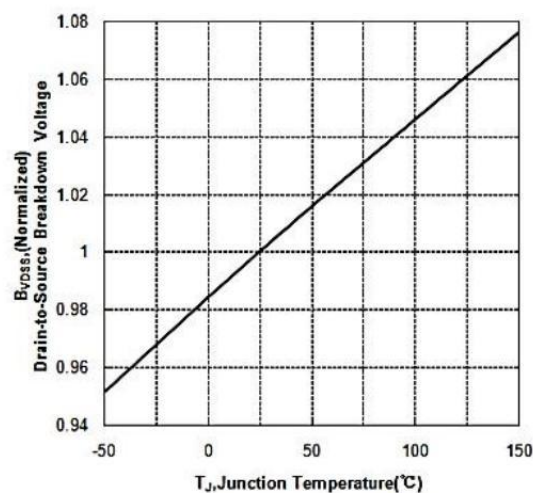
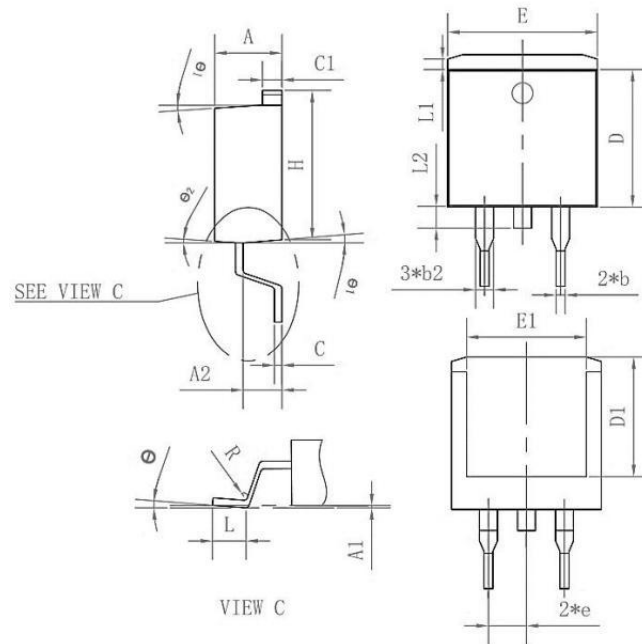


Figure 11. Normalized Breakdown Voltage vs Junction Temperature

Package Mechanical Data-TO-263-3L-SLK



Symbol	mm		
	Mim	Nom	Max
A	4.35	4.47	4.60
A1	0.09	0.10	0.11
A2	2.30	2.40	2.70
b	0.70	0.80	1.00
b2	1.25	1.36	1.50
C	0.45	0.50	0.65
C1	1.29	1.30	9.40
D	9.10	9.20	9.30
D1	7.90	8.00	8.10
E	9.85	10.00	10.20
E1	7.90	8.00	8.10
H	15.30	15.50	15.70
e	-	2.54	-
L	2.34	2.54	2.74
L1	1.00	1.10	1.20
L2	1.30	1.40	1.50
R	0.24	0.25	0.26
θ	0°	4°	8°
θ1	4°	7°	10°
θ2	0°	3°	6°

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
TAPING	TO-263-3L		800