Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	3.2mΩ@10V	210A

合肥矽普半导体
Siliup Semiconductor Technology Co.Ltd
技术 品质 服务
www.siliup.com

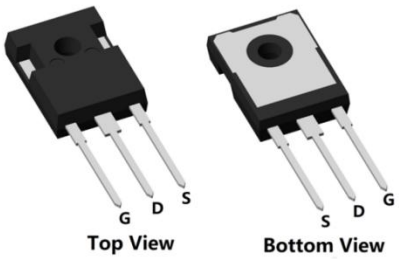
Feature

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

Applications

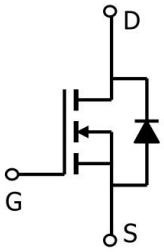
- Power switching application
- DC-DC Converter
- Power Management

Package

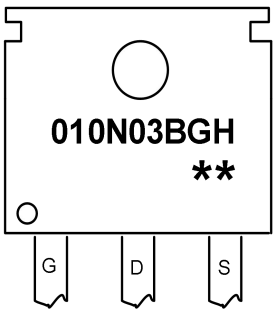


TO-247(1:G 2:D 3:S)

Circuit diagram



Marking



010N03BGH : Product code
**** : Week code**

Order Information

Device	Package	Unit/Tube
SP010N03BGHTF	TO-247	30

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

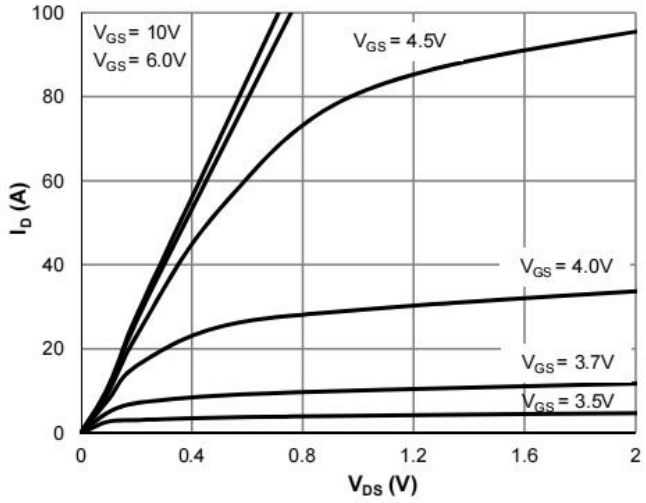
Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃)	I_D	210	A
Continuous Drain Current (Tc=100℃)	I_D	140	A
Pulsed Drain Current	I_{DM}	840	A
Single Pulse Avalanche Energy[1]	E_{AS}	3136	mJ
Power Dissipation (Tc=25℃)	P_D	235	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.53	℃/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)

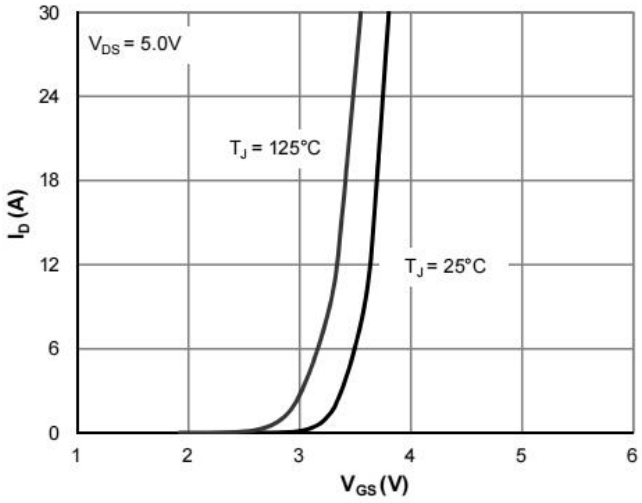
Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=250uA	100	-	-	V
Drain Cut-Off Current	I_{DSS}	VDS=80V , VGS=0V , TJ=25℃	-	-	1	μA
Gate Leakage Current	I_{GSS}	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VGS=VDS , ID =250uA	2.0	2.8	4.0	V
Drain-Source ON Resistance	$R_{DS(ON)}$	VGS=10V , ID=20A	-	3.2	4.5	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	VDS=50V , VGS=0V , f=1MHz	-	4398	-	pF
Output Capacitance	C_{oss}		-	1361	-	
Reverse Transfer Capacitance	C_{rss}		-	8.5	-	
Total Gate Charge	Q_g	VDS=50V , VGS=10V , ID=125A	-	90	-	nC
Gate-Source Charge	Q_{gs}		-	13	-	
Gate-Drain Charge	Q_{gd}		-	19	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	VDD=50V, VGS=10V , RG=1.6Ω, ID=125A	-	20	-	nS
Rise Time	t_r		-	70	-	
Turn-Off Delay Time	$t_{d(off)}$		-	50	-	
Fall Time	t_f		-	16	-	
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		-	-	210	A
Reverse Recovery Time	Trr	I_S=50A, di/dt=100A/us, TJ=25℃	-	86	-	nS
Reverse Recovery Charge	Qrr		-	206	-	nC

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

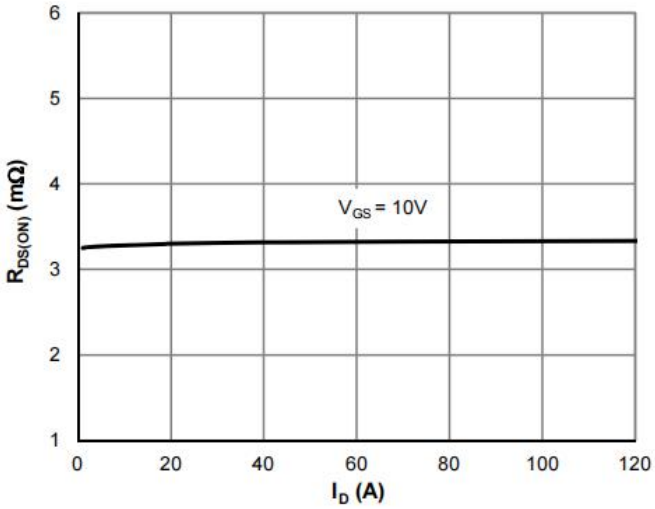
Typical Characteristics



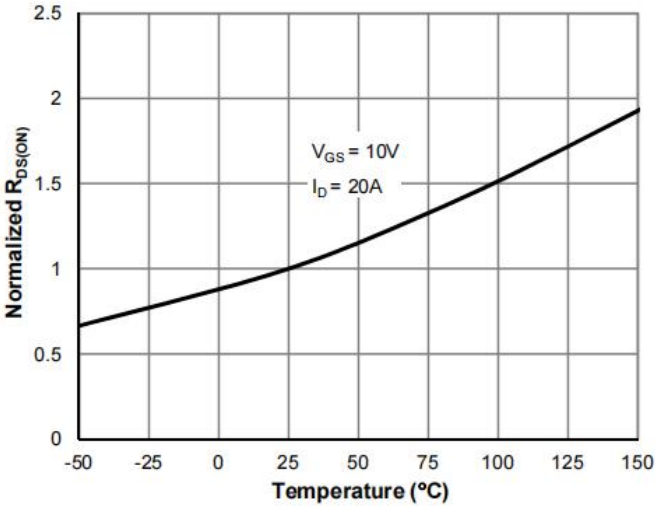
Typical Output Characteristics



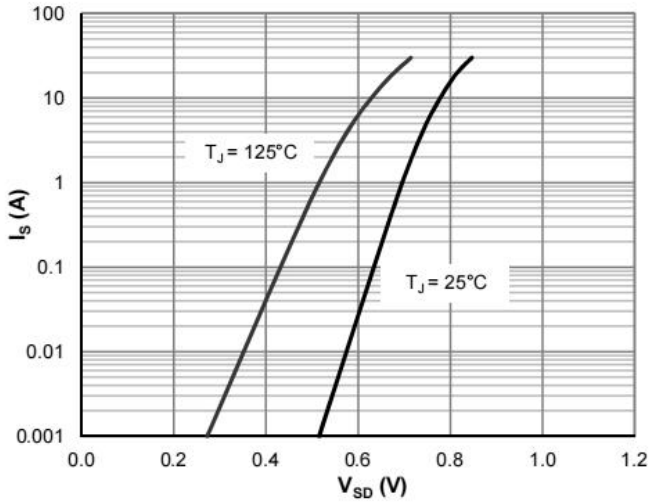
Transfer Characteristics



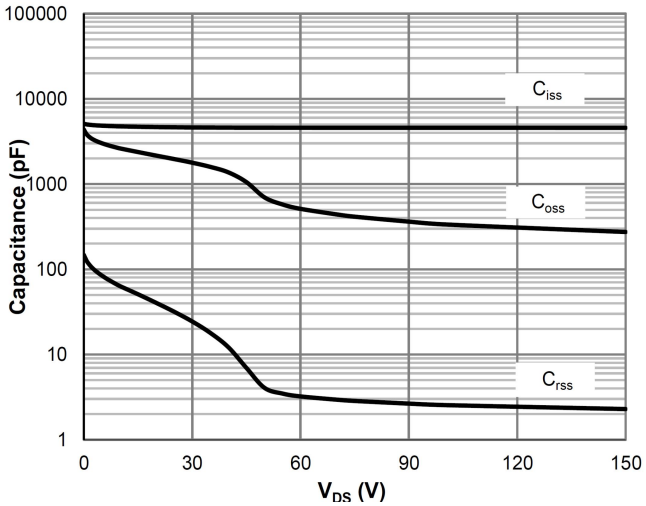
On-Resistance vs.Drain Current



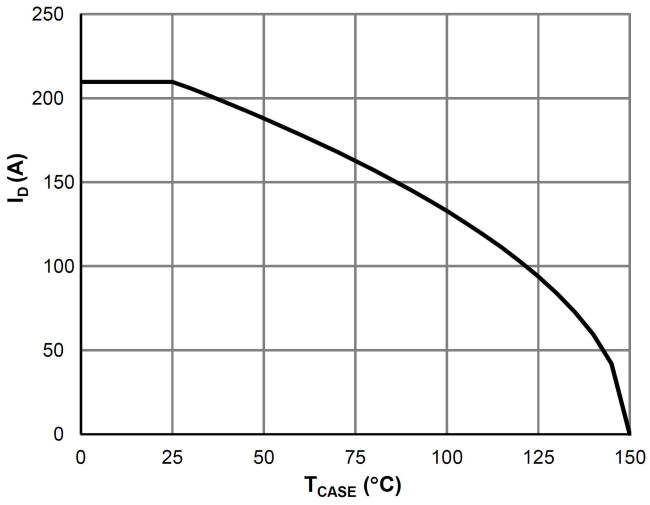
On-Resistance vs.Junction Temperature



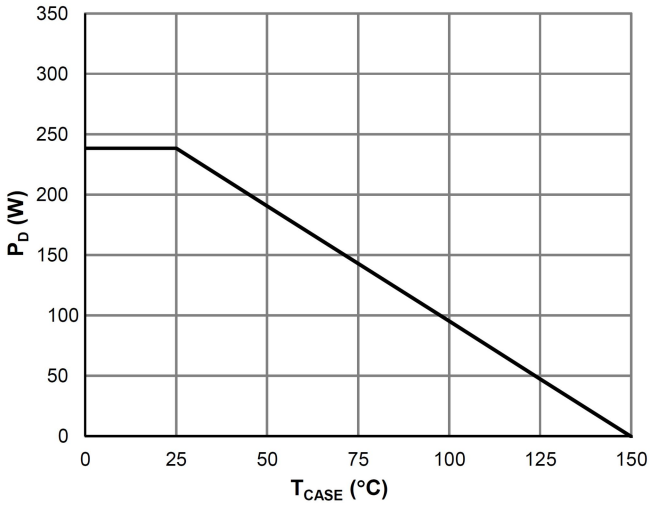
Body-Diode Characteristics



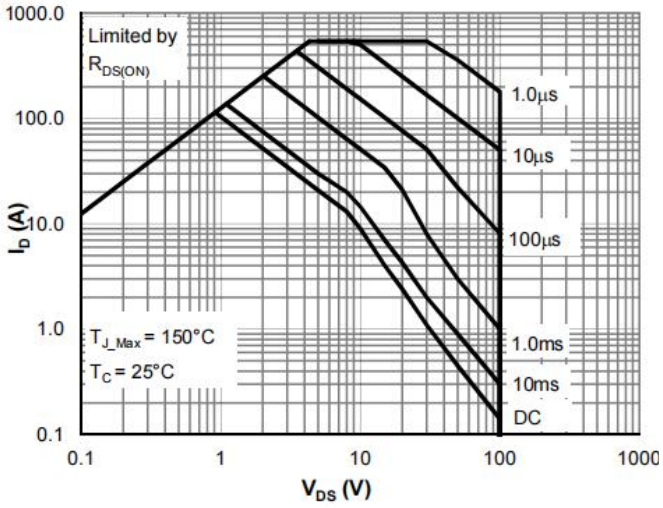
Capacitance Characteristics



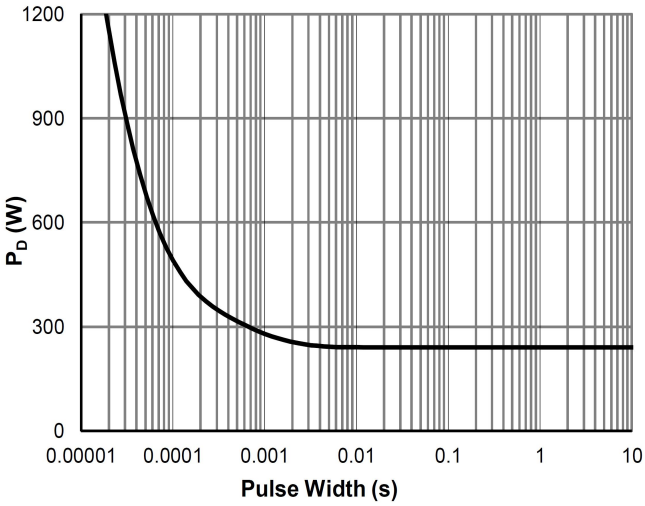
Current De-rating



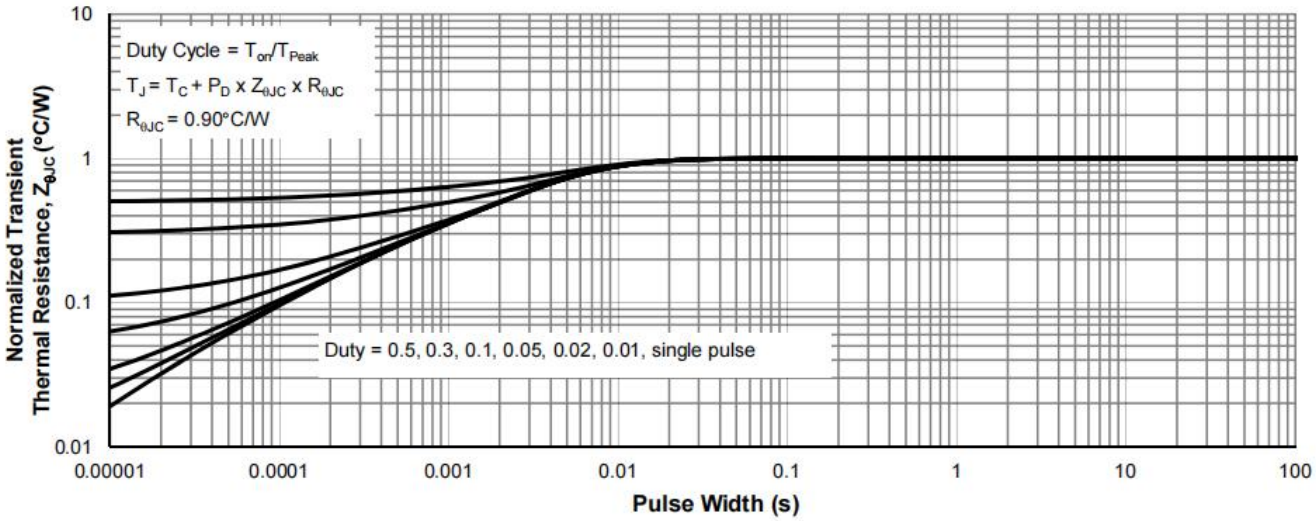
Power De-rating



Maximum Safe Operating Area

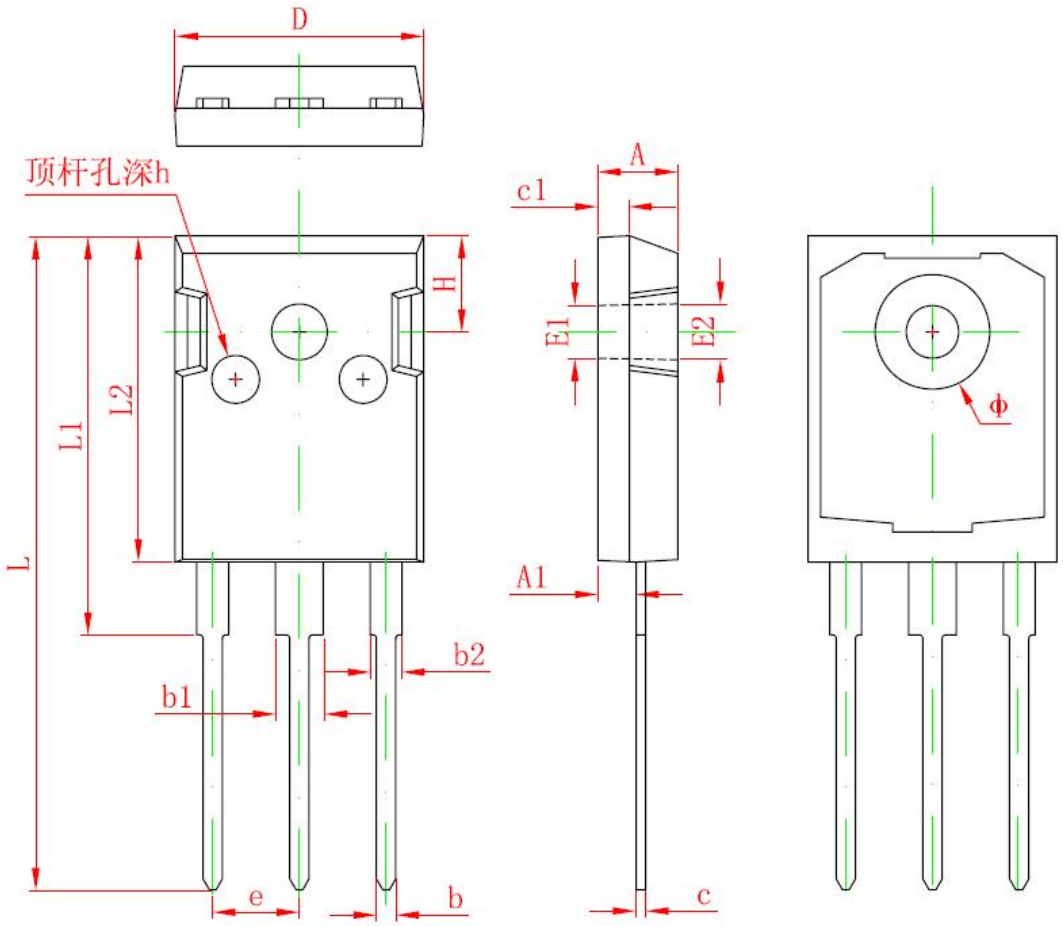


Single Pulse Power Rating,Junction-to-Case



Normalized Maximum Transient Thermal Impedance

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