

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
250V	35mΩ@10V	80A


合肥矽普半导体

Siliup Semiconductor Technology Co., Ltd

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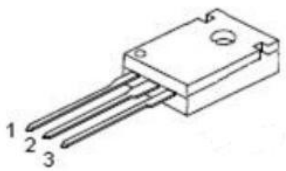
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

Applications

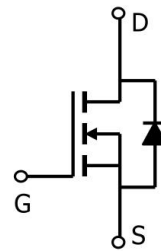
- Power switching application
- DC-DC Converter
- Power Management

Package

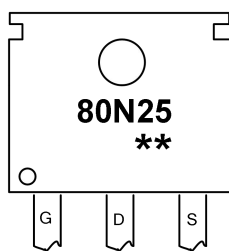


TO-247-3L(1:G 2:D 3:S)

Circuit diagram



Marking


80N25
**

: Product code
: Week code

Order Information

Device	Package	Unite/Tube
S80N25TF	TO-247	30

Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain source voltage	V_{DS}	250	V
Gate source voltage	V_{GS}	± 20	V
Continuous drain current(Tc=25°C)	I_D	80	A
Pulsed drain current	I_{DM}	320	A
Power dissipation(Tc=25°C)	P_D	500	W
Single pulsed avalanche energy ¹⁾	E_{AS}	3588	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	0.25	°C/W
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

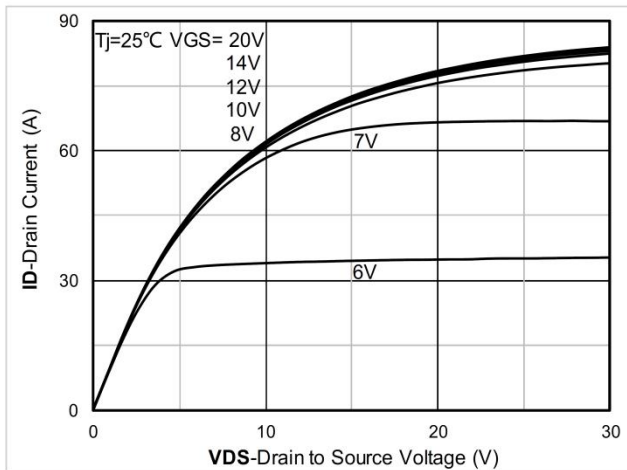
Electrical characteristics (Ta=25°C, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = 250μA, V _{GS} = 0V	250	-	-	V
Drain Cut-Off Current	I _{DSS}	V _{DS} = 200V, V _{GS} = 0V	-	-	1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±0.1	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2	3	4	V
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 40A	-	35	45	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} = 0V, f = 1.0MHz	-	5250	-	pF
Output Capacitance	C _{oss}		-	980	-	
Reverse Transfer Capacitance	C _{rss}		-	95	-	
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =200V , V _{GS} =10V , I _D =40A	-	134	-	nC
Gate-Source Charge	Q _{gs}		-	56	-	
Gate-Drain Charge	Q _{gd}		-	58	-	
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DS} =125V, I _D =40A , R _G = 10Ω	-	53	-	ns
Rise Time	t _r		-	242	-	
Turn-Off Delay Time	t _{d(off)}		-	256	-	
Fall Time	t _f		-	116	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	I _S = 55A, V _{GS} = 0V	-	-	1.5	V

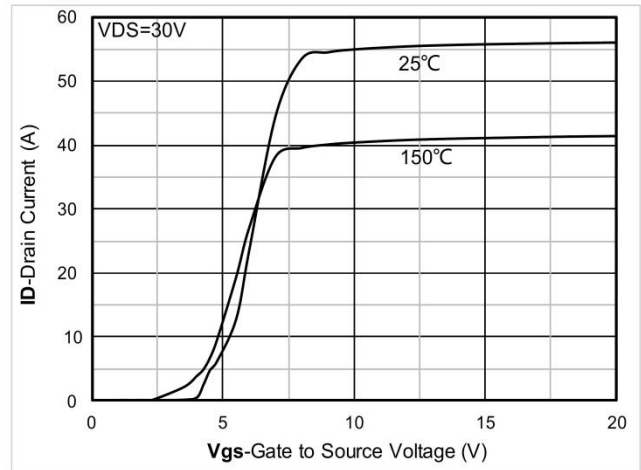
Note:

- E_{AS} is tested at starting $T_j = 25^\circ C$, $V_{DD}=75V, V_{GS} = 10V, L = 10mH, R_g=25m\Omega$;

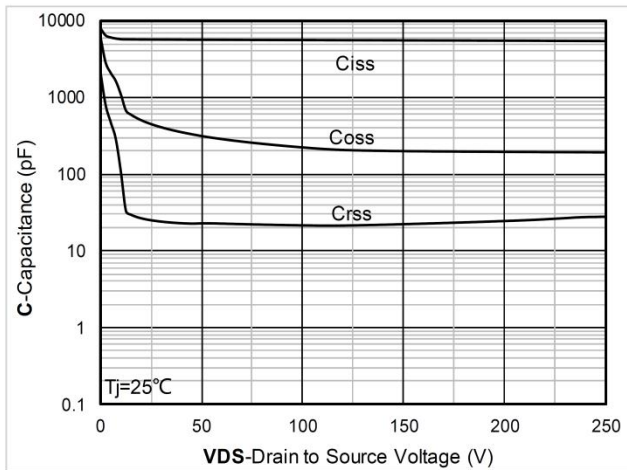
Typical Characteristics



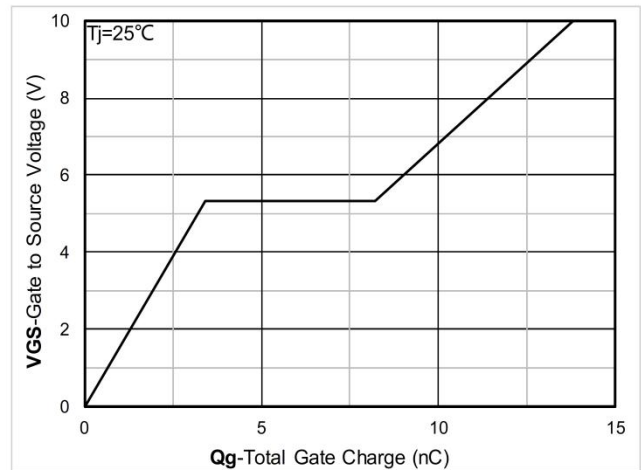
Output Characteristics



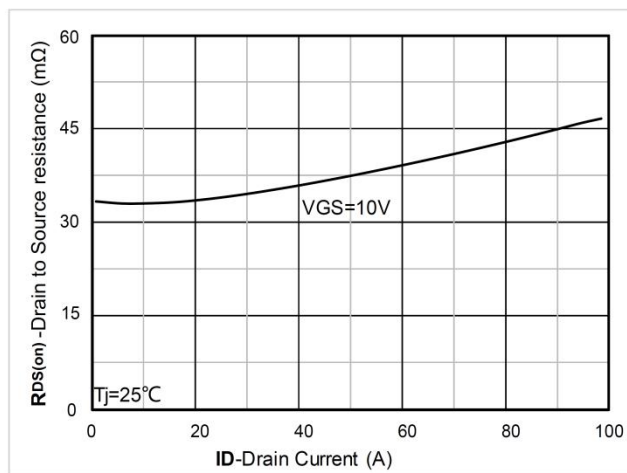
Transfer Characteristics



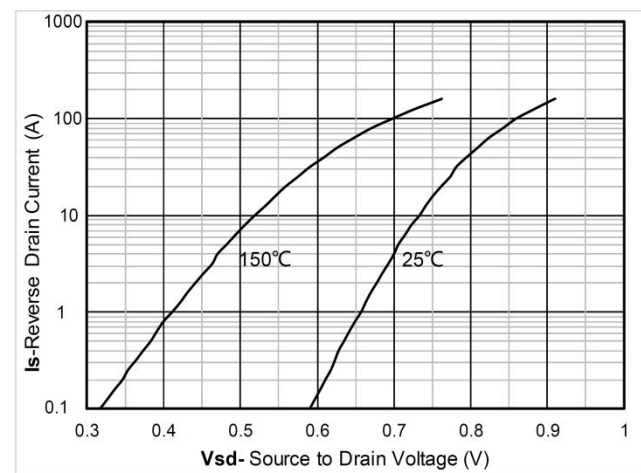
Capacitance Characteristics



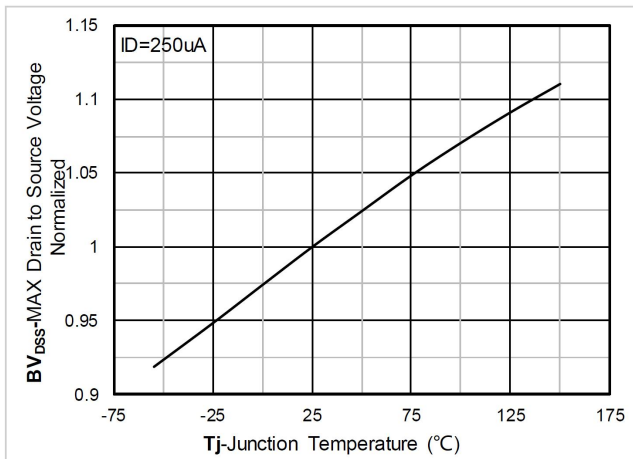
Gate Charge



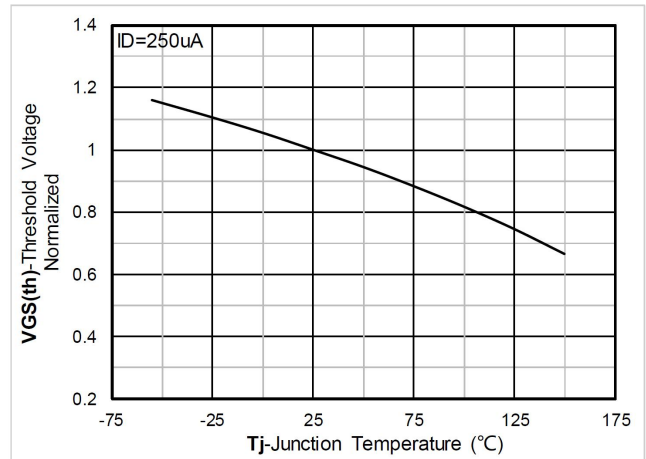
RDS(on) VS Drain Current



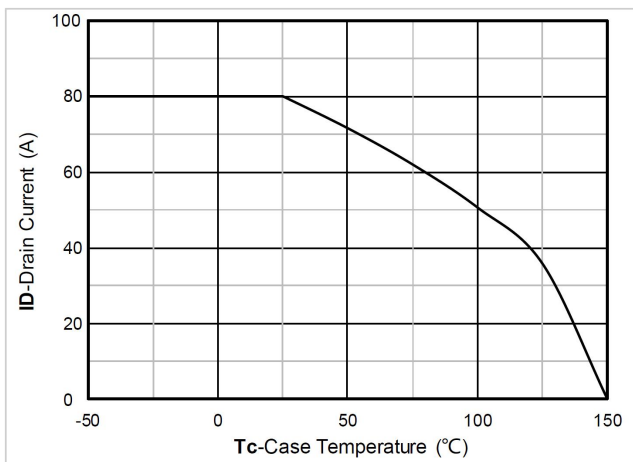
Forward characteristics of reverse diode



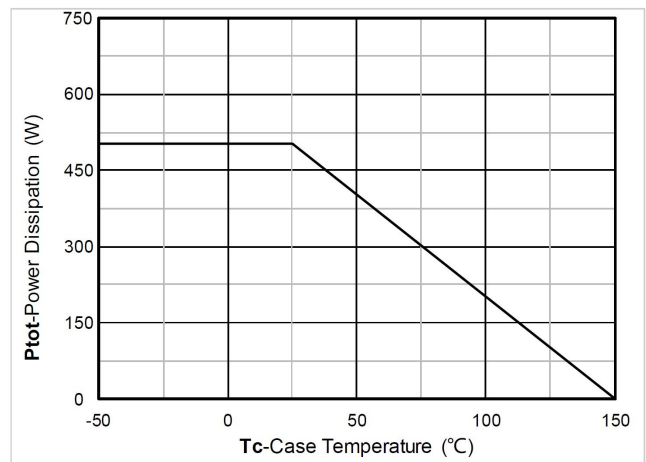
Normalized breakdown voltage



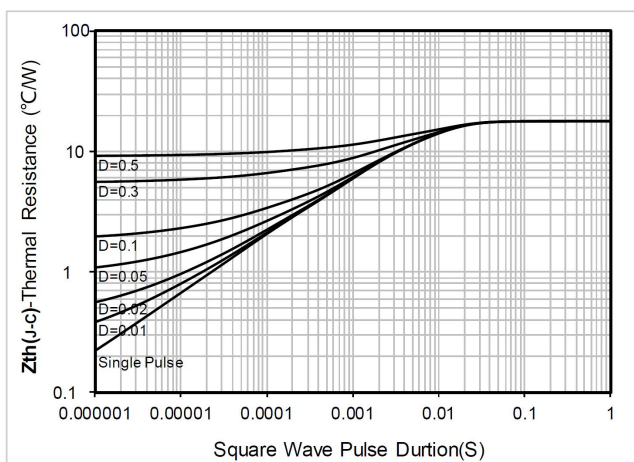
Normalized Threshold voltage



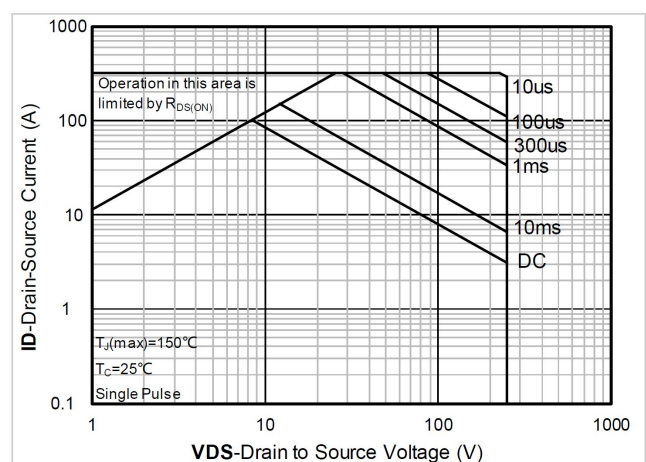
Current dissipation



Power dissipation

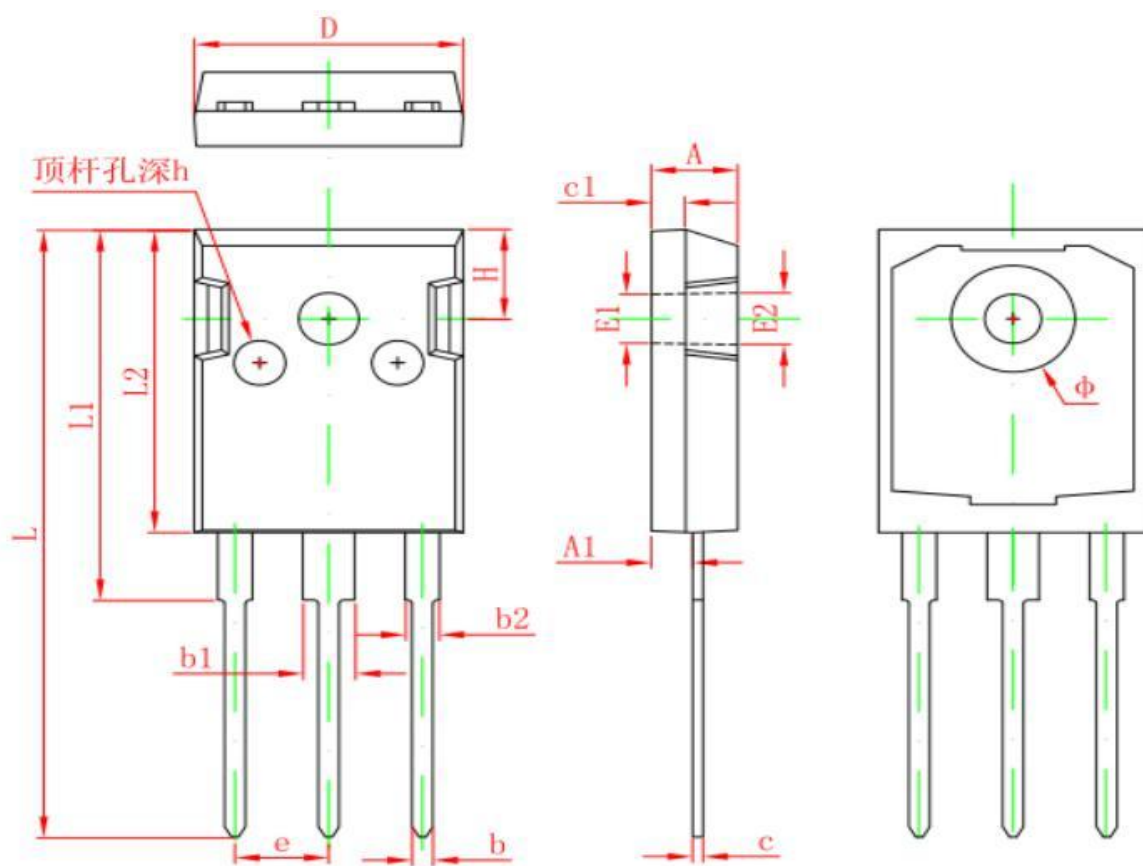


Maximum Transient Thermal Impedance



Safe Operation Area

TO-247-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.850	5.150	0.191	0.200
A1	2.200	2.600	0.087	0.102
b	1.000	1.400	0.039	0.055
b1	2.800	3.200	0.110	0.126
b2	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.900	2.100	0.075	0.083
D	15.450	15.750	0.608	0.620
E1	3.500 REF.		0.138 REF.	
E2	3.600 REF.		0.142 REF.	
L	40.900	41.300	1.610	1.626
L1	24.800	25.100	0.976	0.988
L2	20.300	20.600	0.799	0.811
Φ	7.100	7.300	0.280	0.287
e	5.450 TYP.		0.215 TYP.	
H	5.980 REF.		0.235 REF.	
h	0.000	0.300	0.000	0.012