

Description

The SXJ230N65MP protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. They feature large cross-sectional area junctions for conducting high transient currents, offer desirable electrical characteristics for board level protection, such as fast response time, low operating voltage. It gives designer the flexibility to protect one bi-directional line in applications where arrays are not practical.

General Features

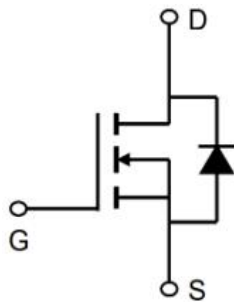
$V_{DS} = 650V$ (Type: 730V) $IDM = 230A$

$R_{DS(ON)} < 42m\Omega$ @ $V_{GS} = 10V$

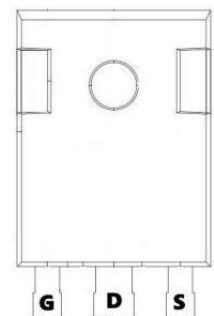
Application

Uninterruptible Power Supply(UPS)

Power Factor Correction (PFC)



TO-247-3L



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

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage ($V_{GS} = 0V$)	650	V
I_D	Continuous Drain Current	70	A
IDM	Pulsed Drain Current (note1)	230	A
V_{GS}	Gate-Source Voltage	± 30	V
E_{AS}	Single Pulse Avalanche Energy (note2)	4469	mJ
I_{AS}	Avalanche current	48	A
P_{tot}	Power Dissipation ($T_c = 25^\circ C$)	500	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range	$-55 \sim +150$	$^\circ C$
R_{thJC}	Thermal Resistance, Junction-to-Case	0.28	$^\circ C/W$
R_{thJA}	Thermal Resistance, Junction-to-Ambient	63	$^\circ C/W$

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V(BR)DSS	Drain-source breakdown voltage	V _{GS} =0V, I _D =1mA	650	-	-	V
V(GS)th	Gate threshold voltage	V _{DS} =V _{GS} , I _D =250uA	4	-	5	V
I _{DSS}	Zero gate voltage drain current	V _{DS} =650V, V _{GS} =0V, T _J =25°C	-	-	3	μA
I _{GSS}	Gate-source leakage current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(on)}	Drain-source on-state resistance	V _{GS} =10V, I _D =10A	-	38	41	mΩ
g _{fs}	Forward Transconductance	I _{SD} =38A, V _{DS} =20V	-	72	-	S
C _{iss}	Input capacitance	V _{GS} =0V, V _{DS} =100V, f=1MHz	-	7510	-	pF
C _{oss}	Output capacitance		-	224	-	pF
C _{rss}	Reverse transfer capacitance		-	32	-	pF
t _{d(on)}	Turn-on delay time	V _{DD} =380V, V _{GS} =10V, I _D =38A, R _G =4.7Ω	-	54	-	ns
t _r	Rise time		-	66	-	ns
t _{d(off)}	Turn-off delay time		-	174	-	ns
t _f	Fall time		-	47	-	ns
Q _{gs}	Gate to source charge	V _{DD} =380V, I _D =38A, V _{GS} =4.5V	-	41	-	nC
Q _{gd}	Gate to drain charge		-	80	-	nC
Q _g	Gate charge total		-	179	-	nC
V _{SD}	Diode forward voltage	V _{GS} =0V, I _F =1A, T _J =25°C	-	-	1.08	V
t _{rr}	Reverse recovery time	I _F =30A, di _F /dt=100A/μs, T _J =25°C	-	205	-	ns
Q _{rr}	Reverse recovery charge	I _F =50A, di _F /dt=100A/μs, T _J =25°C	-	1477	-	μC

Note :

- 1、The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2、The EAS data shows Max. rating . L=0.5mH, I_{AS} =3.2A, V_{DD} =50V, R_G=25Ω
- 3、The test condition is Pulse Test: I_{SD} ≤ I_D, di/dt = 100A/us, V_{DD} ≤ BVDSS, Starting at T_J =25°C
- 4、The power dissipation is limited by 150°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

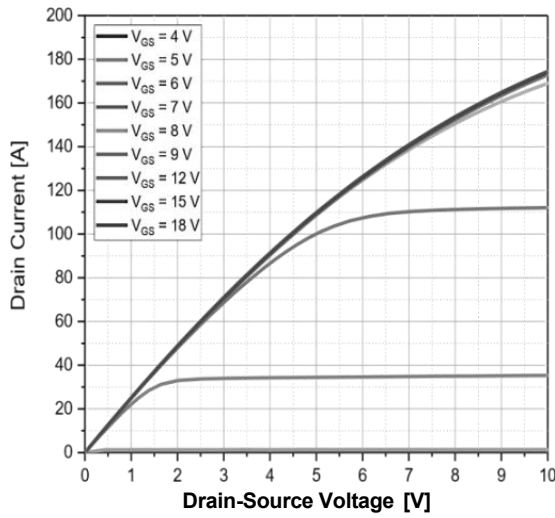


Figure1: 1: Typ. output characteristics

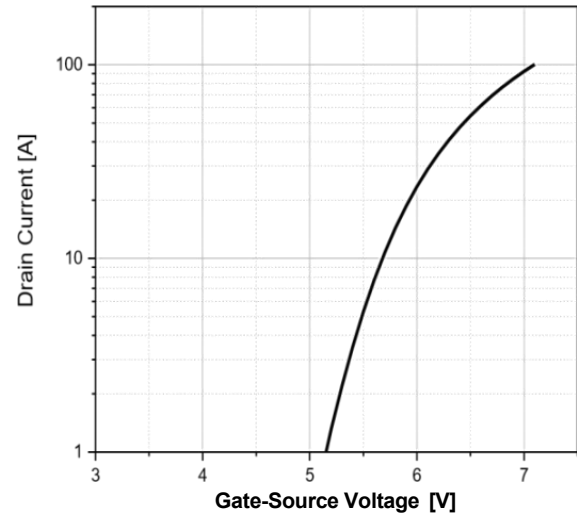


Figure2: transfer characteristics

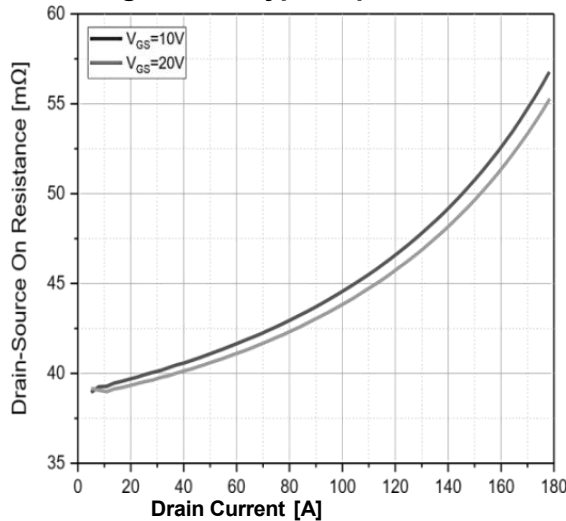


Figure3 drain-source on-state resistance

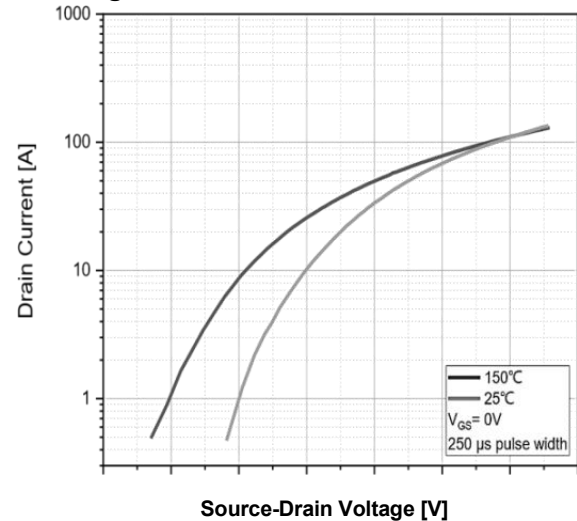


Figure4 Forward characteristics of reverse diode

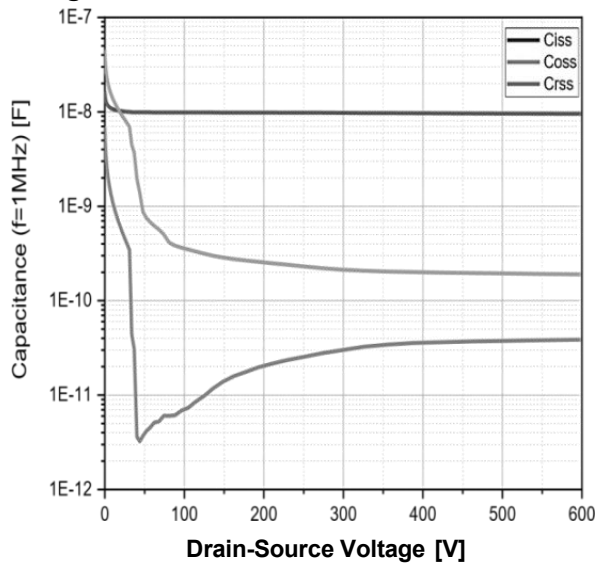


Figure5 Typ. Capacitances

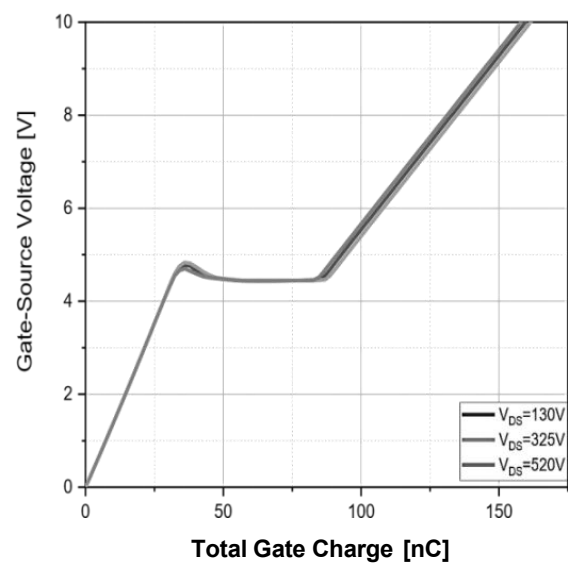
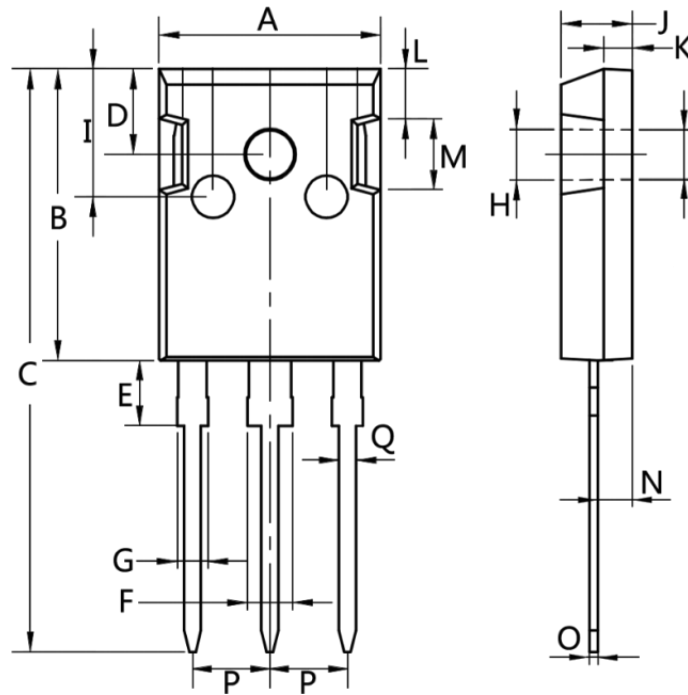


Figure6 Typ. gate charge

Package Mechanical Data-TO-247-3L



Dim.	Min.	Max.
A	15.0	16.0
B	20.0	21.0
C	41.0	42.0
D	5.0	6.0
E	4.0	5.0
F	2.5	3.5
G	1.75	2.5
H	3.0	3.5
I	8.0	10.0
J	4.9	5.1
K	1.9	2.1
L	3.5	4.0
M	4.75	5.25
N	2.0	3.0
O	0.55	0.75
P	5.44 (BSC)	
Q	1.2	1.3

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
TAPING	TO-247-3L		330