

Description

The SX80N07T uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with High EAS. This device is suitable for use as a Battery protection or in other Switching application.

General Features

$V_{DS} = 68V$ $I_D = 80A$

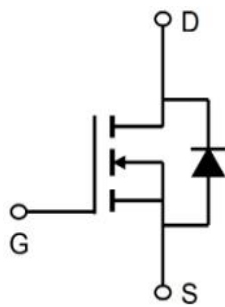
$R_{DS(ON)} < 9.0m\Omega$ @ $V_{GS}=10V$

Application

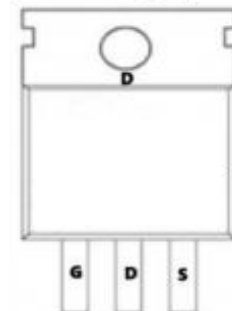
Battery protection

Load switch

Uninterruptible power supply



TO-263-3L



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

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	68	V
VGS	Gate-Source Voltage	± 20	V
$I_D @ T_c=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^1$	80	A
$I_D @ T_c=100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^1$	52	A
IDM	Pulsed Drain Current ²	320	A
EAS	Single Pulse Avalanche Energy ³	110	mJ
IAS	Avalanche Current	22	A
$P_D @ T_c=25^\circ C$	Total Power Dissipation ⁴	103	W
TSTG	Storage Temperature Range	-55 to 150	$^\circ C$
TJ	Operating Junction Temperature Range	-55 to 150	$^\circ C$
$R_{\theta JA}$	Thermal Resistance Junction-ambient ¹	63	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	1.46	$^\circ C/W$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BVDSS	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	68	72	---	V
ΔBVDSS/ΔT _J	BVDSS Temperature Coefficient	Reference to 25°C , I _D =1mA	---	0.023	---	V/°C
RDS(ON)	Static Drain-Source On-Resistance ²	V _{GS} =10V , I _D =10A	---	7.5	9.0	mΩ
VGS(th)	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2.0	3.0	4.0	V
ΔVGS(th)	VGS(th) Temperature Coefficient		---	-4.2	---	mV/°C
IDSS	Drain-Source Leakage Current	V _{DS} =68V , V _{GS} =0V , T _J =25°C	---	---	1	uA
		V _{DS} =68V , V _{GS} =0V , T _J =55°C	---	---	5	
IGSS	Gate-Source Leakage Current	V _{GS} =±20V , V _{DS} =0V	---	---	±100	nA
Q _g	Total Gate Charge (4.5V)	V _{DS} =30V, I _D =30A, V _{GS} =10V	---	35	---	nC
Q _{gs}	Gate-Source Charge		---	11	---	
Q _{gd}	Gate-Drain Charge		---	9	---	
Td(on)	Turn-On Delay Time	V _{DS} =30V, I _D =30A, R _{GEN} =3Ω, V _{GS} =10V	---	15	---	ns
T _r	Rise Time		---	90	---	
Td(off)	Turn-Off Delay Time		---	45	---	
T _f	Fall Time		---	30	---	
Ciss	Input Capacitance	V _{DS} =15V , V _{GS} =0V , f=1MHz	---	4000	---	pF
Coss	Output Capacitance		---	267	---	
Crss	Reverse Transfer Capacitance		---	250	---	
IS	Continuous Source Current ^{1,5}	V _G =V _D =0V , Force Current	---	---	80	A
ISM	Pulsed Source Current ^{2,5}		---	---	320	A
VSD	Diode Forward Voltage ²	V _{GS} =0V, I _S =80A	---	---	1.2	V
trr	Reverse Recovery Time	T _J =25°C I _F =20A, dI/dt=100A/μs	---	78	---	nS
Q _{rr}	Reverse Recovery Charge		---	51	---	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 T_J =25°C, V_{DD} =35V, V_G =10V, R_G =25Ω, L=0.5mH, I_{AS} =21A
- 4、 The power dissipation is limited by 175°C junction temperature
- 5、 The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

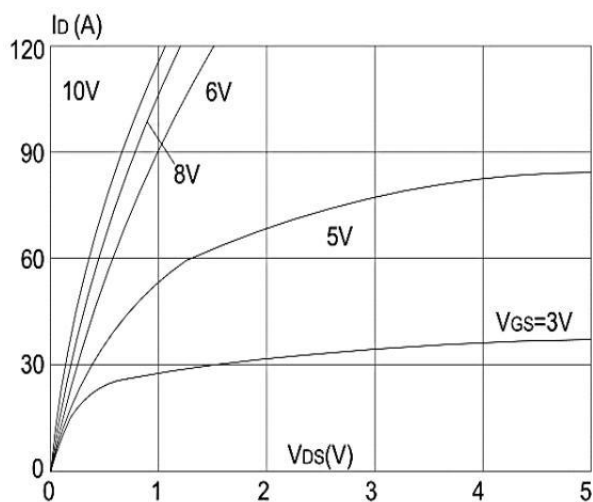


Figure1: Output Characteristics

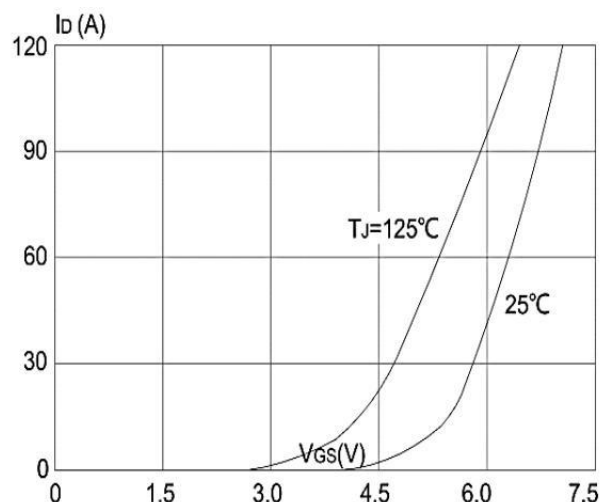


Figure 2: Typical Transfer Characteristics

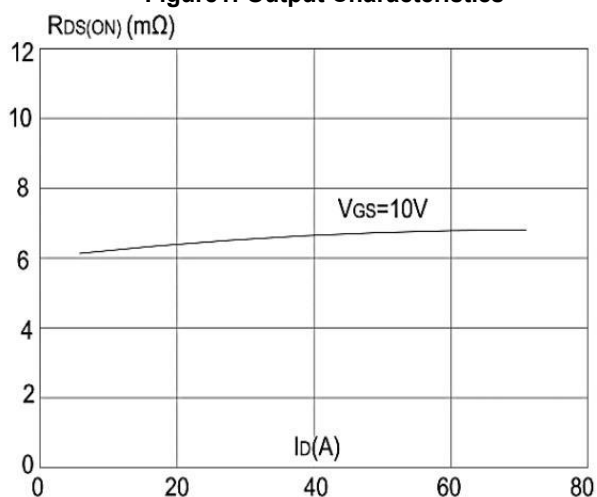


Figure 3: On-resistance vs. Drain Current

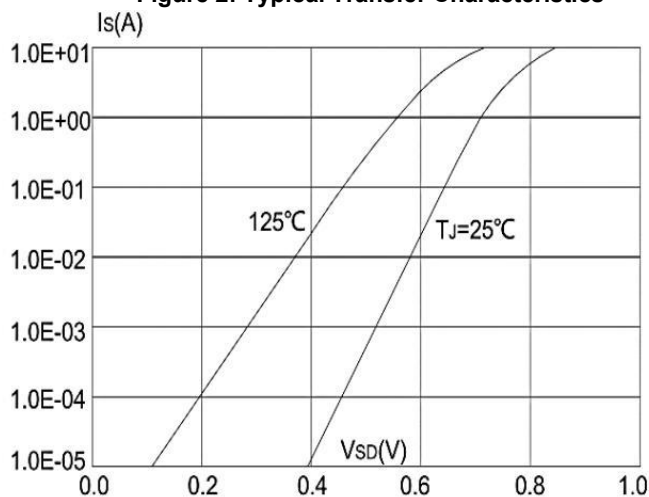


Figure 4: Body Diode Characteristics

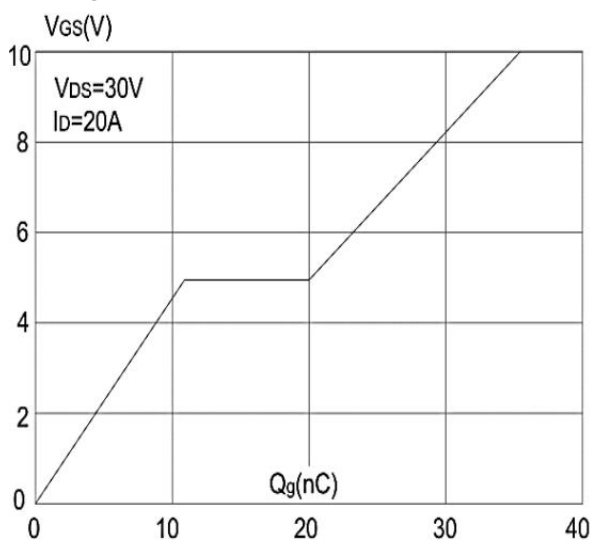


Figure 5: Gate Charge Characteristics

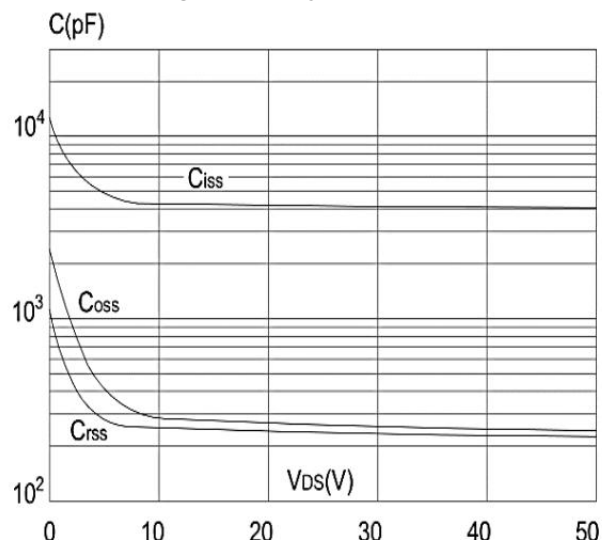


Figure 6: Capacitance Characteristics

Typical Characteristics

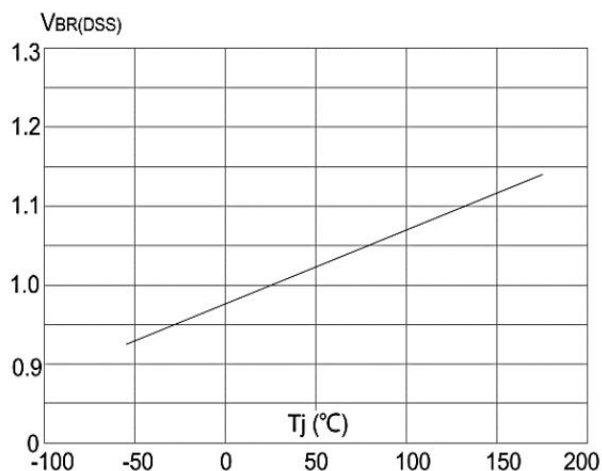


Figure 7: Normalized Breakdown Voltage vs Junction Temperature

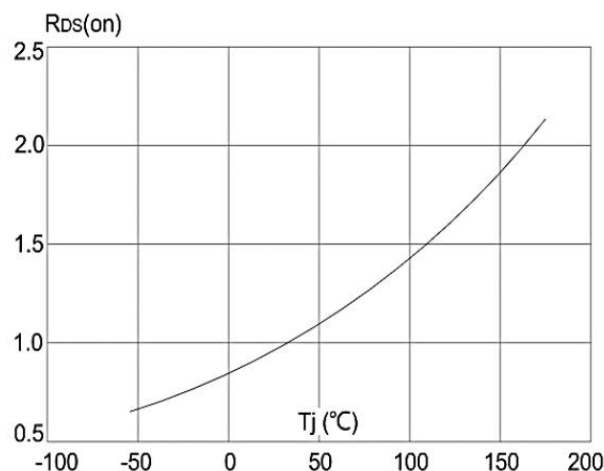


Figure 8: Normalized on Resistance vs. Junction Temperature

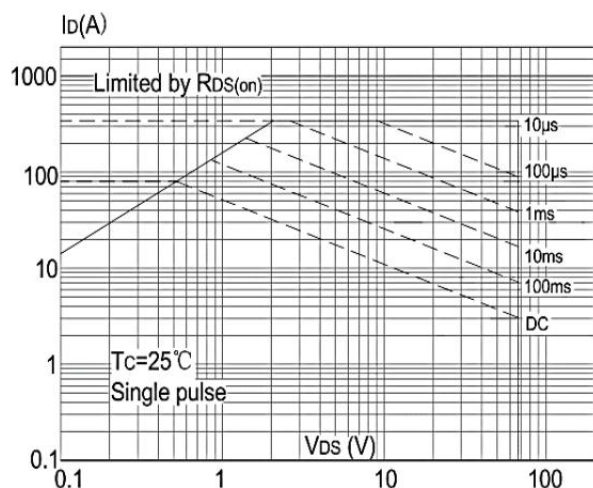


Figure 9: Maximum Safe Operating Area

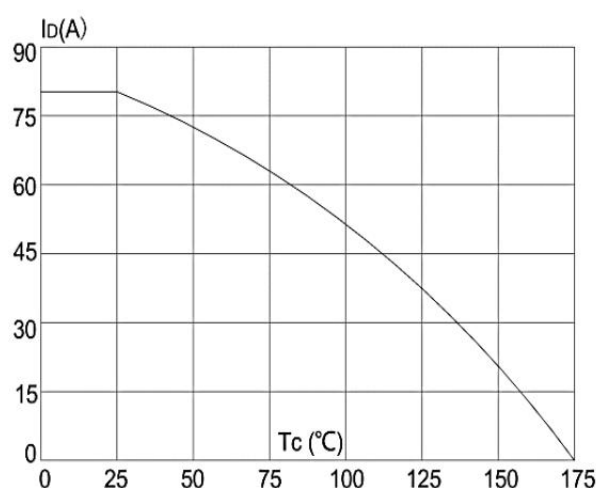


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

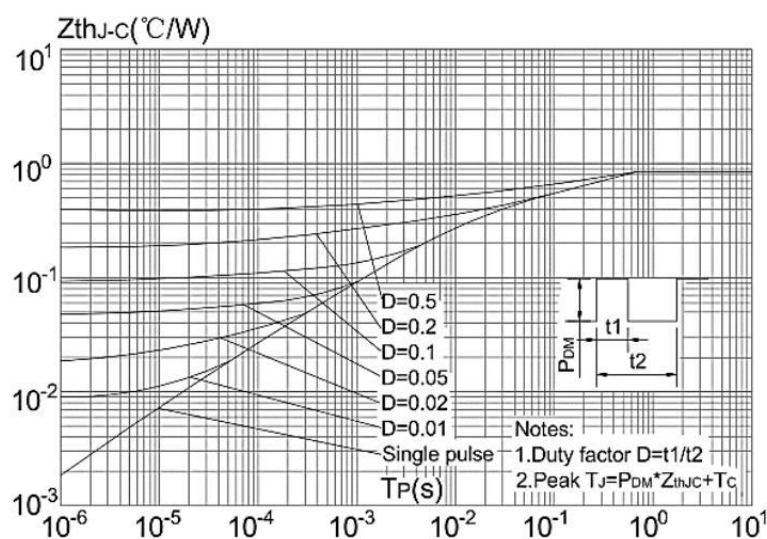
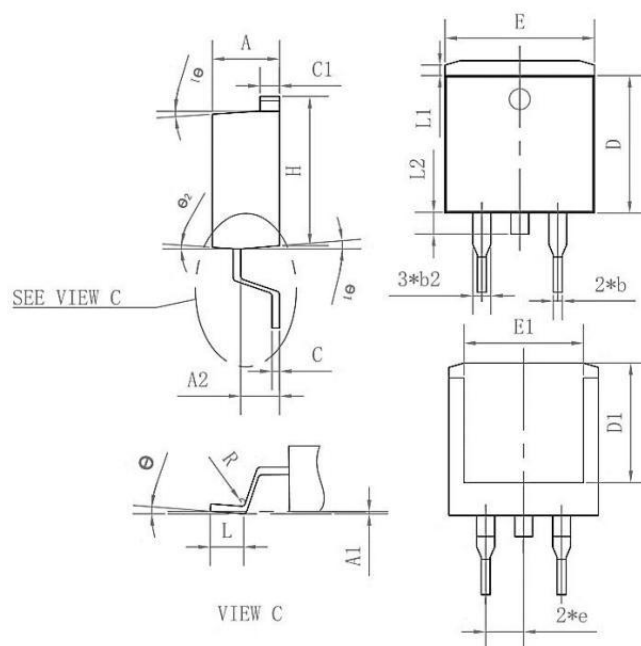


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambien

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



Symbol	Common			
	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