

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	6.5mΩ@10V	110A
	8.1mΩ@4.5V	



合肥矽普半导体

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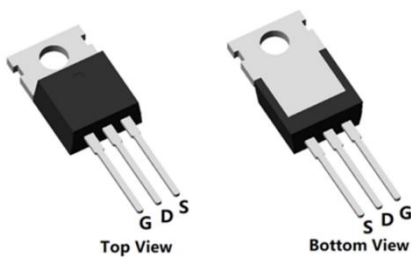
Feature

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

Applications

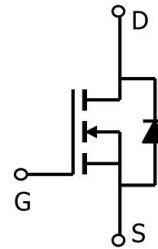
- Power switching application
- Battery management
- Uninterruptible power supply

Package

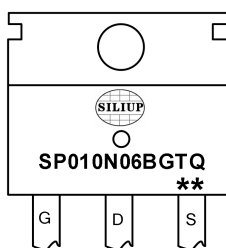


TO-220-3L-C(1:G 2:D 3:S)

Circuit diagram



Marking



SP010N06BGTQ : Product code
****** : Week code

Order Information

Device	Package	Unit/Tube
SP010N06BGTQ	TO-220-3L	50

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (Tc=25°C)	I_D	110	A
Continuous Drain Current (Tc=100°C)	I_D	73	A
Pulsed Drain Current	I_{DM}	440	A
Single Pulse Avalanche Energy ¹	E_{AS}	256	mJ
Power Dissipation (Tc=25°C)	P_D	125	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

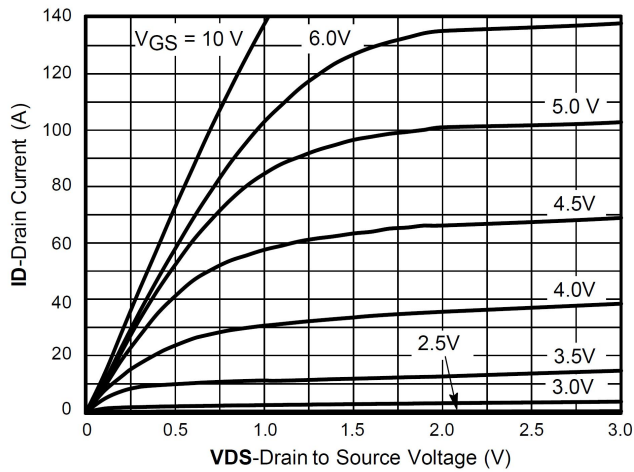
Electrical characteristics (Ta=25°C, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	ID = 250μA, VGS = 0V	100	-	-	V
Drain Cut-Off Current	IDSS	VDS = 80V, VGS = 0V	-	-	1	uA
Gate Leakage Current	IGSS	VGS = ±20V, VDS = 0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VDS = VGS, ID = 250μA	1.0	1.7	2.5	V
Drain-Source ON Resistance	RDS(ON)	VGS = 10V, ID = 40A	-	6.5	8.2	mΩ
		VGS = 4.5V, ID = 30A	-	8.1	10	
Dynamic Characteristics						
Input Capacitance	Ciss	VDS =50V, VGS = 0V, f = 1.0MHz	-	2312	-	pF
Output Capacitance	Coss		-	729	-	
Reverse Transfer Capacitance	Crss		-	25.6	-	
Total Gate Charge	Qg	VDS=50V , VGS=10V , ID=50A	-	40	-	nC
Gate-Source Charge	Qgs		-	7	-	
Gate-Drain Charge	Qgd		-	9	-	
Switching Characteristics						
Turn-On Delay Time	td(on)	VGS = 10V, VDS =50V, ID=50A RG = 4.7Ω	-	17.6	-	nS
Rise Time	tr		-	21	-	
Turn-Off Delay Time	td(off)		-	31	-	
Fall Time	tf		-	10.6	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	IS		-	-	110	A
Reverse Recovery Time	Trr	IS=20A, di/dt=100A/us, TJ=25℃	-	51	-	nS
Reverse Recovery Charge	Qrr		-	85	-	nC

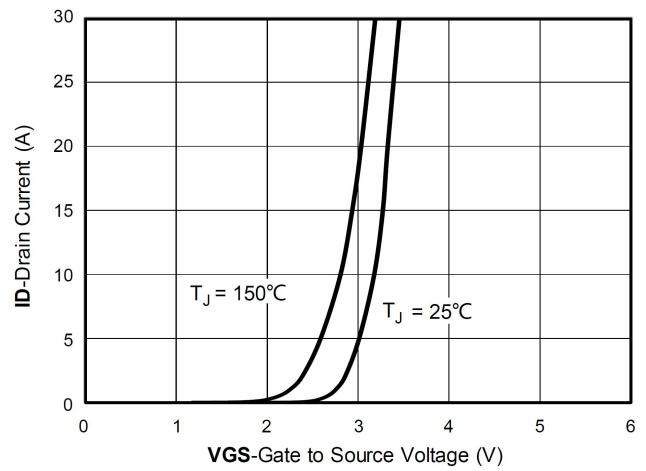
Note:

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

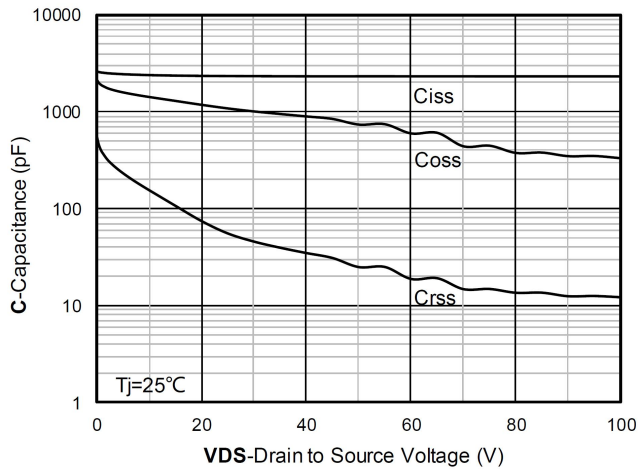
Typical Characteristics



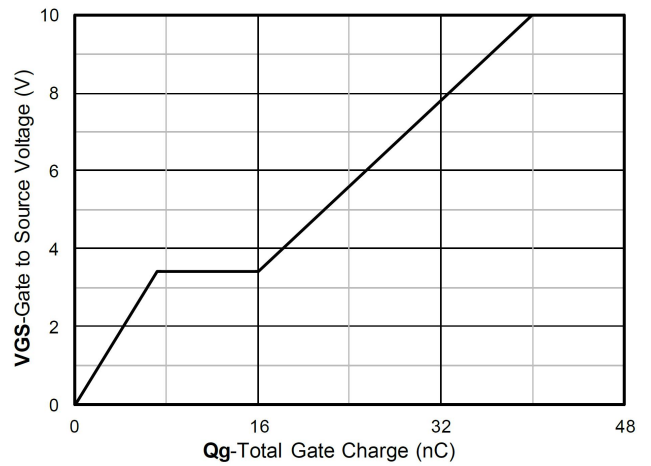
Output Characteristics



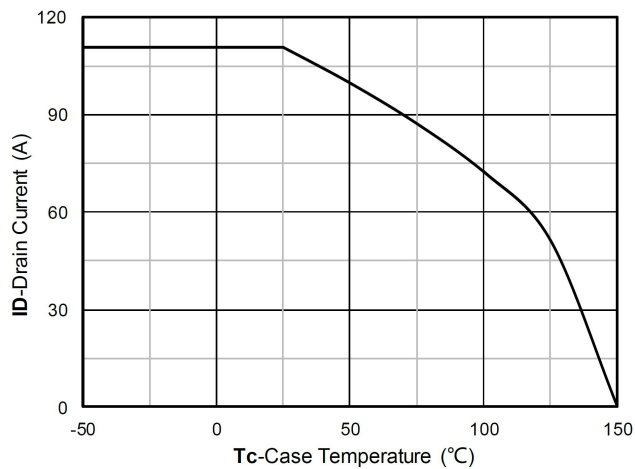
Transfer Characteristics



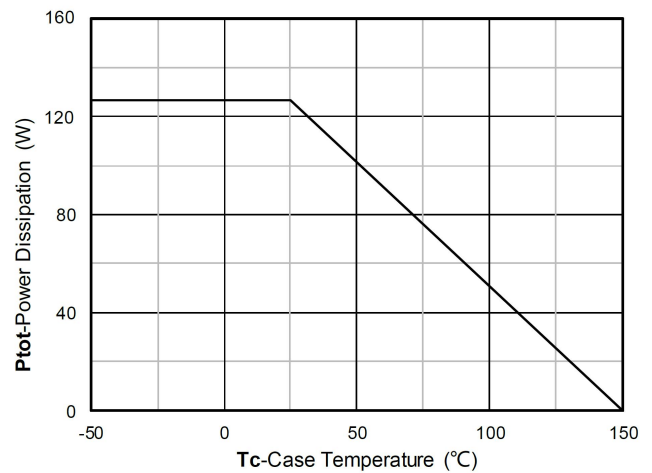
Capacitance Characteristics



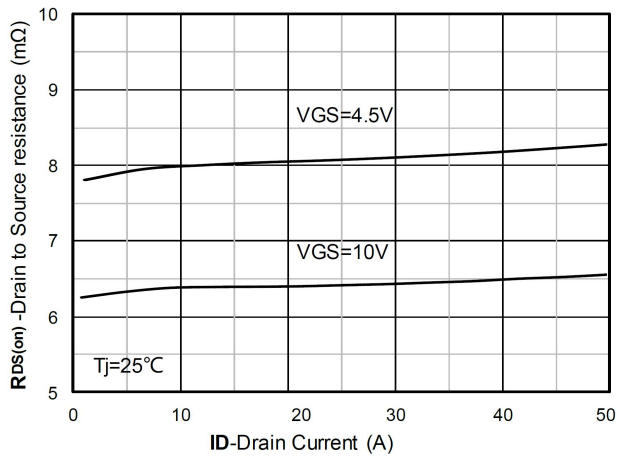
Gate Charge



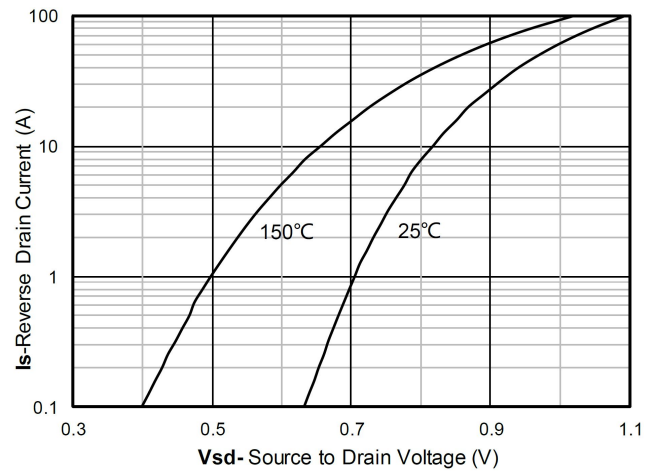
Current dissipation



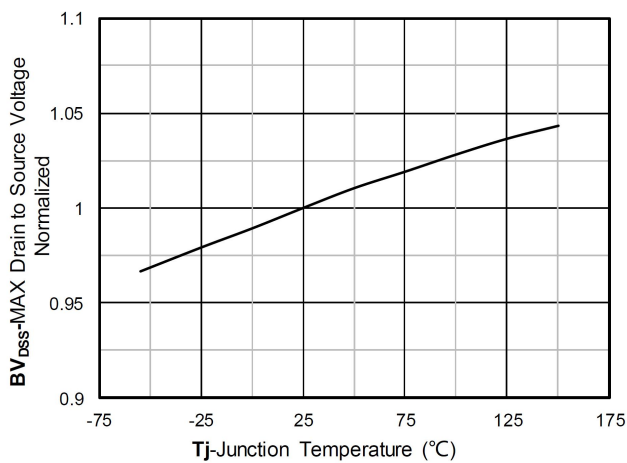
Power dissipation



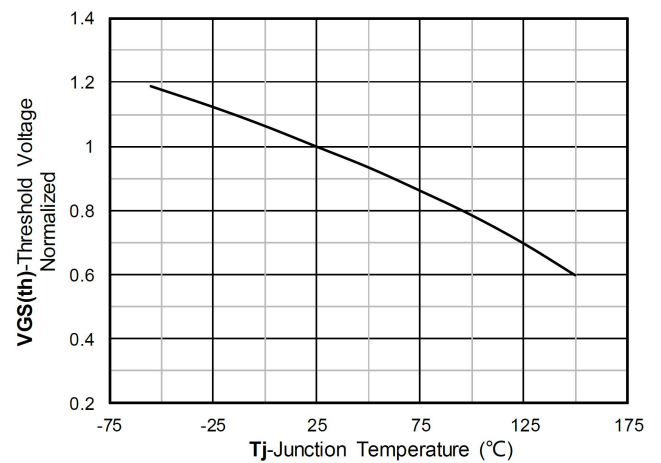
$R_{DS(on)}$ VS Drain Current



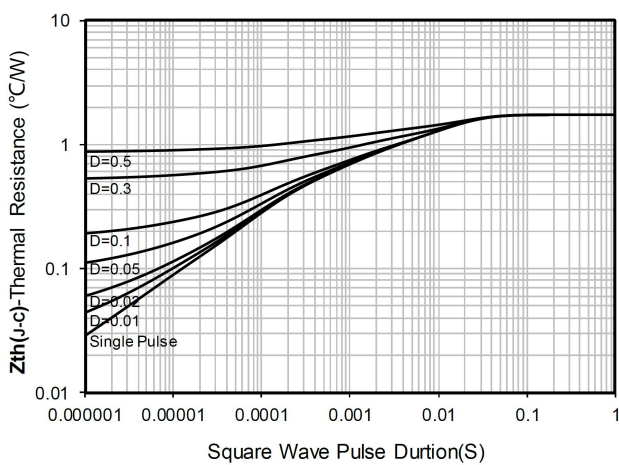
Forward characteristics of reverse diode



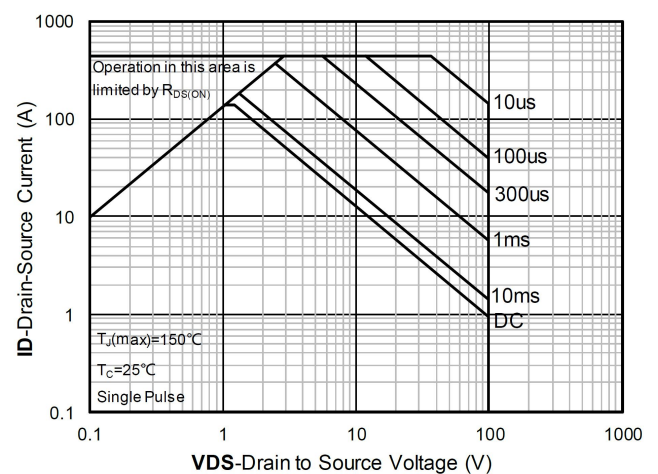
Normalized breakdown voltage



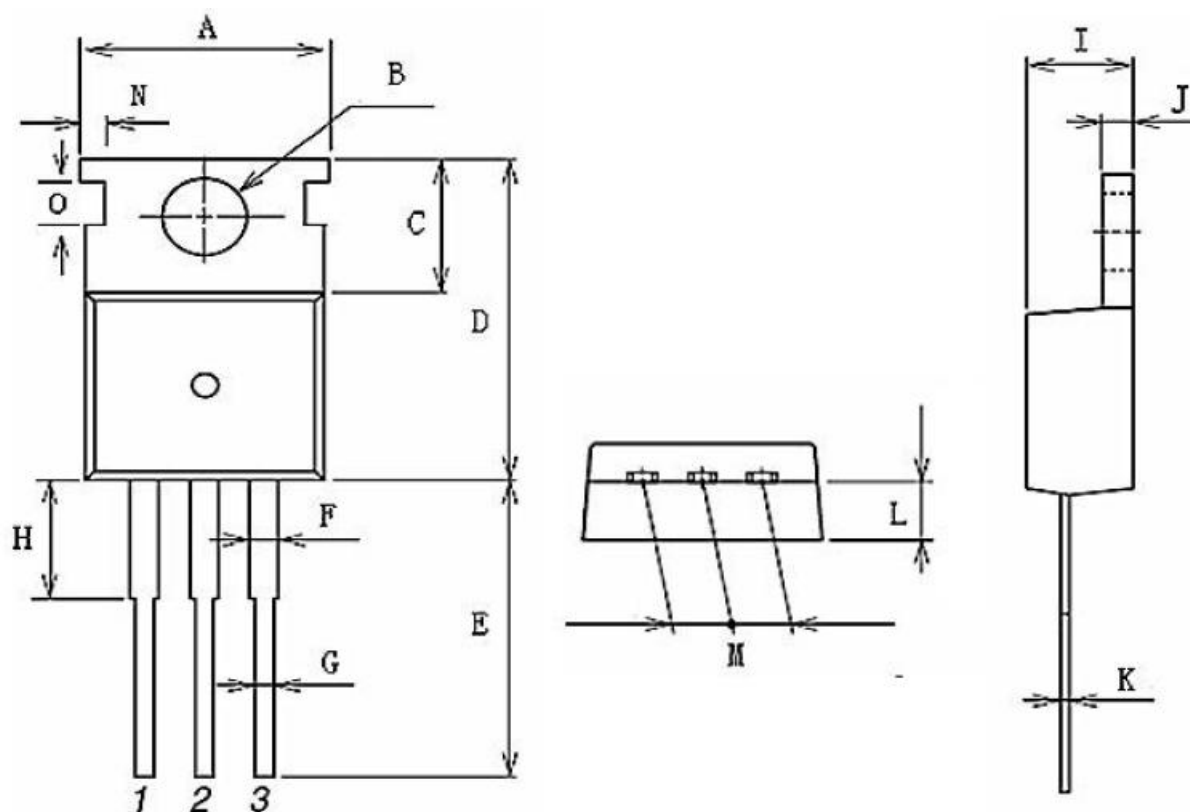
Normalized Threshold voltage



Maximum Transient Thermal Impedance



Safe Operation Area

TO-220-3L Package Information


Symbol	Dimensions In Millimeters	
	Min.	Max.
A	9.85	10.15
B	3.60	3.70
C	6.35	6.55
D	15.55	15.95
E	12.85	13.15
F	1.17	1.37
G	0.70	0.90
H	2.30	2.70
I	4.40	4.60
J	1.20	1.40
K	0.40	0.60
L	2.23	2.53
M	4.98	5.18
N	0.55	0.75
O	1.62	1.82