

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
150V	10mΩ@10V	130A



合肥矽普半导体

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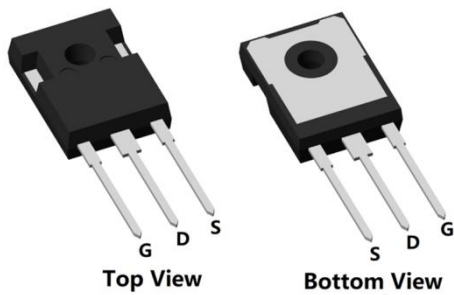
Feature

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

Applications

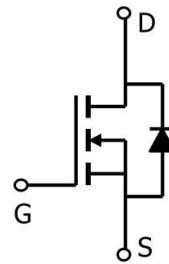
- PWM Application
- Hard switched and high frequency circuits
- Power Management

Package

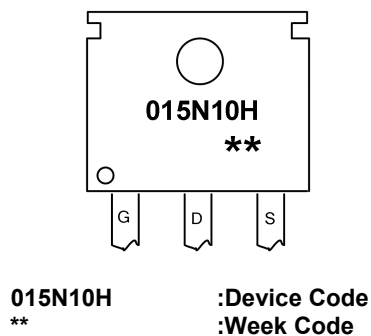


TO-247(1:G 2:D 3:S)

Circuit diagram



Marking



Order Information

Device	Package	Unit/Tube
SP015N10HTF	TO-247	30

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	130	A
Continuous Drain Current (Tc=100°C)	I_D	87	A
Pulsed Drain Current	I_{DM}	520	A
Single Pulse Avalanche Energy ¹	E_{AS}	1056	mJ
Power Dissipation (Tc=25°C)	P_D	370	W
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.34	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

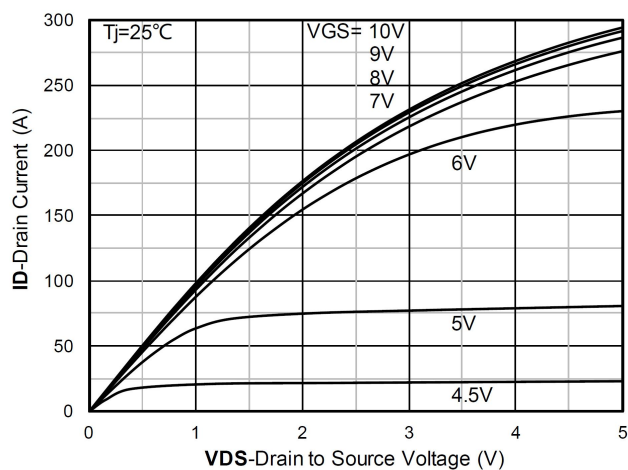
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	150	-	-	V
Drain-Source Leakage Current	IDSS	VDS=120V , VGS=0V , TJ=25℃	-	-	1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID =250uA	3.0	4.0	5.0	V
Static Drain-Source On-Resistance	RDS(ON)	VGS=10V , ID=20A	-	10	13	mΩ
Dynamic characteristics						
Input Capacitance	Ciss	VDS=75V , VGS=0V , f=1MHz	-	11685	-	pF
Output Capacitance	Coss		-	375	-	
Reverse Transfer Capacitance	Crss		-	296	-	
Total Gate Charge	Qg	VDS=75V , VGS=10V , ID=20A	-	275	-	nC
Gate-Source Charge	Qgs		-	45	-	
Gate-Drain Charge	Qgd		-	87	-	
Switching Characteristics						
Turn-On Delay Time	Td(on)	VDD=75V, VGS=10V , RG=2.5Ω, ID=20A	-	27	-	ns
Rise Time	Tr		-	32	-	
Turn-Off Delay Time	Td(off)		-	110	-	
Fall Time	Tf		-	40	-	
Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V
Diode Continuous Current	IS		-	-	130	A
Reverse recover time	Trr	IS=100A, di/dt=100A/us, Tj=25℃	-	57	-	ns
Reverse recovery charge	Qrr		-	175	-	nC

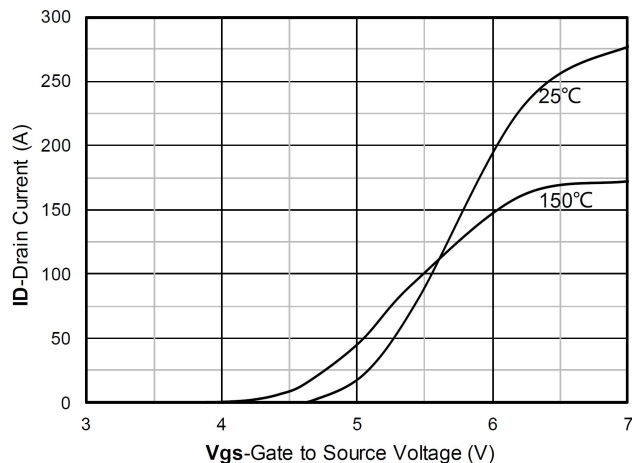
Note :

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

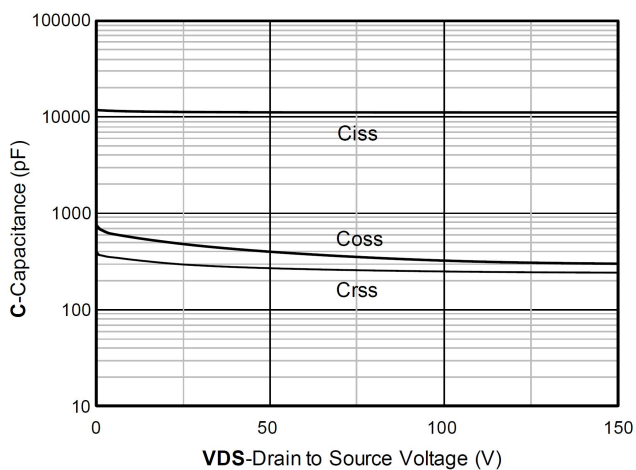
Typical Characteristics



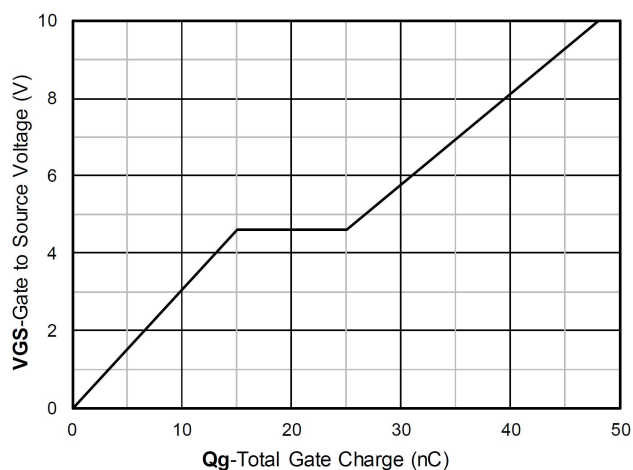
Output Characteristics



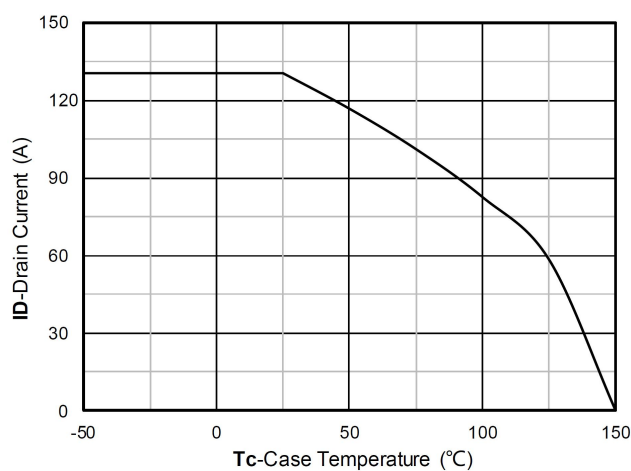
Transfer Characteristics



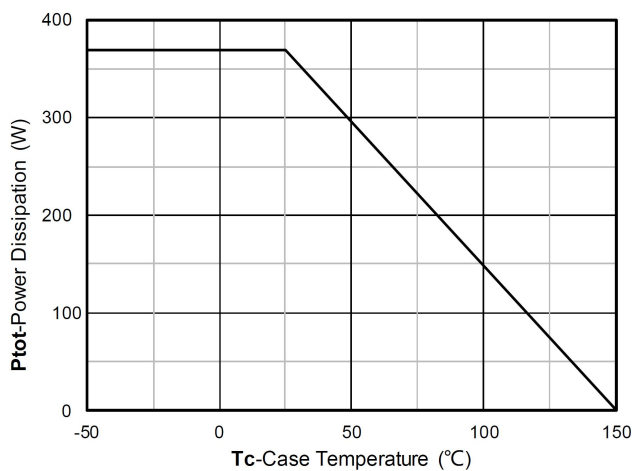
Capacitance Characteristics



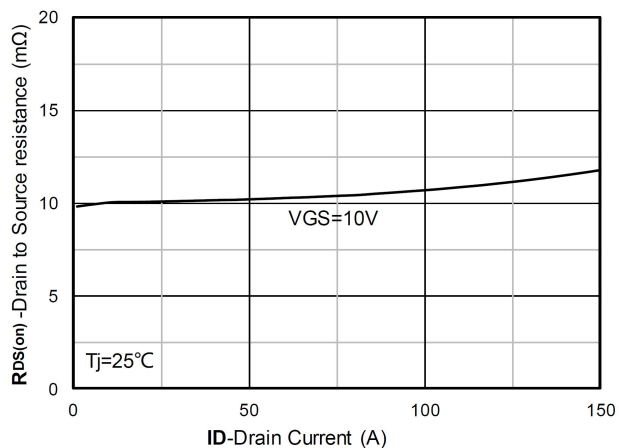
Gate Charge



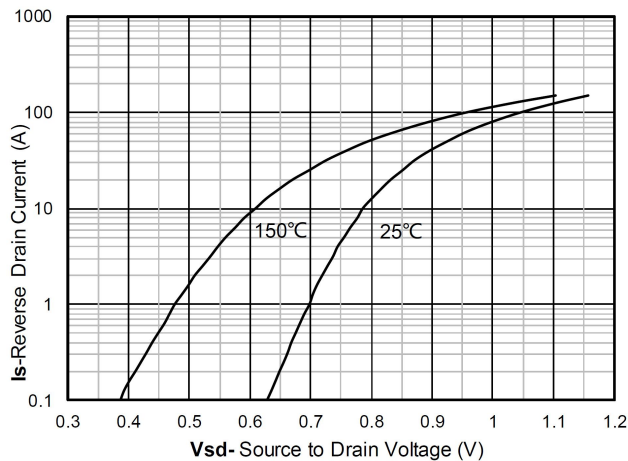
Current dissipation



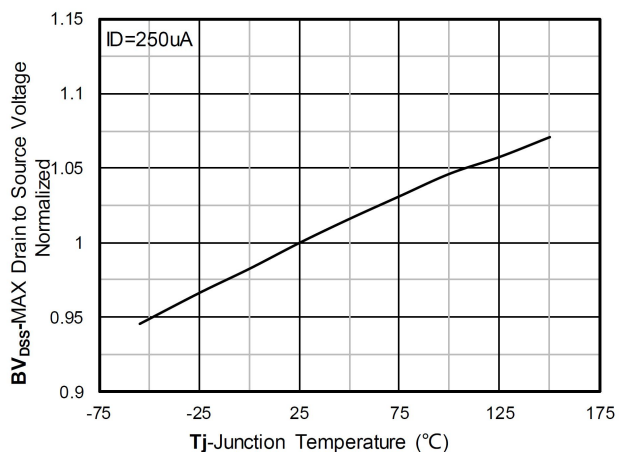
Power dissipation



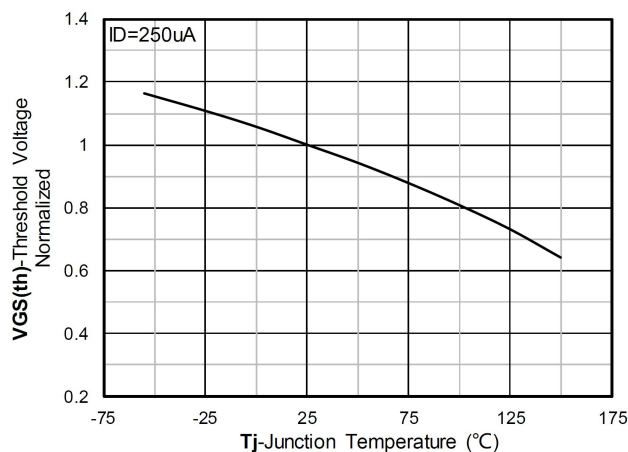
RDS(on) VS Drain Current



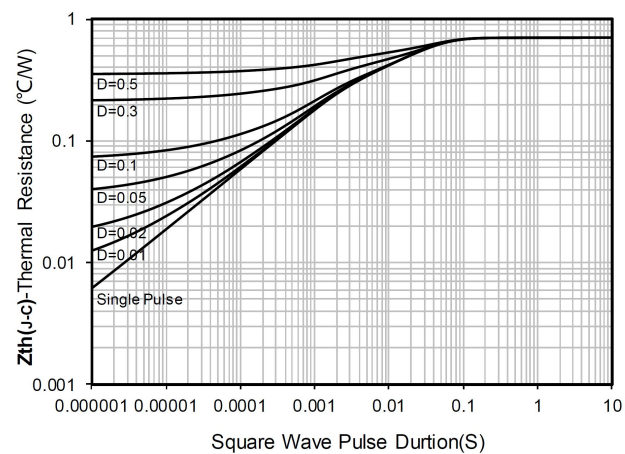
Forward characteristics of reverse diode



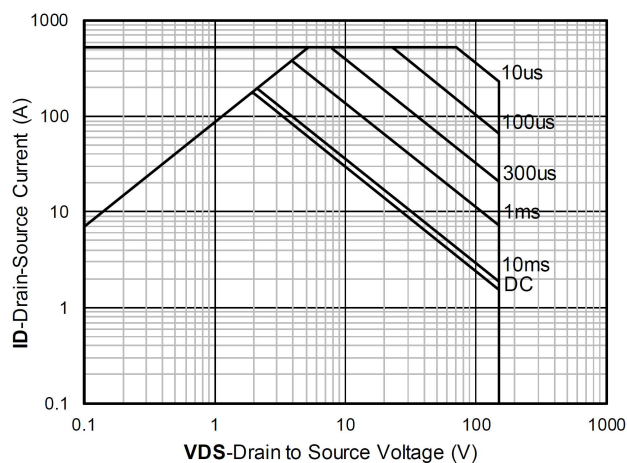
Normalized breakdown voltage



Normalized Threshold voltage

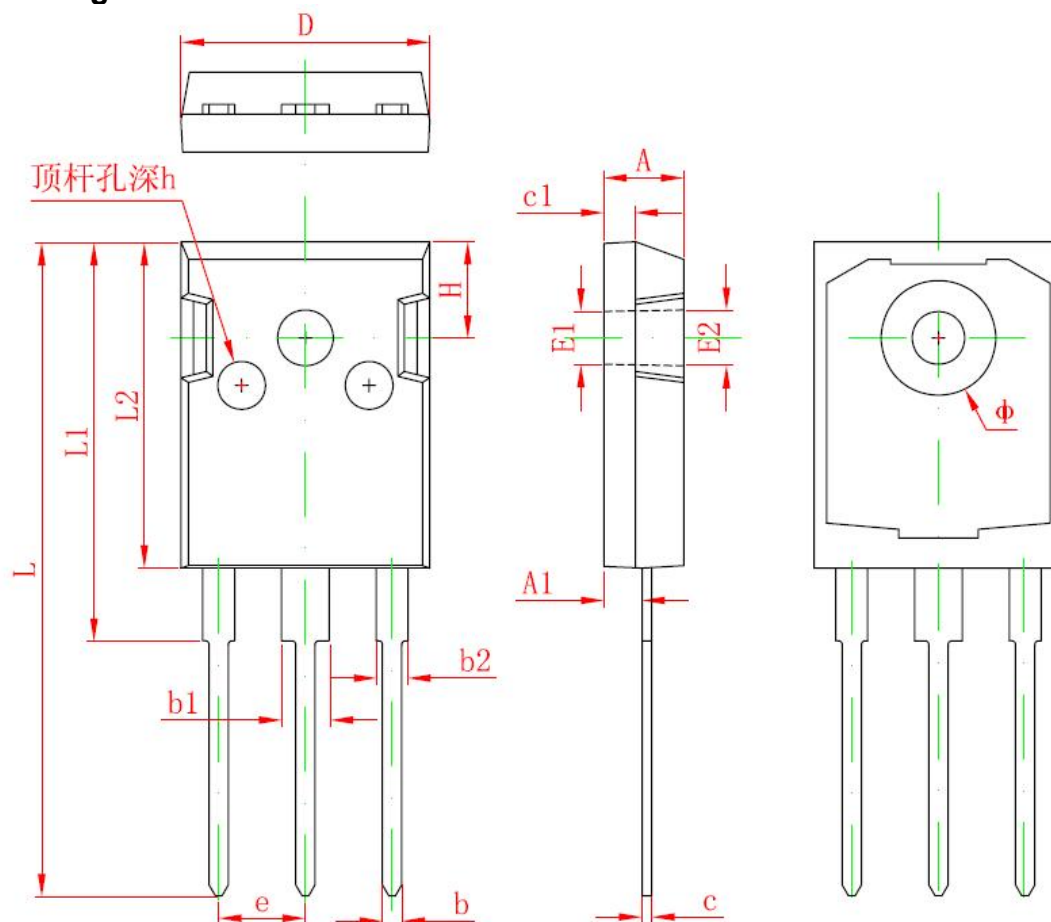


Maximum Transient Thermal Impedance



Safe Operation Area

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
b2	1.800	2.200	0.071	0.087
b	1.000	1.400	0.039	0.055
b1	2.800	3.200	0.110	0.126
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.	
H1	5.980 REF.		0.235 REF.	
h	0.000	0.300	0.000	0.012