SP025N18GHTF

250V N-Channel Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
250V	18mΩ@10V	75A

合肥矽普半导体
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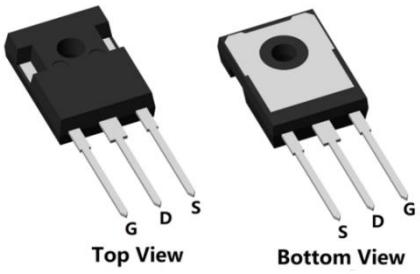
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Applications

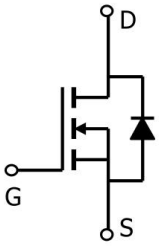
- PWM Application
- Hard switched and high frequency circuits
- Power Management

Package

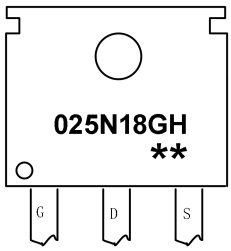


TO-247(1:G 2:D 3:S)

Circuit diagram



Marking



025N18GH : Device Code
**** : Week Code**

Order Information

Device	Package	Unit/Tube
SP025N18GHTF	TO-247	30

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	250	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃)	I_D	75	A
Continuous Drain Current (Tc=100℃)	I_D	50	A
Pulsed Drain Current	I_{DM}	300	A
Single Pulse Avalanche Energy[1]	E_{AS}	841	mJ
Power Dissipation (Tc=25℃)	P_D	310	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.4	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

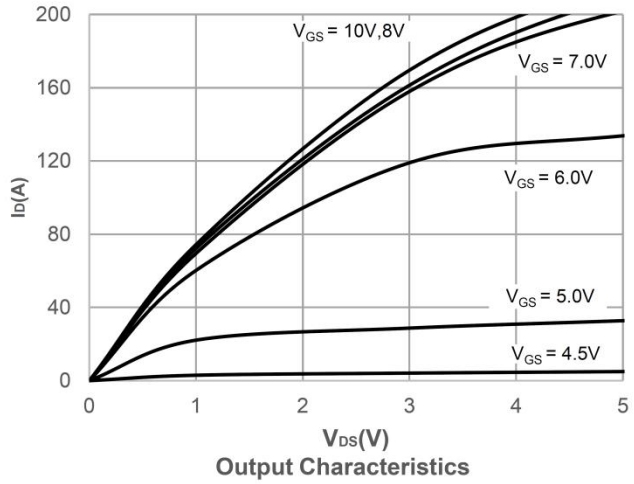
Electrical characteristics (Ta=25℃, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=250uA	250	-	-	V
Drain Cut-Off Current	I_{DSS}	VDS=200V , VGS=0V , TJ=25℃	-	-	1	μA
Gate Leakage Current	I_{GSS}	VGS=±20V , VDS=0V	-	-	±100	
Gate Threshold Voltage	$V_{GS(th)}$	VGS=VDS , ID =250uA	2.5	3.5	4.5	V
Drain-Source ON Resistance	$R_{DS(ON)}$	VGS=10V , ID=20A	-	18	23	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	VDS=125V , VGS=0V , f=1MHz	-	9824	-	pF
Output Capacitance	C_{oss}		-	290	-	
Reverse Transfer Capacitance	C_{rss}		-	18	-	
Total Gate Charge	Q_g	VDS=125V , VGS=10V , ID=20A	-	70	-	nC
Gate-Source Charge	Q_{gs}		-	24	-	
Gate-Drain Charge	Q_{gd}		-	22	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	VDD=125V , VGS=10V , RG=10Ω ID=20A	-	33	-	nS
Rise Time	t_r		-	15	-	
Turn-Off Delay Time	$t_{d(off)}$		-	61	-	
Fall Time	t_f		-	8	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	75	A
Reverse Recovery Time	Trr	IS=20A, di/dt=200A/us, TJ=25℃	-	168	-	nS
Reverse Recovery Charge	Qrr		-	795	-	nC

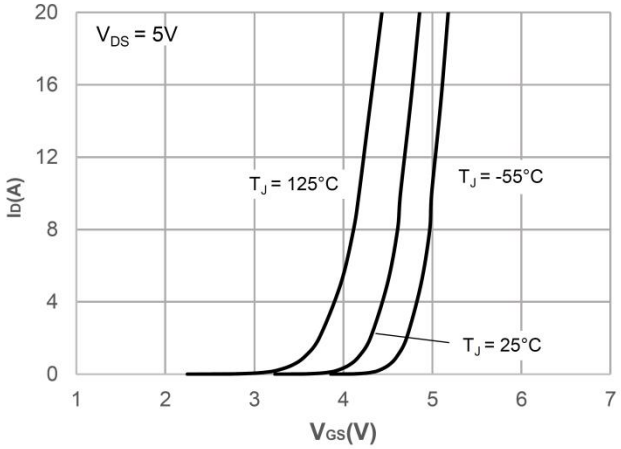
Note :

1. The test condition is VDD=75V,VGS=10V,L=0.5mH,RG=25Ω

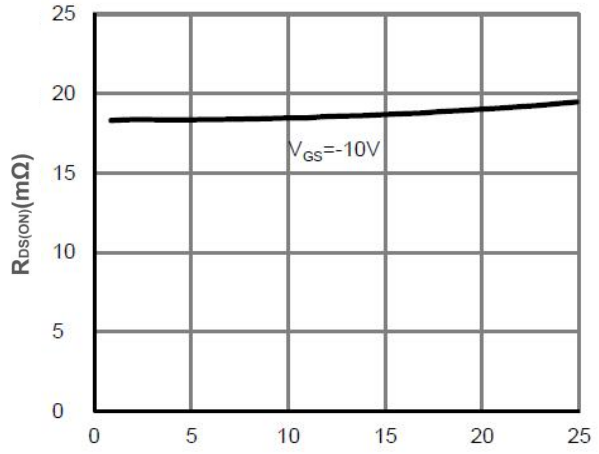
Typical Characteristics



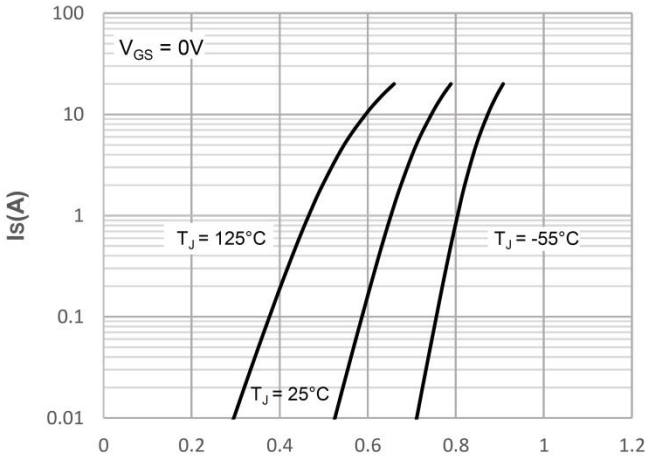
Output Characteristics



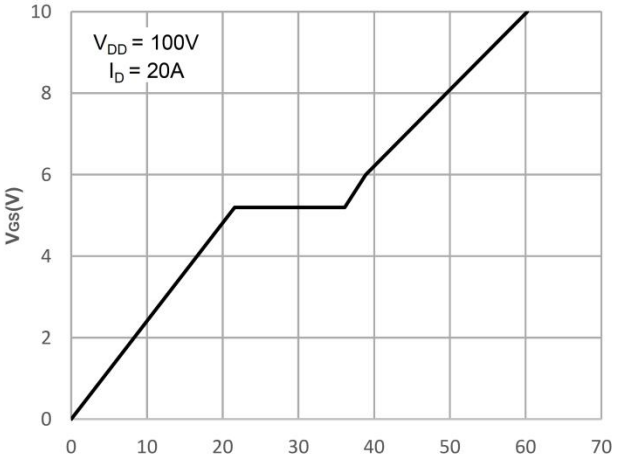
Typical Transfer Characteristics



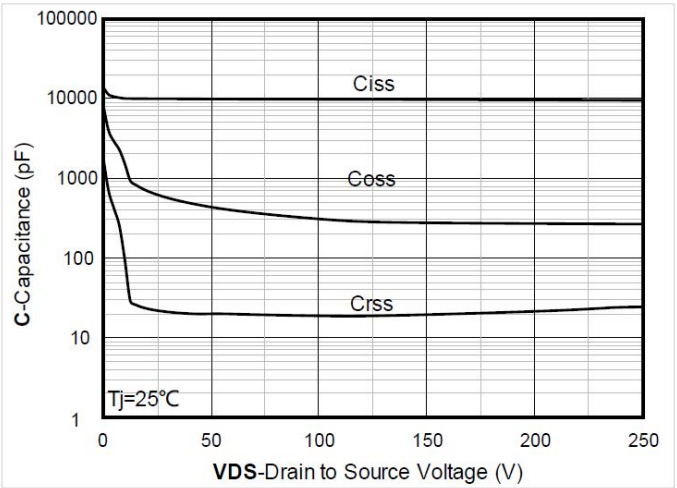
On-resistance vs. Drain Current



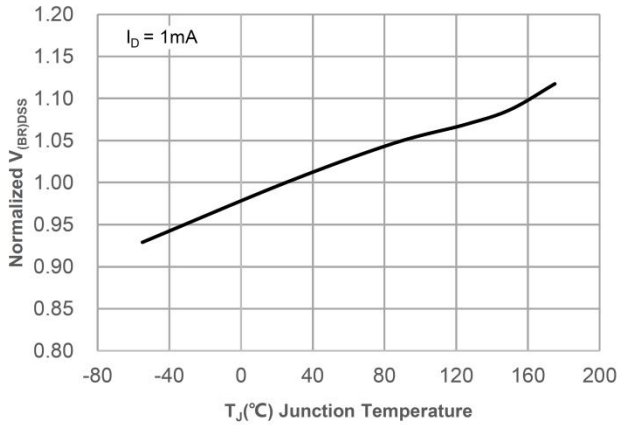
Body Diode Characteristics



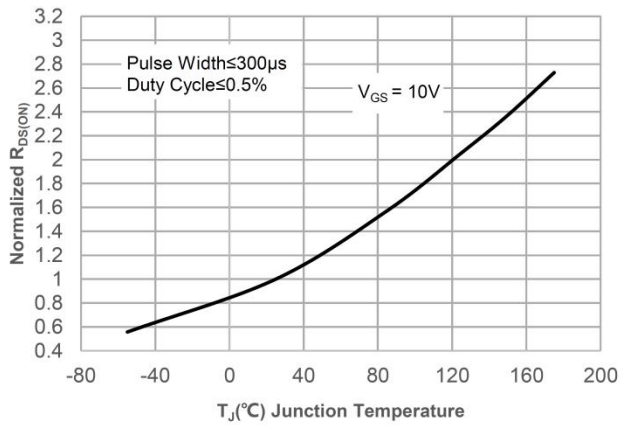
Gate Charge Characteristics



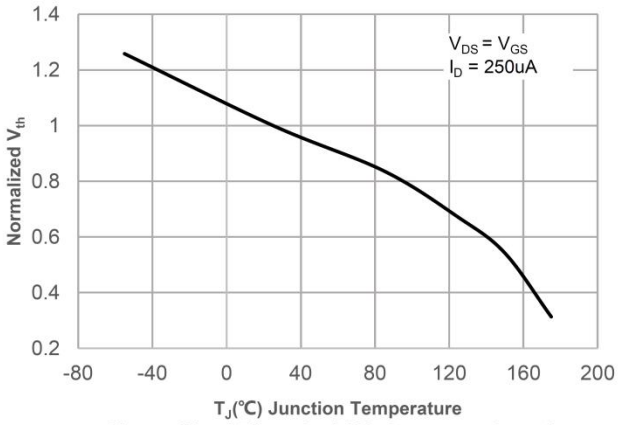
Capacitance Characteristics



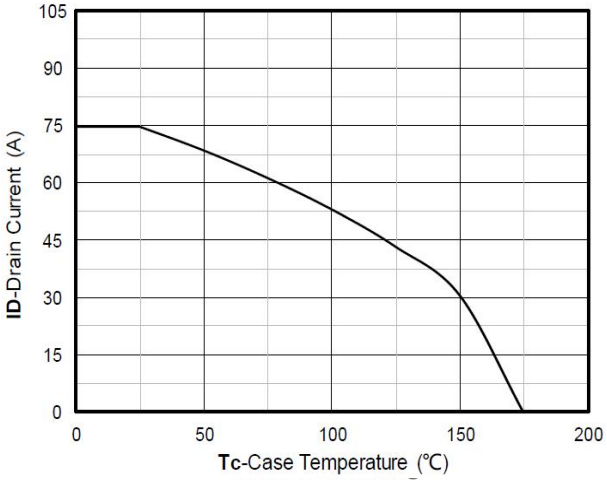
Normalized Breakdown voltage vs. Junction Temperature

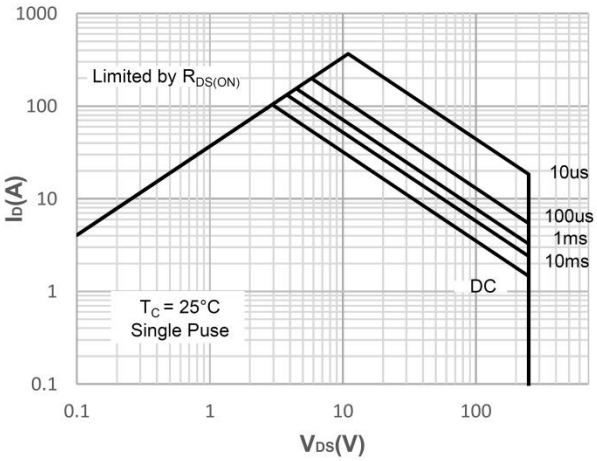


Normalized on Resistance vs. Junction Temperature

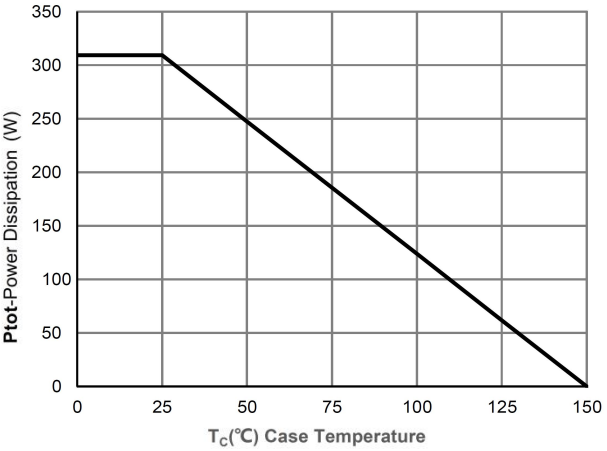


Normalized Threshold Voltage vs. Junction Temperature



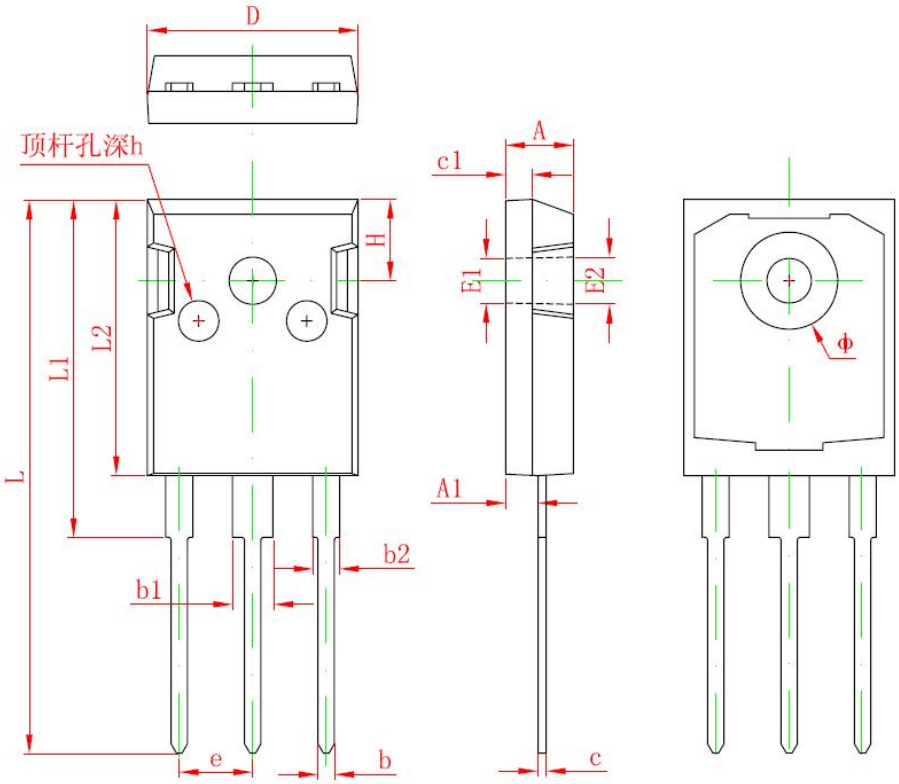


Maximum Safe Operating Area



Power De-rating

TO-247 Package Information



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