

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
150V	50mΩ@10V	17A



合肥矽普半导体

Siliup Semiconductor Technology Co., Ltd

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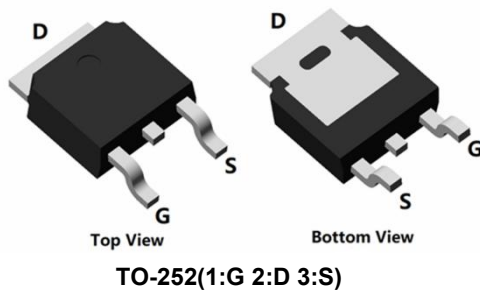
Feature

- Extremely low switching loss
- Excellent stability and uniformity
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

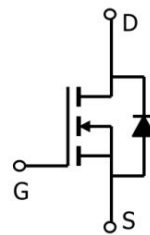
Applications

- Consumer electronic power supply
- Motor control Synchronous rectification
- Isolated DC/DC convertor
- Inventors

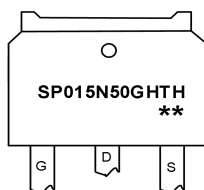
Package



Circuit diagram



Marking



SP015N50GHTH : Product code
** : Week code

Order Information

Device	Package	Unit/Tape
SP015N50GHTH	TO-252	2500

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (Tc=25°C)	I_D	17	A
Continuous Drain Current (Tc=100°C)	I_D	11	A
Pulsed Drain Current	I_{DM}	68	A
Single Pulse Avalanche Energy ¹	E_{AS}	90	mJ
Power Dissipation (Tc=25°C)	P_D	33	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	2.78	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

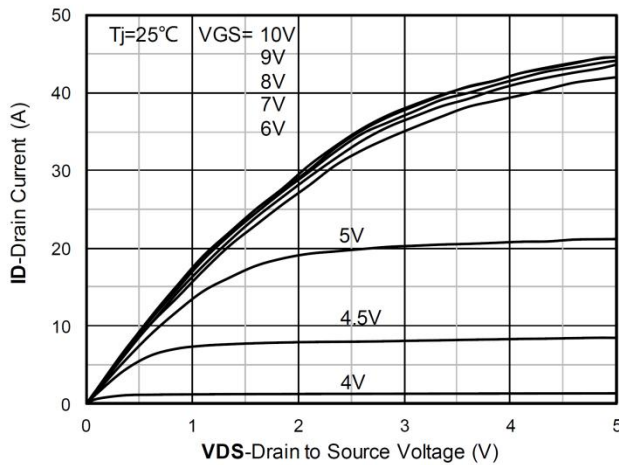
Electrical characteristics (Ta=25°C, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0 V, ID=250 μA	150	-	-	V
Drain Cut-Off Current	IDSS	VDS=120 V, VGS=0 V	-	-	1	μA
Gate Leakage Current	IGSS	VGS=±20 V	-	-	±100	
Gate Threshold Voltage	VGS(th)	VDS=VGS, ID=250 μA	2	3	4	V
Drain-Source ON Resistance	RDS(ON)	VGS=10 V, ID=9 A	-	50	60	mΩ
Dynamic Characteristics						
Input Capacitance	Ciss	VGS=0 V, VDS=75 V, f=1 MHz	-	753	-	pF
Output Capacitance	Coss		-	82	-	
Reverse Transfer Capacitance	Crss		-	16	-	
Total Gate Charge	Qg	ID=10 A, VDS=75 V, VGS=10 V	-	13	-	nC
Gate-Source Charge	Qgs		-	5.2	-	
Gate-Drain Charge	Qgd		-	3.8	-	
Switching Characteristics						
Turn-On Delay Time	td(on)	VGS=10 V, VDS=75 V, RG=2.5Ω ID=2 A	-	16	-	nS
Rise Time	tr		-	42	-	
Turn-Off Delay Time	td(off)		-	24	-	
Fall Time	tf		-	4.8	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25°C	-	-	1.2	V
Maximum Body-Diode Continuous Current	IS		-	-	17	A
Reverse Recovery Time	Trr	IS=10 A,di/dt=100 A/μs	-	65.8	-	nS
Reverse Recovery Charge	Qrr		-	179	-	nC

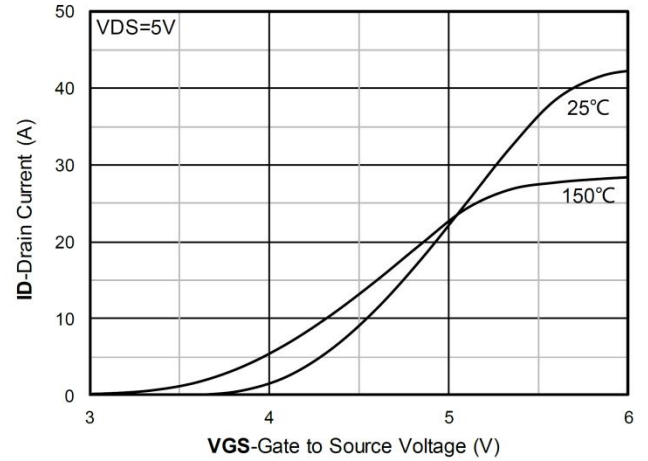
Note :

1. The test condition is $V_{DD}=50\text{ V}, V_{GS}=10\text{ V}, L=0.5\text{ mH}, R_G=25\Omega$

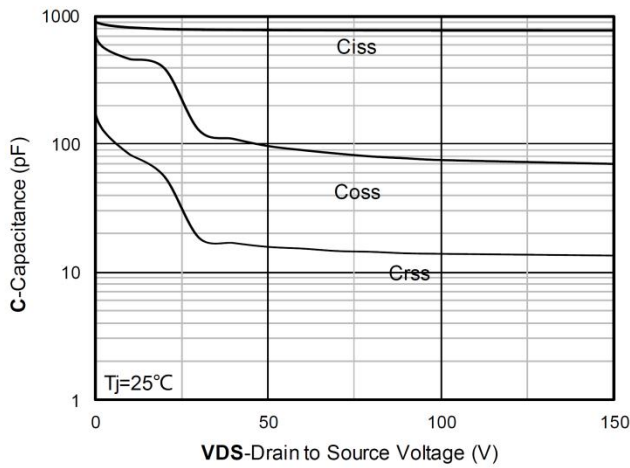
Typical Characteristics



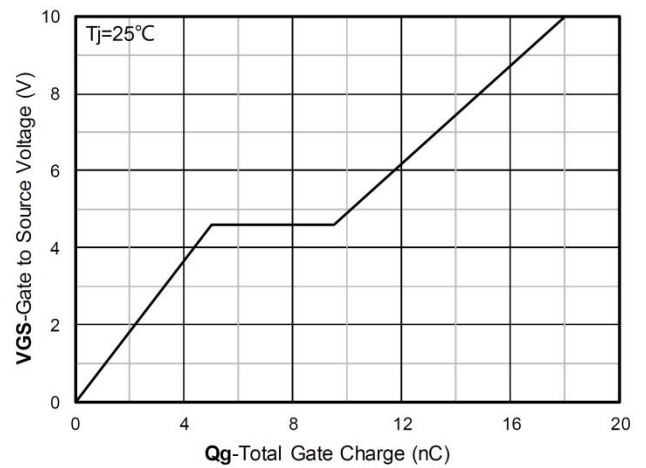
Output Characteristics



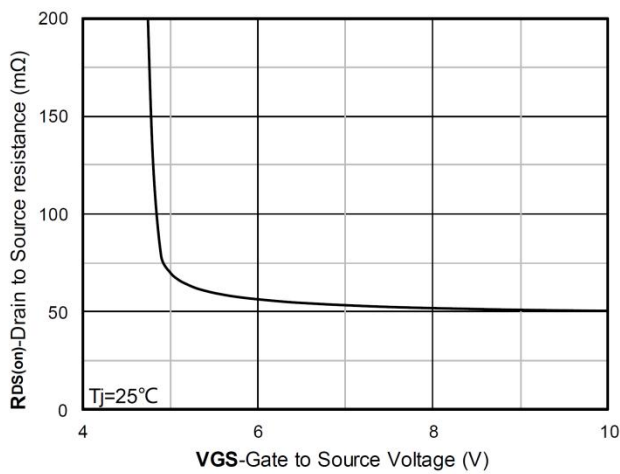
Transfer Characteristics



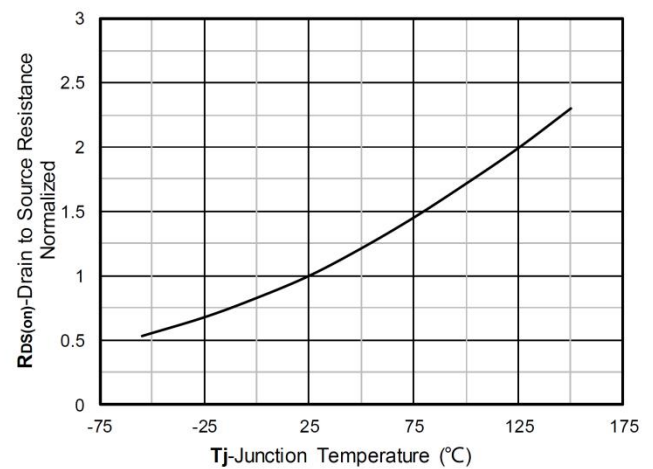
Capacitance Characteristics



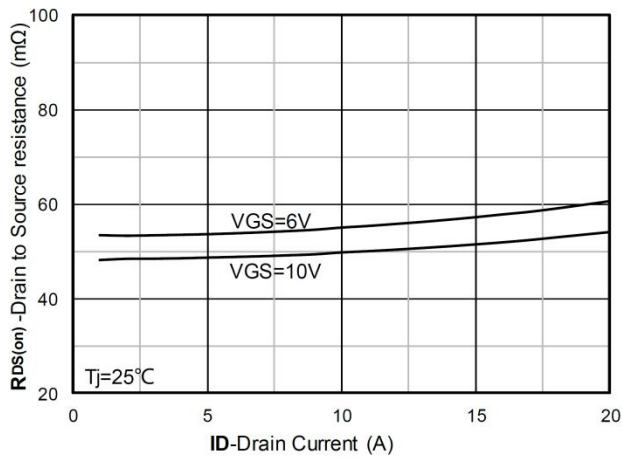
Gate Charge



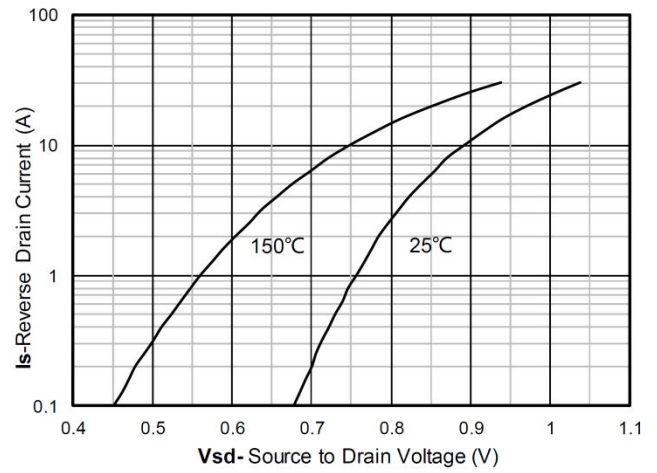
On-Resistance vs Gate to Source Voltage



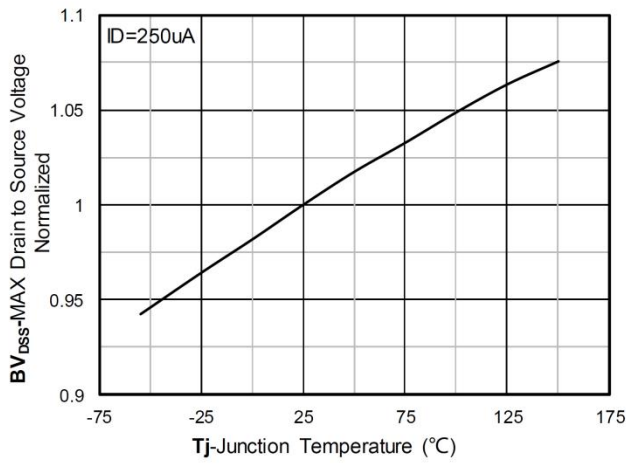
Normalized On-Resistance



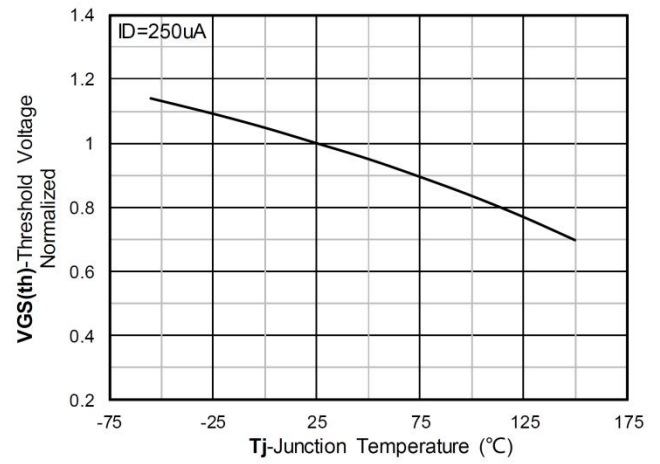
RDS(on) VS Drain Current



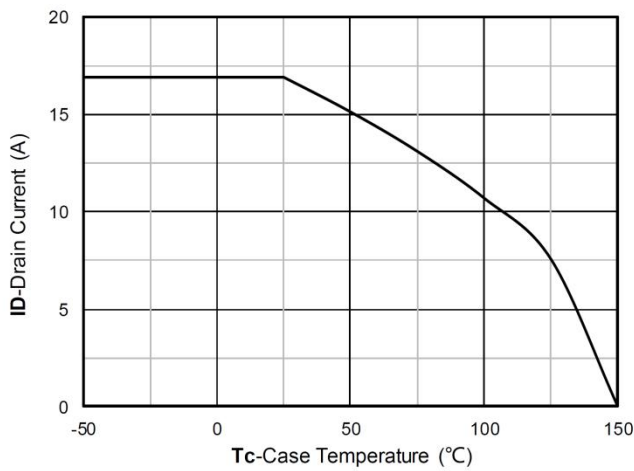
Forward characteristics of reverse diode



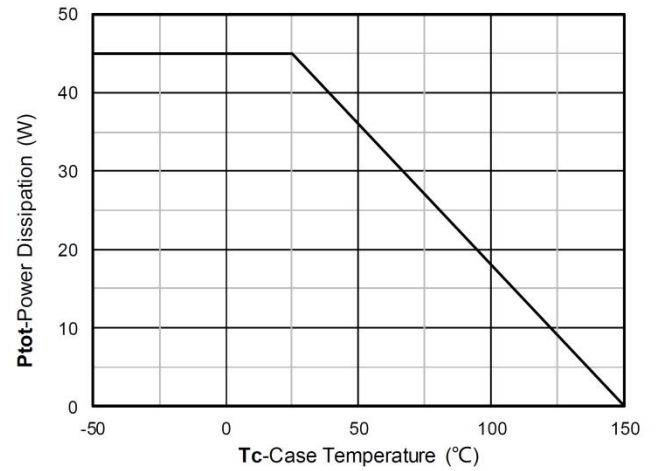
Normalized breakdown voltage



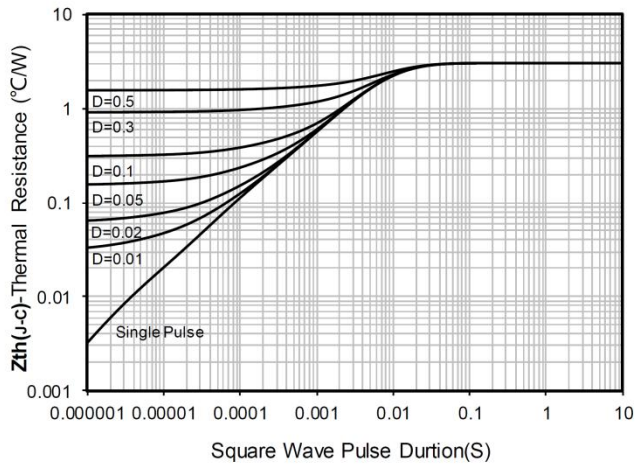
Normalized Threshold voltage



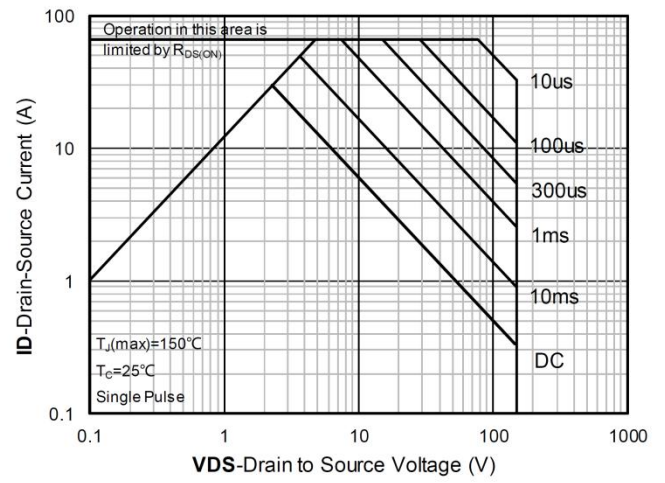
Current dissipation



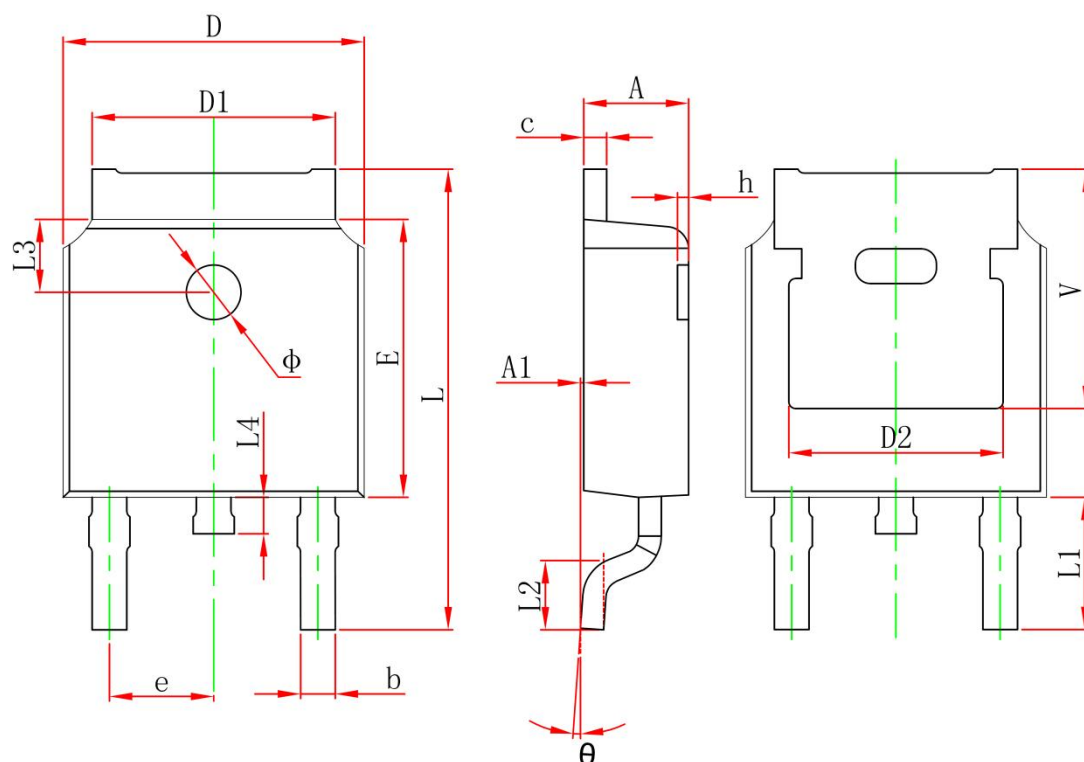
Power dissipation



Maximum Transient Thermal Impedance



Safe Operation Area

TO-252 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	