

Description

The SXG130N06D uses advanced trench 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

$V_{DS} = 60V$ $I_D = 130A$

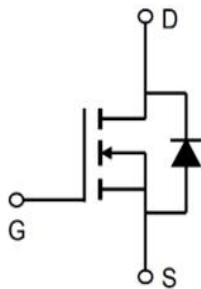
$R_{DS(ON)} < 3.2m\Omega$ @ $V_{GS}=10V$

Application

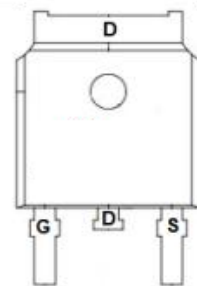
Battery protection

Load switch

Uninterruptible power supply



TO-252-3L



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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_c=25^\circ\text{C}$	Continuous Drain Current ^{1,6}	130	A
$I_D @ T_c=100^\circ\text{C}$	Continuous Drain Current ^{1,6}	66	A
I_{DM}	Pulsed Drain Current ²	240	A
E_{AS}	Single Pulse Avalanche Energy ³	101	mJ
I_{AS}	Avalanche Current	45	A
$P_D @ T_c=25^\circ\text{C}$	Total Power Dissipation ⁴	168	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	0.89	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	1.5	$^\circ\text{C/W}$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D =250μA	60	67		V
IDSS	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V			1	μA
IGSS	Gate-Body Leakage Current	V _{GS} = ±20V, V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =250μA	1.2	1.6	2.5	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} = 10V, I _D =20A		2.35	3.2	mΩ
		V _{GS} = 4.5V, I _D =15A		2.9	3.6	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=100KHZ		5950		pF
C _{oss}	Output Capacitance			1250		
C _{rss}	Reverse Transfer Capacitance			85		
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =50V, I _D =50A		93		nC
Q _{gs}	Gate-Source Charge			17		
Q _{gd}	Gate-Drain Charge			14		
Q _{rr}	Reverse Recovery Charge	I _F =25A, di/dt=100A/us		73		
t _{rr}	Reverse Recovery Time			68		
t _{d(on)}	Turn-on Delay Time	V _{GS} =10V, V _{DD} =30V, I _D =25A R _{GEN} =2Ω		22.5		ns
t _r	Turn-on Rise Time			6.7		
t _{d(off)}	Turn-off Delay Time			80.3		
t _f	Turn-off fall Time			26.9		
V _{SD}	Diode Forward Voltage	I _S =20A, V _{GS} =0V			1.2	V
I _S	Maximum Body-Diode Continuous Current				200	A

Typical Characteristics

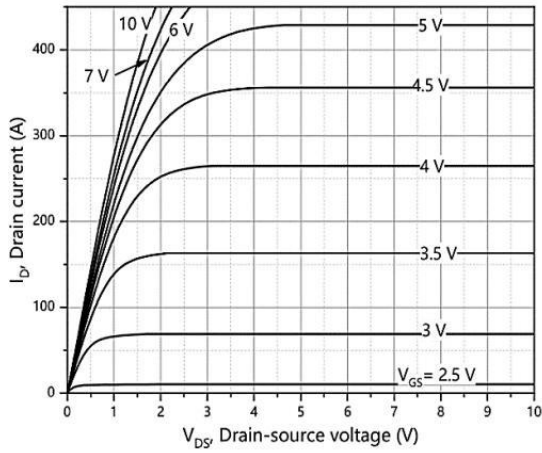


Figure 1. Typ. output characteristics

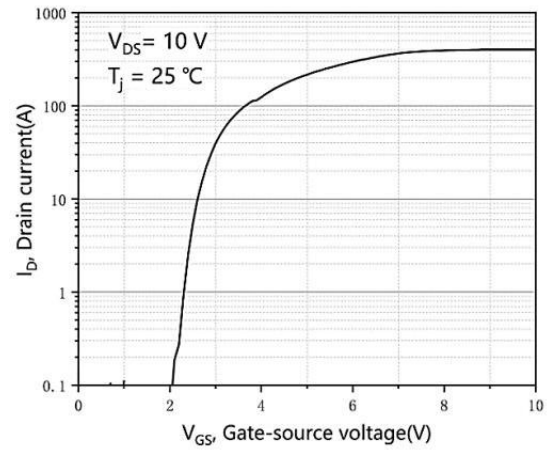


Figure 2. Typ. transfer characteristics

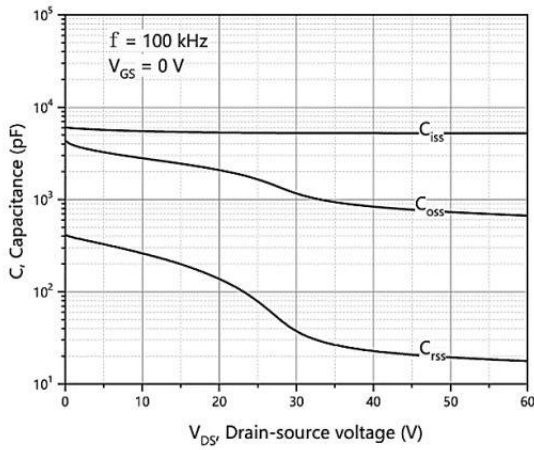


Figure 3. Typ. capacitances

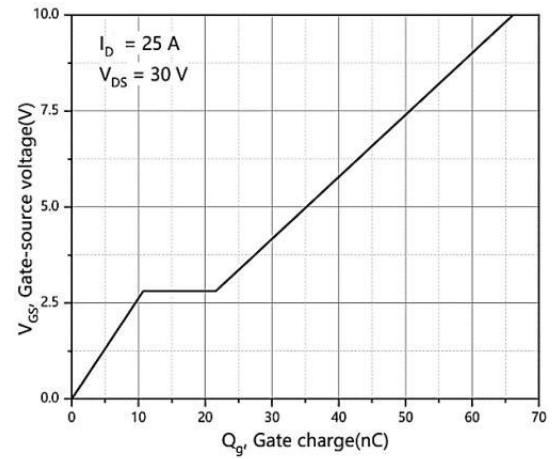


Figure 4. Typ. gate charge

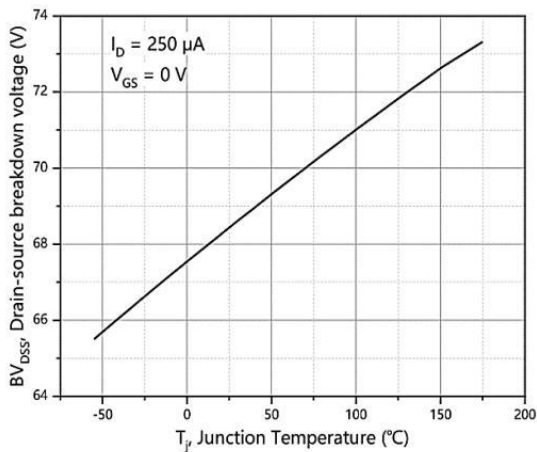


Figure 5. Drain-source breakdown voltage

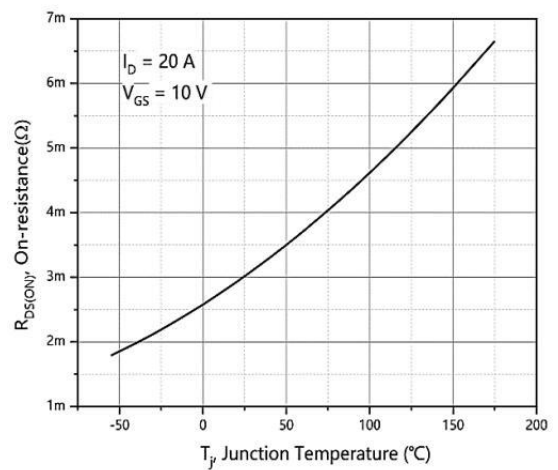


Figure 6. Drain-source on-state resistance

Typical Characteristics

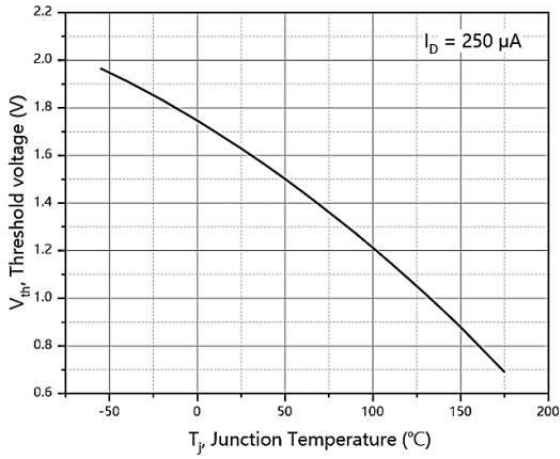


Figure 7. Threshold voltage

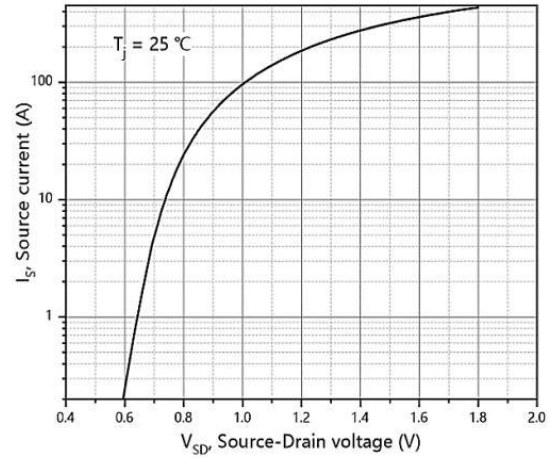


Figure 8. Forward characteristic of body diode

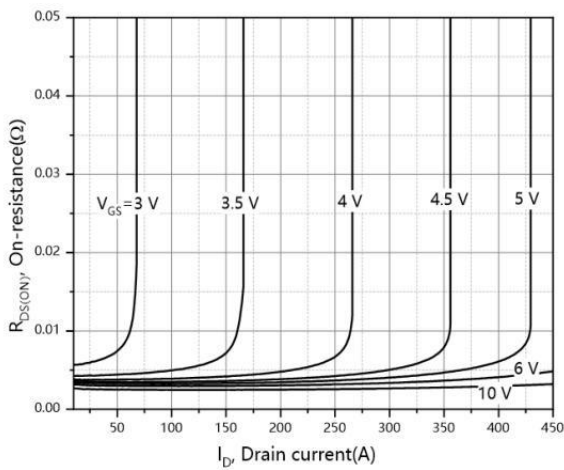


Figure 9. Drain-source on-state resistance

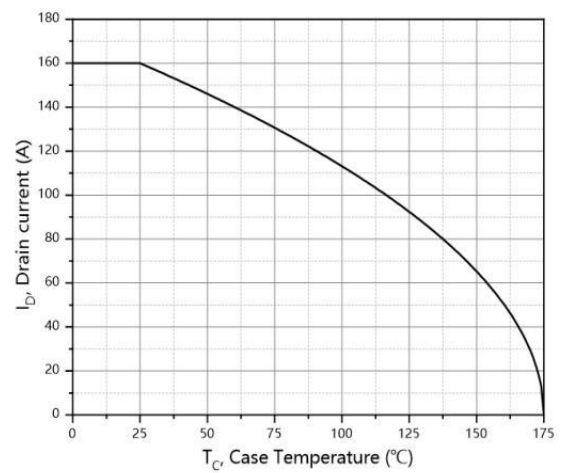


Figure 10. Drain current

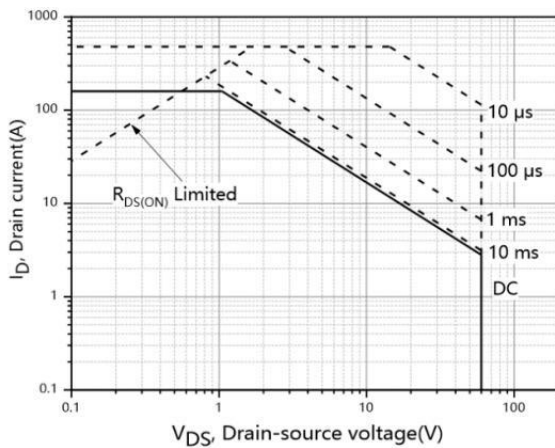


Figure 11. Safe operation area $T_C=25\text{ }^{\circ}\text{C}$

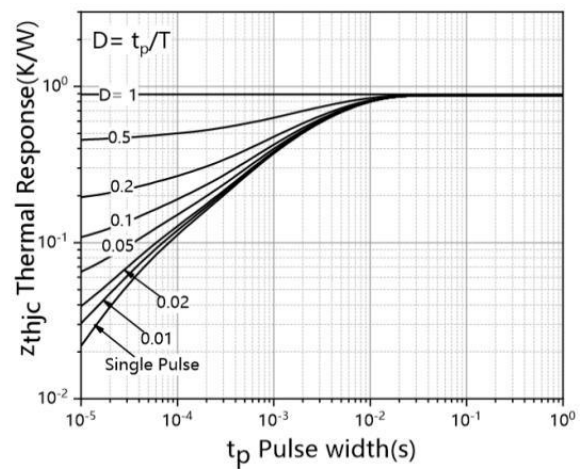
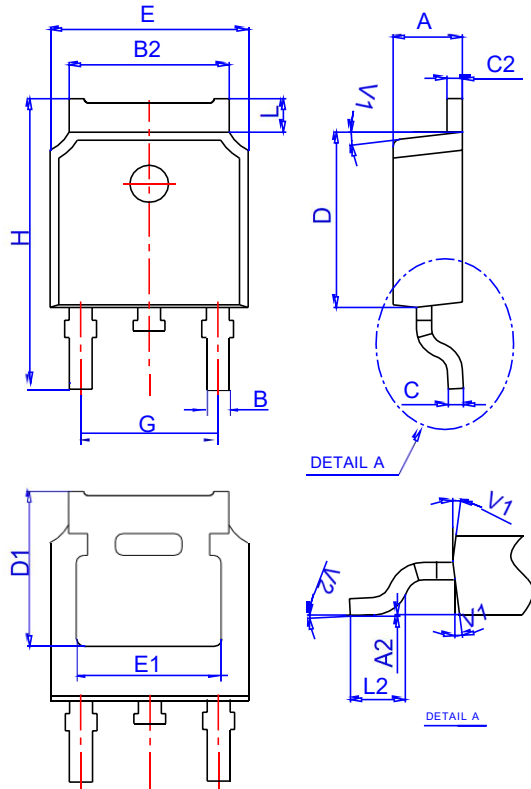


Figure 12. Max. transient thermal impedance

Package Mechanical Data :TO-252-3L



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
TAPING	TO-252-3L		2500