Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
250V	16mΩ@10V	70A

合肥矽普半导体
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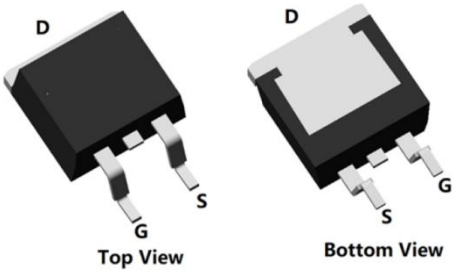
Feature

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

Applications

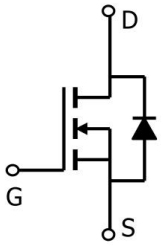
- PWM Application
- Hard switched and high frequency circuits
- Power Management

Package

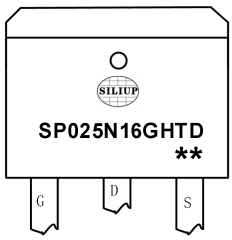


TO-263(1:G 2:D 3:S)

Circuit diagram



Marking



SP025N16GHTD : Device Code
**** : Week Code**

Order Information

Device	Package	Unit/Tape
SP025N16GHTD	TO-263	800

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	70	A
Continuous Drain Current (Tc=100℃)	I_D	47	A
Pulsed Drain Current	I_{DM}	280	A
Single Pulse Avalanche Energy[1]	E_{AS}	400	mJ
Power Dissipation (Tc=25℃)	P_D	315	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	℃

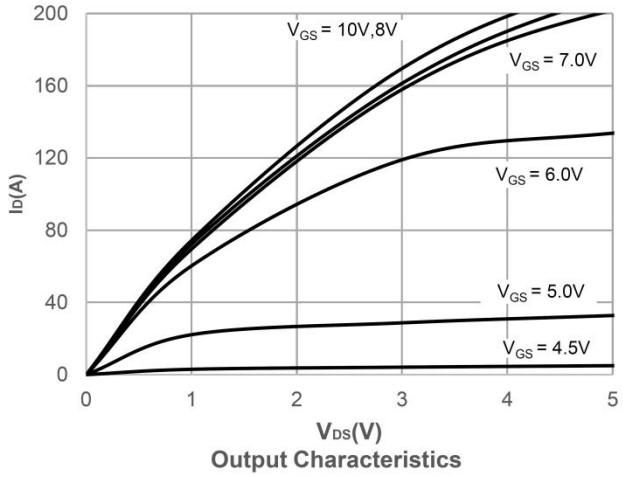
Electrical characteristics (Ta=25℃, unless otherwise noted)

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	-	-	±0.1	
Gate Threshold Voltage	$V_{GS(th)}$	VGS=VDS , ID =250uA	2	3	4	V
Drain-Source ON Resistance	$R_{DS(ON)}$	VGS=10V , ID=20A	-	16	20	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	VDS=125V , VGS=0V , f=1MHz	-	5654	-	pF
Output Capacitance	C_{oss}		-	362	-	
Reverse Transfer Capacitance	C_{rss}		-	10.9	-	
Total Gate Charge	Q_g	VDS=125V , VGS=10V , ID=20A	-	71	-	nC
Gate-Source Charge	Q_{gs}		-	22.8	-	
Gate-Drain Charge	Q_{gd}		-	9.5	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	VDD=125V , VGS=10V , RG=10Ω ID=20A	-	16.5	-	nS
Rise Time	t_r		-	23.8	-	
Turn-Off Delay Time	$t_{d(off)}$		-	32	-	
Fall Time	t_f		-	16.6	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	I_S = 1A, VGS = 0V	-	-	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	70	A
Reverse Recovery Time	Trr	IS=20A, di/dt=200A/us, TJ=25℃	-	168	-	nS
Reverse Recovery Charge	Qrr		-	695	-	nC

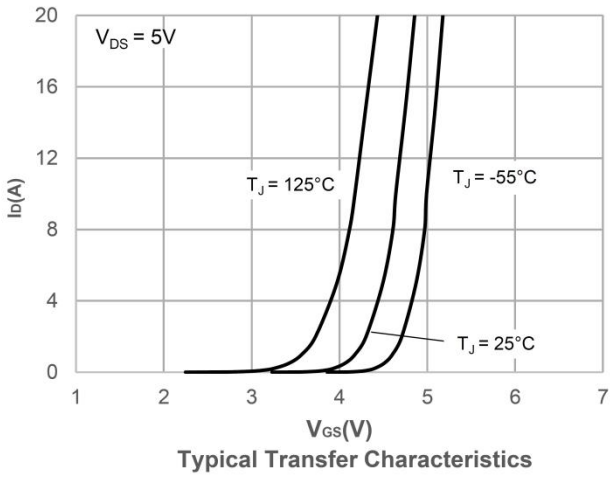
Note :

1. The test condition is VDD=50V,VGS=10V,L=0.5mH,RG=25Ω

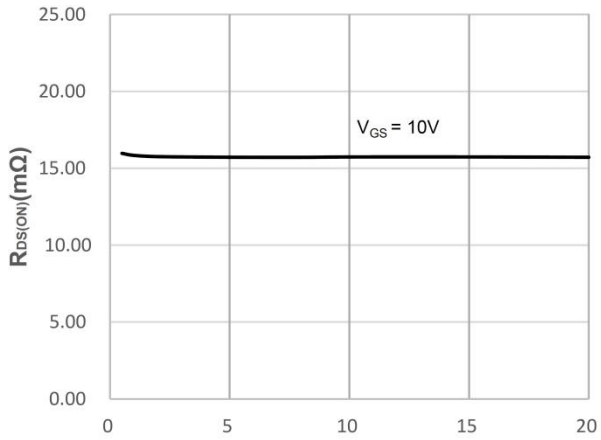
Typical Characteristics



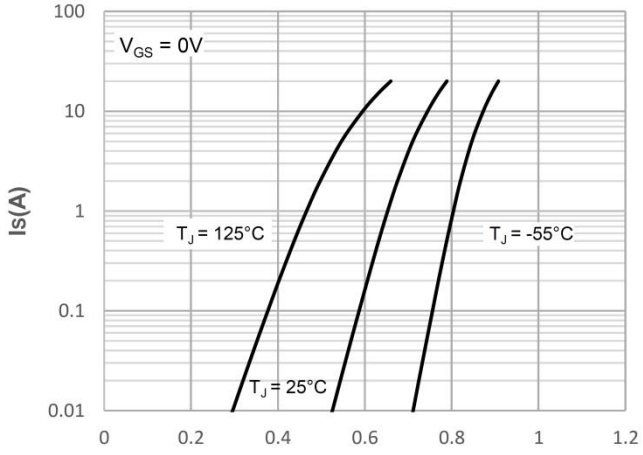
Output Characteristics



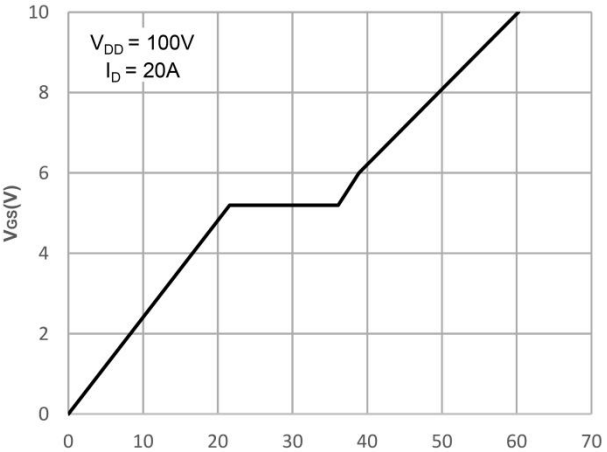
Typical Transfer Characteristics



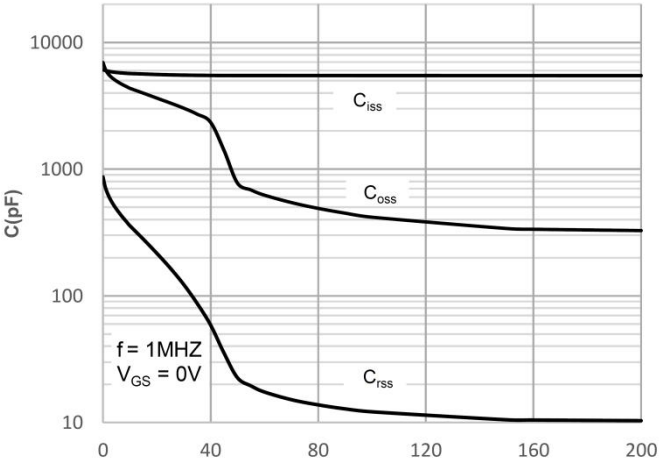
On-resistance vs. Drain Current



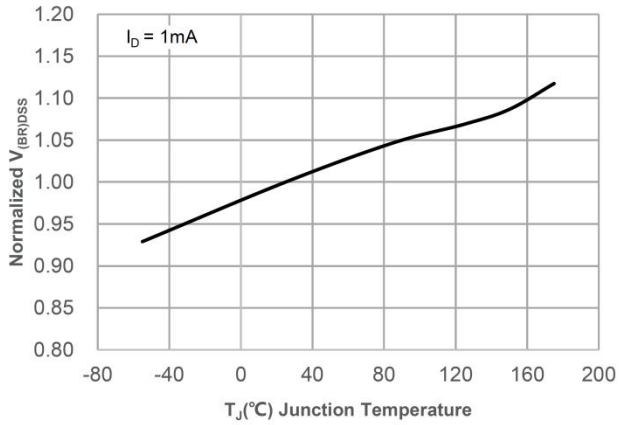
Body Diode Characteristics



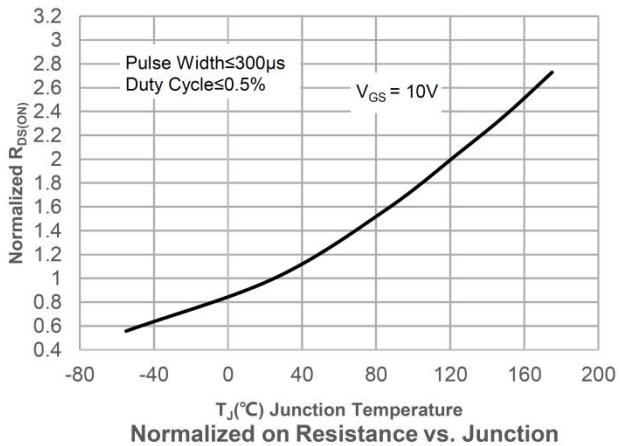
Gate Charge Characteristics



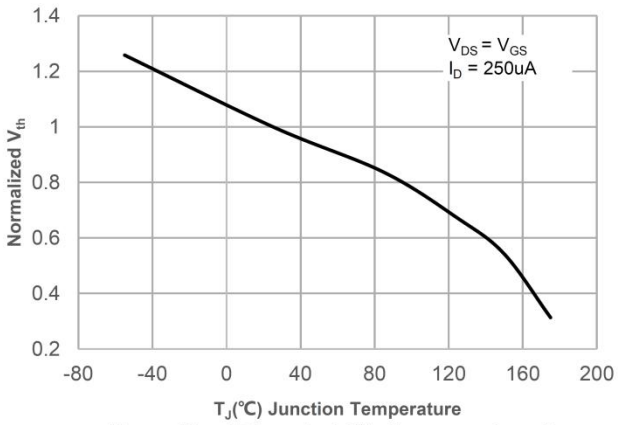
Capacitance Characteristics



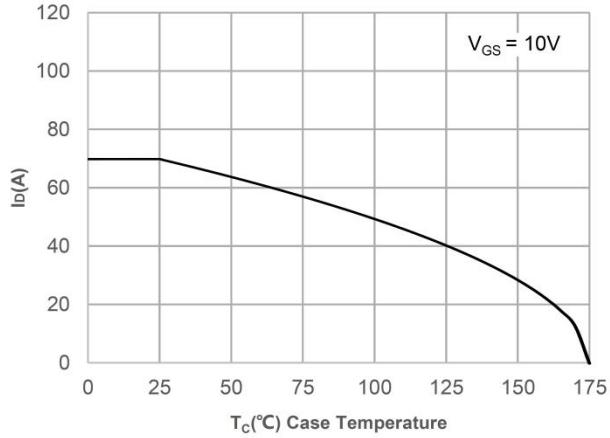
Normalized Breakdown voltage vs. Junction Temperature



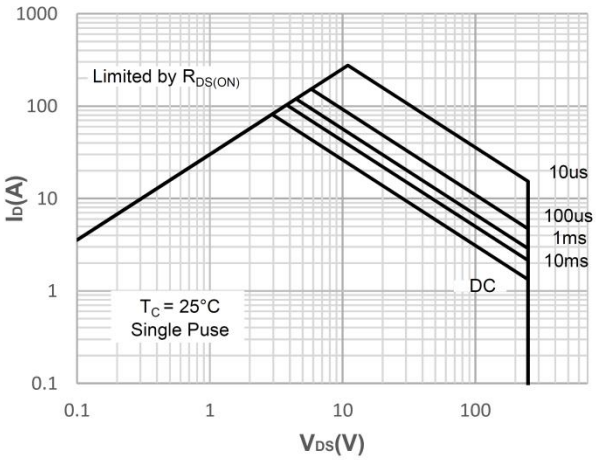
Normalized on Resistance vs. Junction Temperature



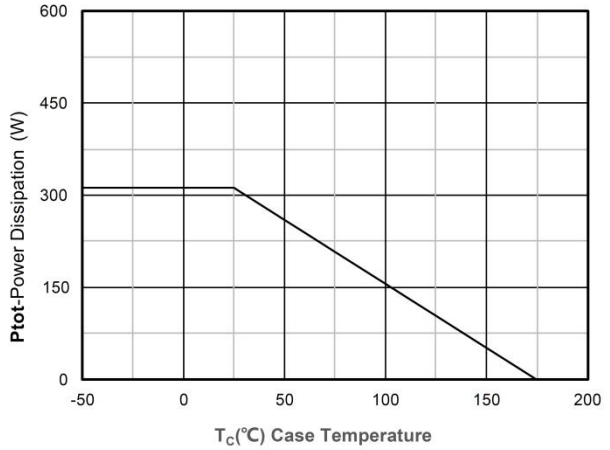
Normalized Threshold Voltage vs. Junction Temperature



Current De-rating

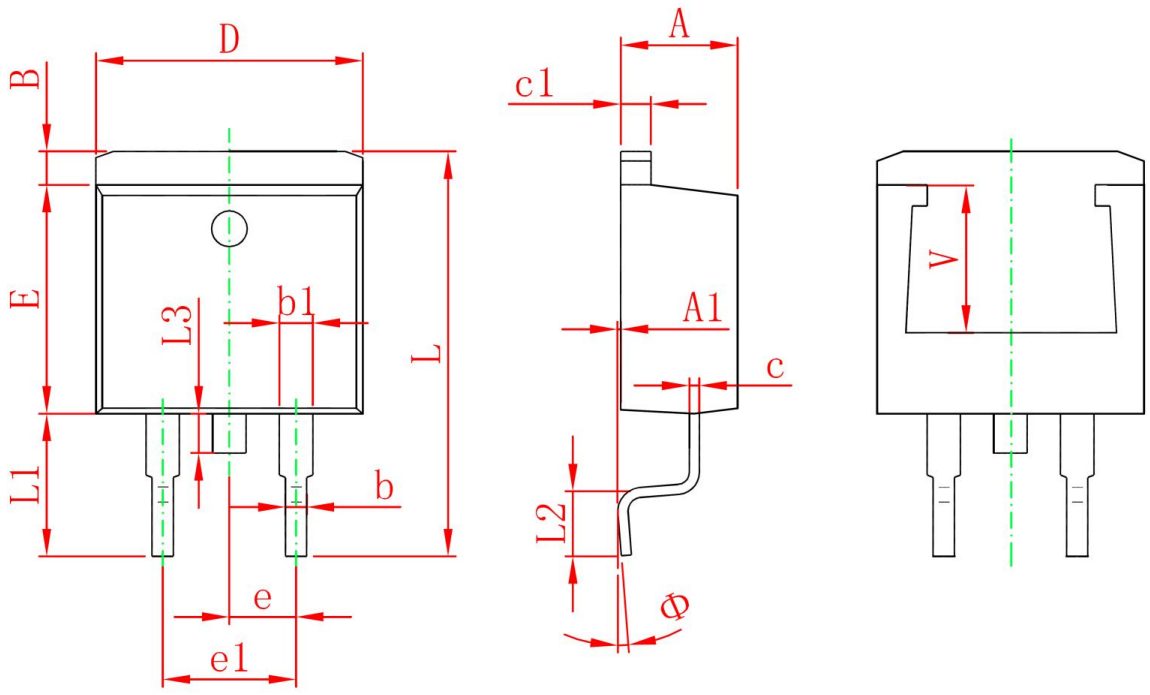


Maximum Safe Operating Area



Power De-rating

TO-263 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220 REF.	