Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
85V	2.1mΩ@10V	230A

合肥矽普半导体
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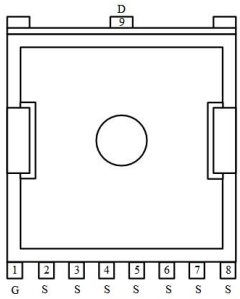
Feature

- 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



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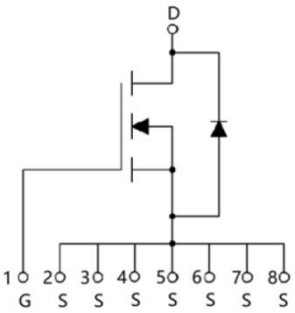
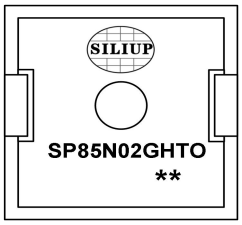
Circuit diagram



Marking



SP85N02GHTO : Product code
** : Week code

Order Information

Device	Package	Unit/Tape
SP85N02GHTO	TOLL	2000

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	85	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current1 (Tc=25℃)	I_D	230	A
Continuous Drain Current1 (Tc=100℃)	I_D	153	A
Pulsed Drain Current	I_{DM}	920	A
Single Pulse Avalanche Energy[1]	E_{AS}	756	mJ
Power Dissipation (Tc=25℃)	P_D	285	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.44	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

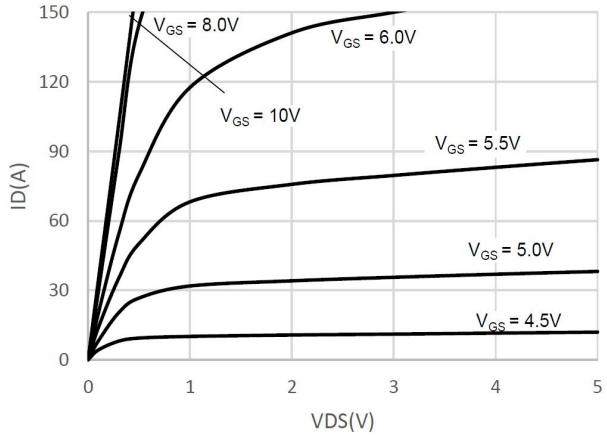
Electrical characteristics (Ta=25℃, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	ID = 250μA, VGS = 0V	85	90	-	V
Drain Cut-Off Current	I_{DSS}	VDS = 68V, VGS = 0V	-	-	1	μA
Gate Leakage Current	I_{GSS}	VGS = ±20V, VDS = 0V	-	-	±0.1	
Gate Threshold Voltage	$V_{GS(th)}$	VDS = VGS, ID = 250μA	2.0	3.0	4.0	V
Drain-Source ON Resistance	$R_{DS(ON)}$	VGS = 10V, ID = 20A	-	2.1	2.6	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	VDS =40V, VGS = 0V, f = 1.0MHz	-	6421	-	pF
Output Capacitance	C_{oss}		-	1226	-	
Reverse Transfer Capacitance	C_{rss}		-	24	-	
Total Gate Charge	Q_g	VDS=40V , VGS=10V , ID=130A	-	94	-	nC
Gate-Source Charge	Q_{gs}		-	33.5	-	
Gate-Drain Charge	Q_{gd}		-	19.5	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	VGS = 10V, VDS = 40V, ID=130A , RG = 1.6Ω	-	27	-	nS
Rise Time	t_r		-	35	-	
Turn-Off Delay Time	$t_{d(off)}$		-	62	-	
Fall Time	t_f		-	32	-	
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		-	-	230	A
Reverse Recovery Time	Trr	I_S=20A, di/dt=100A/us, TJ=25℃	-	112	-	nS
Reverse Recovery Charge	Qrr		-	225	-	nC

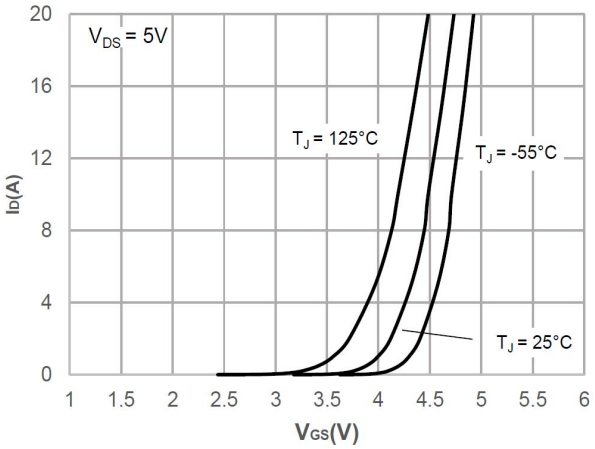
Note :

1. The test condition is VDD=45V,VGS=10V,L=0.1mH,RG=25Ω

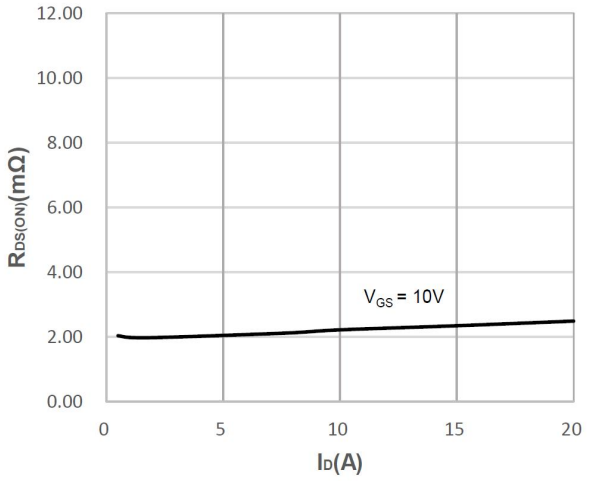
Typical Characteristics



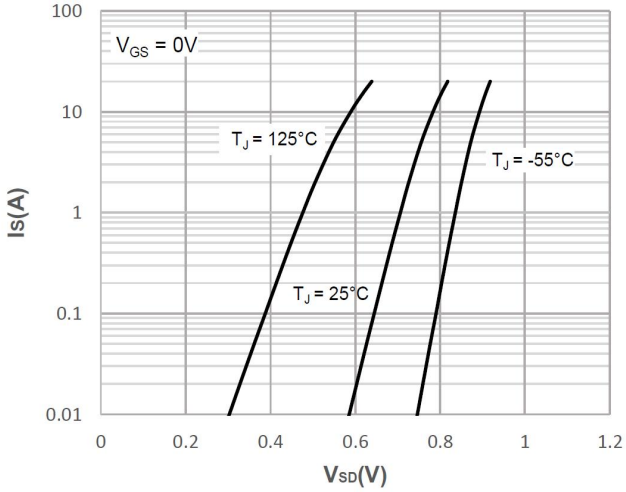
Output Characteristics



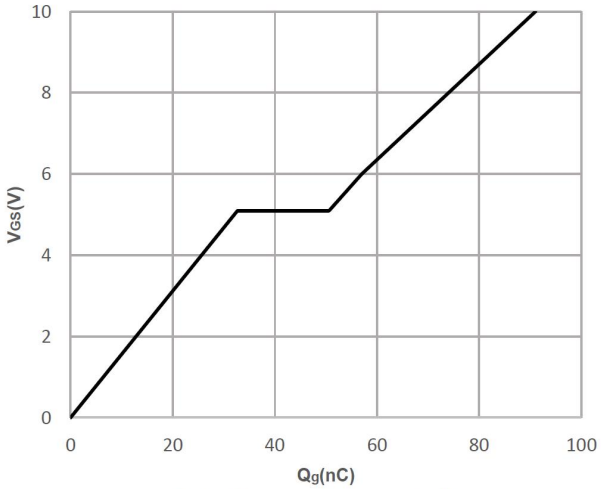
Typical Transfer Characteristics



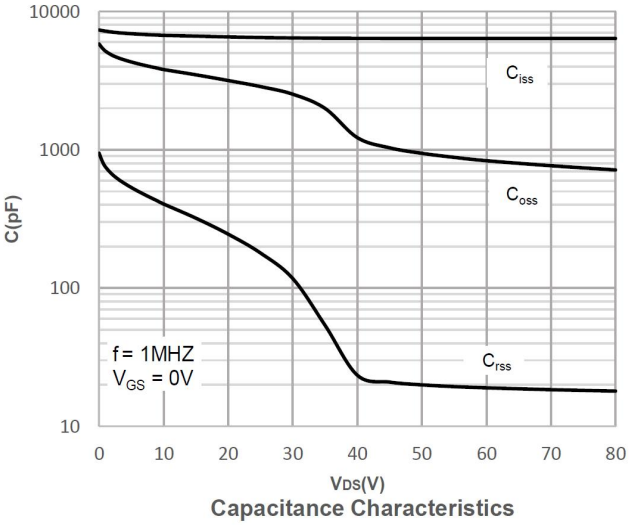
On-resistance vs. Drain Current



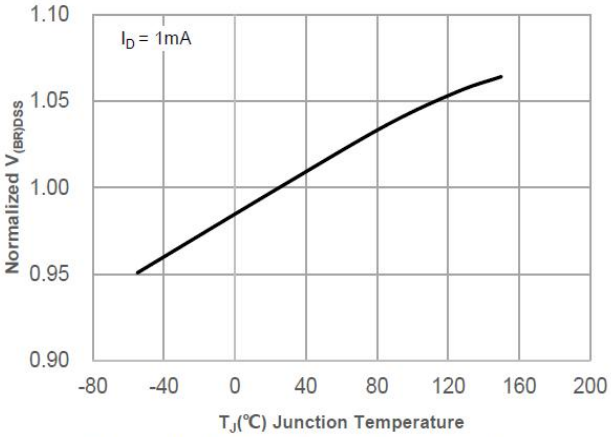
Body Diode Characteristics



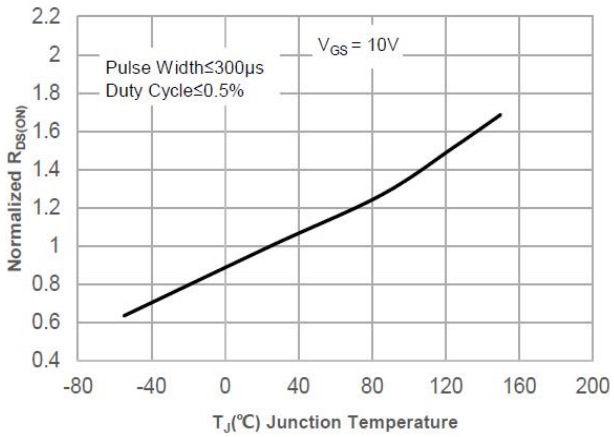
Gate Charge Characteristics



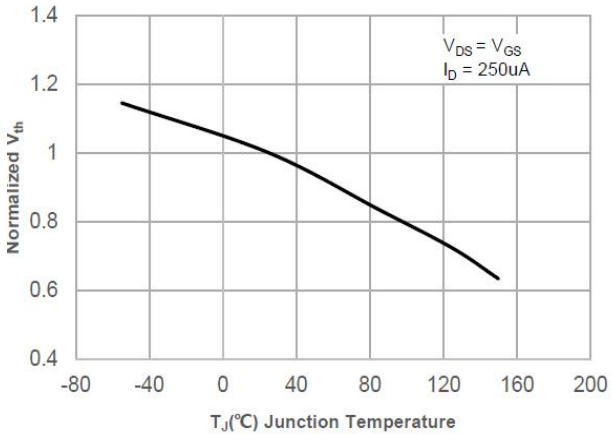
Capacitance Characteristics



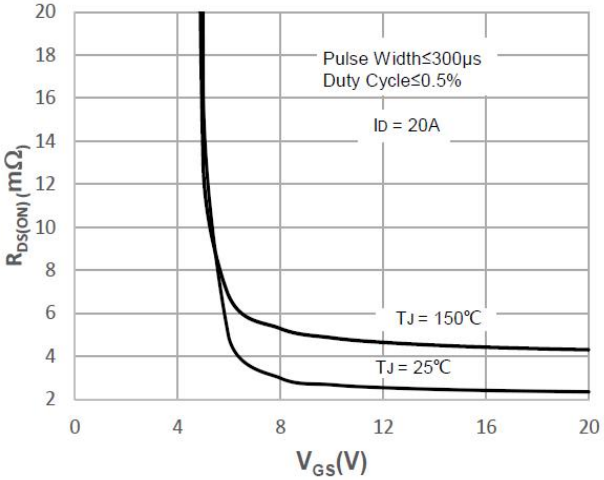
Normalized Breakdown voltage vs. Junction Temperature



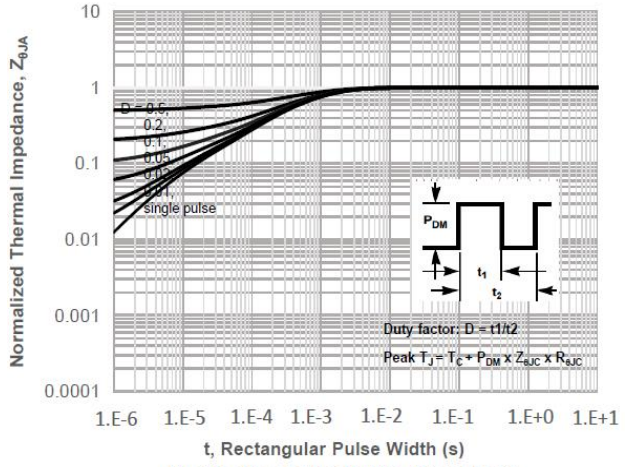
Normalized on Resistance vs. Junction Temperature



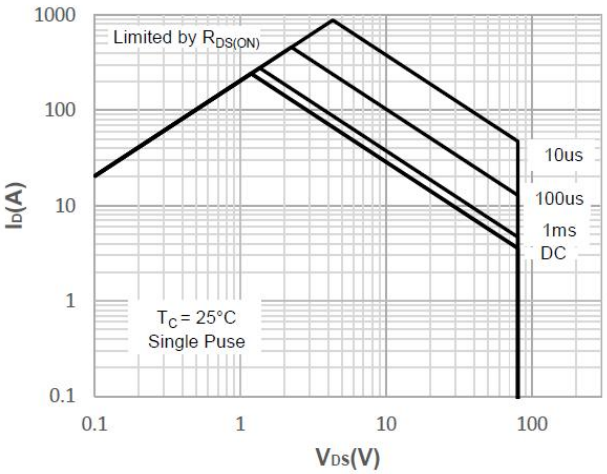
Normalized Threshold Voltage vs. Junction Temperature



$R_{DS(ON)}$ vs. V_{GS}

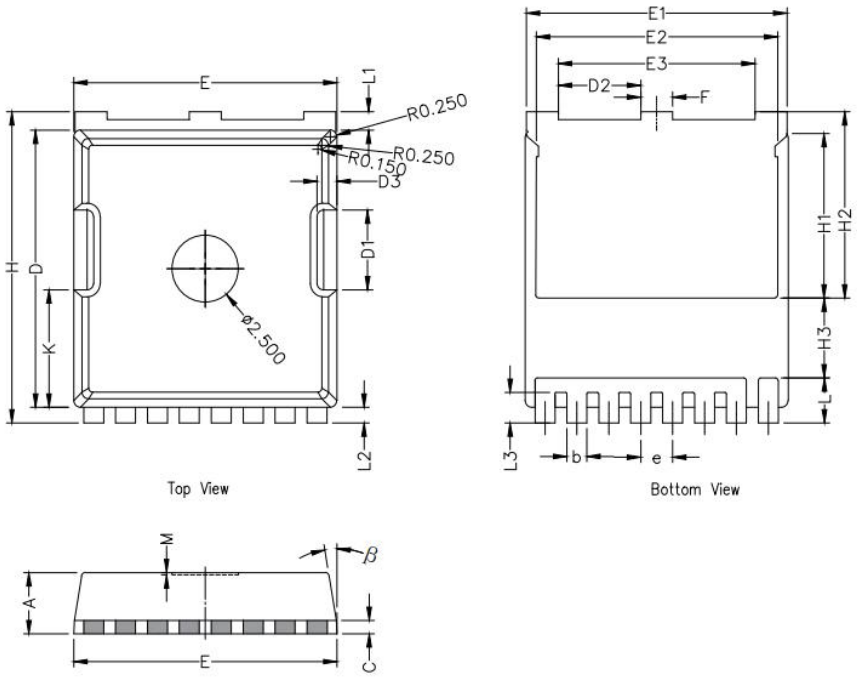


Normalized Maximum Transient Thermal Impedance



Maximum Safe Operating Area

TOLL Package Information



Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	2.20	2.30	2.40
b	0.65	0.75	0.85
C		0.508 REF	
D	10.25	10.40	10.55
D1	2.85	3.00	3.15
E	9.75	9.90	10.05
E1	9.65	9.80	9.95
E2	8.95	9.10	9.25
E3	7.25	7.40	7.55
e		1.20 BSC	
F	1.05	1.20	1.35
H	11.55	11.70	11.85
H1	6.03	6.18	6.33
H2	6.85	7.00	7.15
H3		3.00 BSC	
L	1.55	1.70	1.85
L1	0.55	0.7	0.85
L2	0.45	0.6	0.75
M		0.08 REF.	
β	8°	10°	12°
K	4.25	4.40	4.55