

Description

The SX5N30D is silicon N-channel Enhanced VDMOSFETs, is obtained by the self-aligned planar Technology which reduce the conduction loss, improve switching performance and enhance the avalanche energy. The transistor can be used in various power switching circuit for system miniaturization and higher efficiency.

General Features

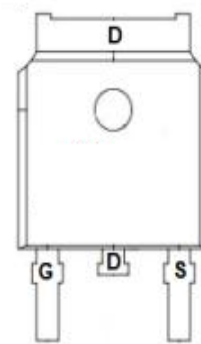
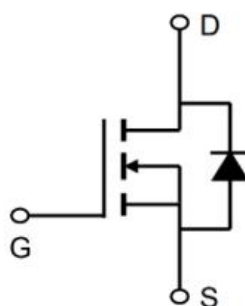
$V_{DS} = 300V$ $I_D = 5A$

$R_{DS(ON)} < 1.5\Omega$ @ $V_{GS}=10V$

Application

Eliminate stroboscopic

Brush motor



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

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage ($V_{GS} = 0V$)	300	V
V_{GS}	Gate-Source Voltage	± 25	V
$I_{D@TC=25^\circ\text{C}}$	Continuous Drain Current, $V_{GS} @ 10V$	5	A
$I_{D@TC=100^\circ\text{C}}$	Continuous Drain Current, $V_{GS} @ 10V$	2.5	A
I_{DM}	Pulsed Drain Current	20	A
E_{AS}	Single Pulse Avalanche Energy	50	mJ
I_{AS}	Avalanche Current	3.2	A
P_D	Power Dissipation ($T_c = 25^\circ\text{C}$)	58.7	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range	$-55 \sim +150$	$^\circ\text{C}$
R_{thJC}	Thermal Resistance, Junction-to-Case	2.13	$^\circ\text{C/W}$
R_{thJA}	Thermal Resistance, Junction-to-Ambient	60	$^\circ\text{C/W}$

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V(BR)DSS	Drain-Source Breakdown Voltage	VGS = 0V, ID = 250μA	300	330	--	V
IDSS	Zero Gate Voltage Drain Current	VDS = 300V, VGS = 0V, T _J = 25°C	--	--	1	μA
		VDS = 240V, VGS = 0V, T _J = 125°C	--	--	100	
IGSS	Gate-Source Leakage	VGS = ±25V	--	--	±100	nA
VGS(th)	Gate-Source Threshold Voltage	VDS=VGS, ID=250μA	2.0	3.5	4.0	V
RDS(on)	Drain-Source On-Resistance	VGS=10V, ID=2.5A	--	1.0	1.5	Ω
Ciss	Input Capacitance	VGS=0V, VDS=25V, f=1.0MHz	--	291	--	pF
Coss	Output Capacitance		--	43	--	
Crss	Reverse Transfer Capacitance		--	7	--	
Qg	Total Gate Charge	VDD=240V, ID=5.0A, VGS=10V	--	8.4	--	nC
Qgs	Gate-Source Charge		--	1.2	--	
Qgd	Gate-Drain Charge		--	3.3	--	
td(on)	Turn-on Delay Time	VDD=150V, ID=5.0A, RG=25Ω	--	20	--	ns
tr	Turn-on Rise Time		--	50	--	
td(off)	Turn-off Delay Time		--	70	--	
tf	Turn-off Fall Time		--	53	--	
IS	Continuous Body Diode Current	TC=25°C	--	--	5	A
ISM	Pulsed Diode Forward Current		--	--	20	
VSD	Body Diode Voltage	T _J =25°C, ISD=5A, VGS=0V	--	--	1.4	V
trr	Reverse Recovery Time	VGS=0V, IS=5A, diF/dt=100A /μs	--	263	--	ns
Qrr	Reverse Recovery Charge		--	1.9	--	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 . IAS = 3.2A, VDD = 50V, RG = 25 Ω, Starting T_J = 25 °C
- 3、The test condition is Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%
- 4、The power dissipation is limited by 150°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

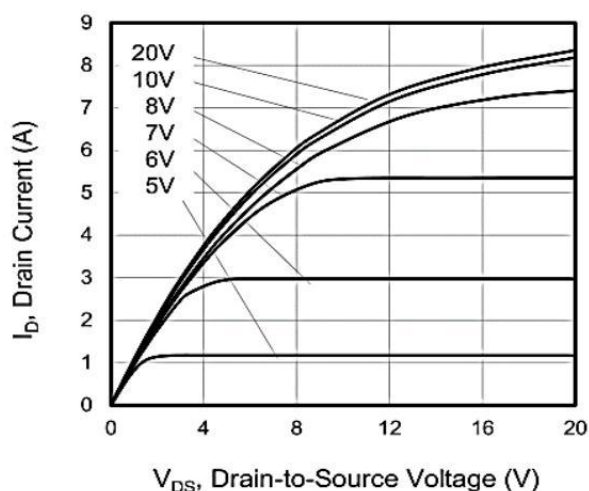


Figure 1. Output Characteristics ($T_J = 25^\circ\text{C}$)

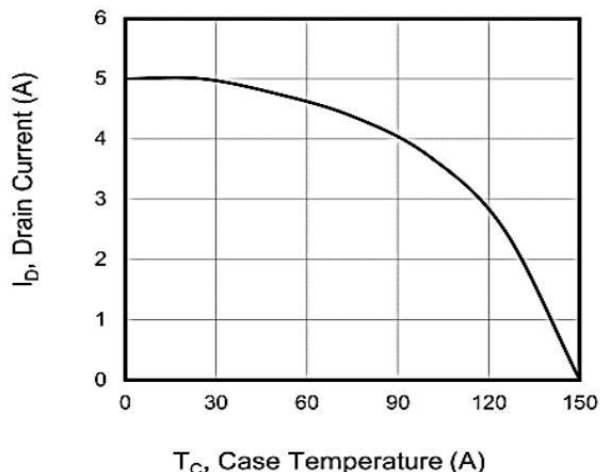


Figure 3. Drain Current vs. Temperature

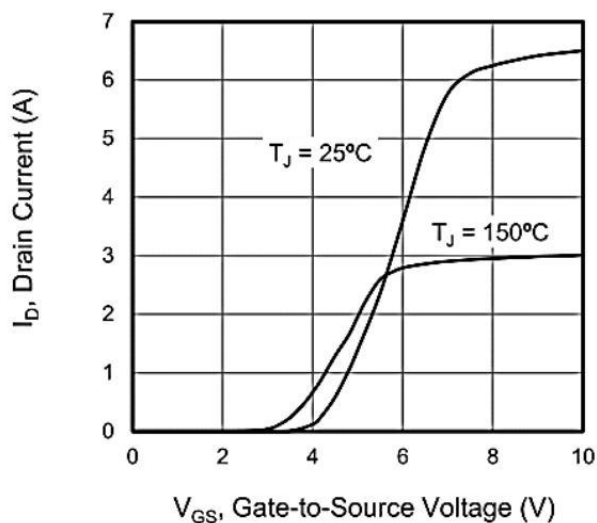


Figure 5. Transfer Characteristics

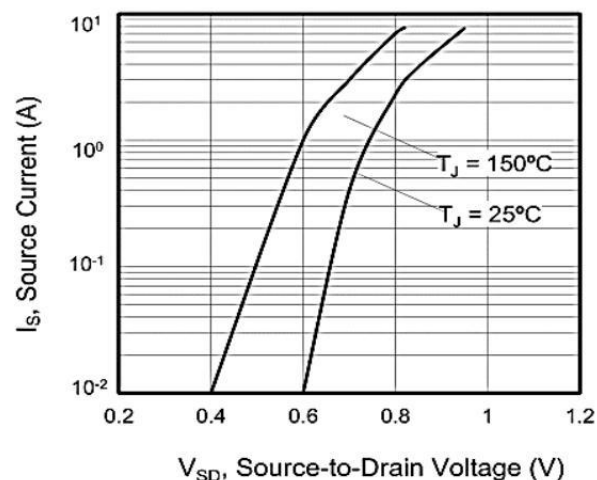


Figure 2. Body Diode Forward Voltage

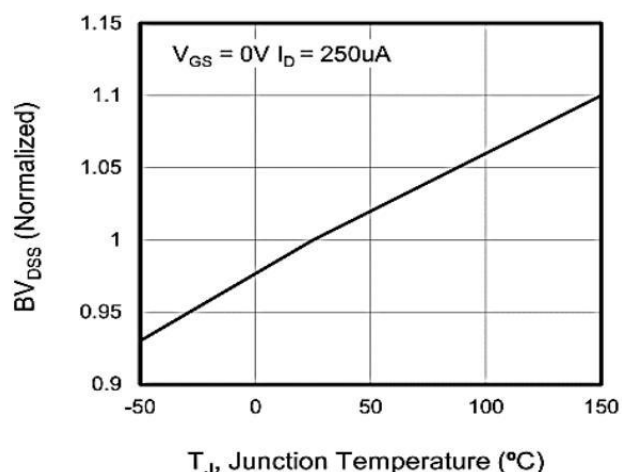


Figure 4. BV_{DSS} Variation vs. Temperature

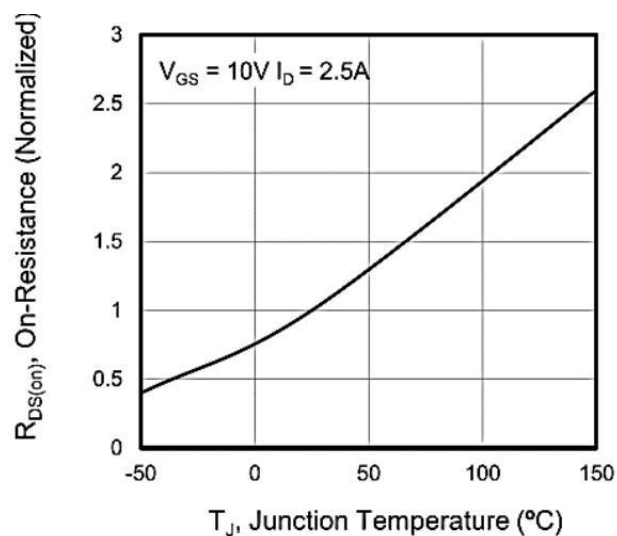
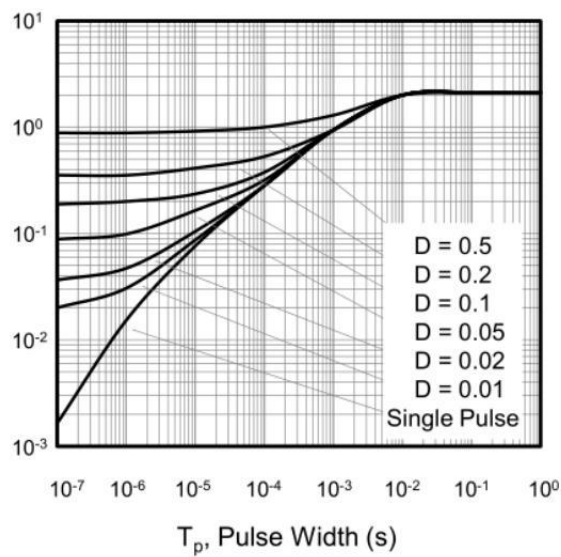
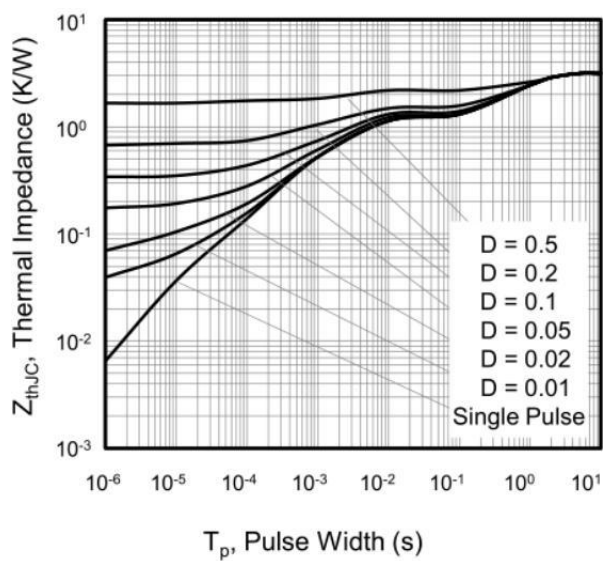
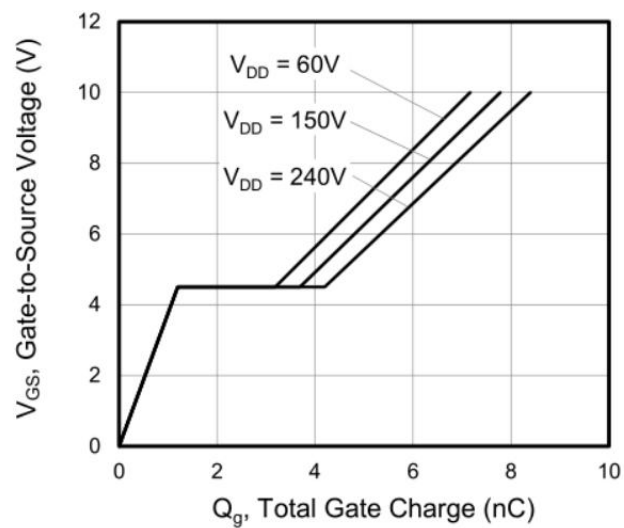
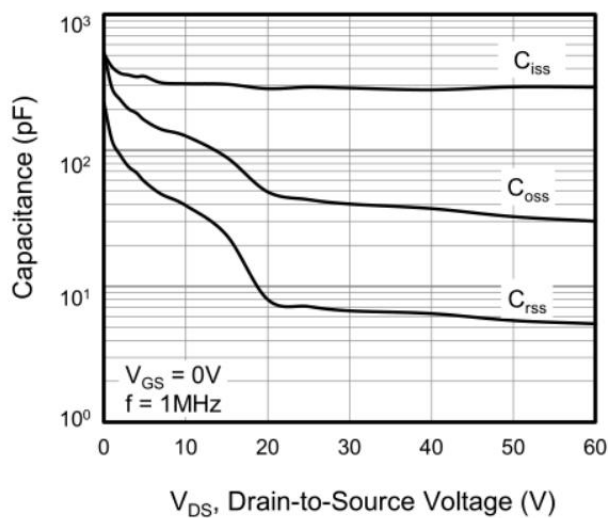
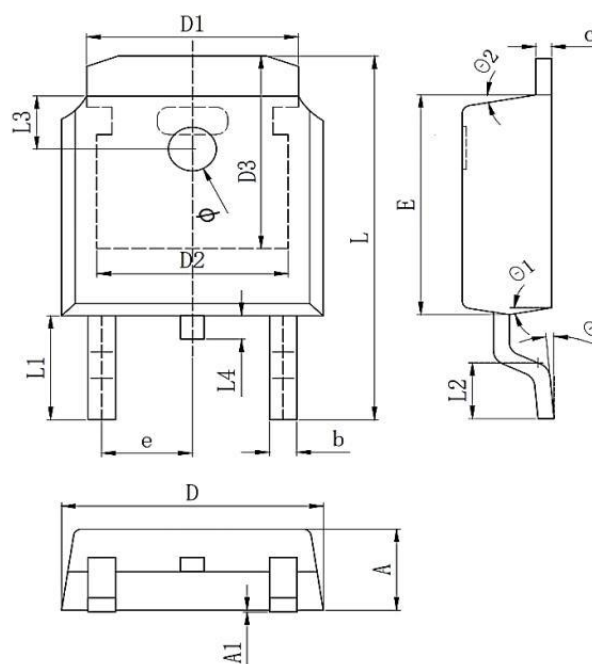


Figure 6. On-Resistance vs. Temperature

Typical Characteristics



Package Mechanical Data-TO-252-3L



Symbol	Dim in mm		
	Min	Typ	Max
A	2.1	2.3	2.5
A1	0	0.064	0.128
b	0.64	0.75	0.86
c	0.45	0.52	0.6
D	6.4	6.6	6.8
D1	5.33REF		
D2	4.83REF		
D3	5.25REF		
E	5.9	6.1	6.3
e	2.286TYP		
L	9.8	10.1	10.4
L1	2.888REF		
L2	1.4	1.5	1.7
L3	1.65REF		
L4	0.6	0.8	1
φ	1.1	1.2	1.3
θ	0°		10°
θ1	5°		10°
θ2	5°		10°

Package Marking and Ordering Information

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