Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
300V	8.3mΩ@10V	155A

合肥矽普半导体
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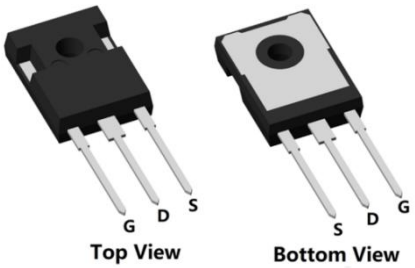
Feature

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

Applications

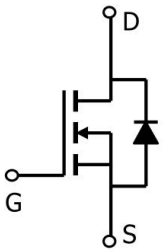
- PWM Application
- Hard switched and high frequency circuits
- Power Management

Package

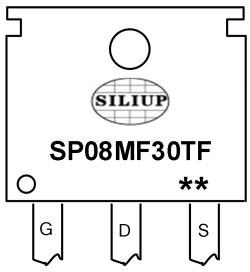


TO-247(1:G 2:D 3:S)

Circuit diagram



Marking



SP08MF30TF : Product code
**** : Week code**

Order Information

Device	Package	Unit/Tube
SP08MF30TF	TO-247	30

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

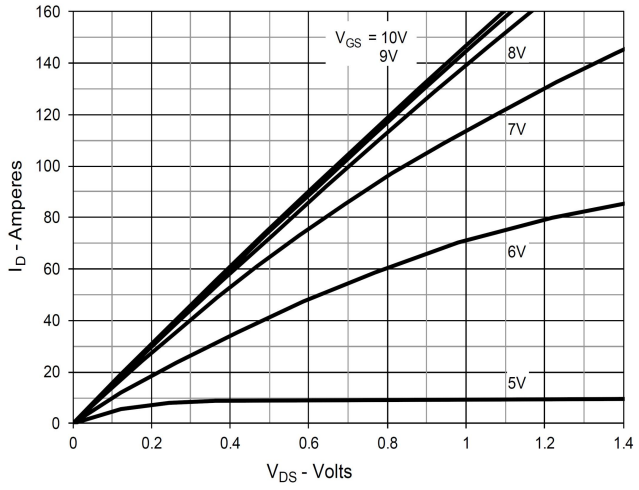
Parameter	Symbol	Rating	Unit
Drain source voltage	V_{DS}	300	V
Gate source voltage	V_{GS}	±30	V
Continuous drain current (Tc=25℃)	I_D	155	A
Continuous drain current (Tc=100℃)	I_D	102	A
Pulsed drain current	I_{DM}	620	A
Single pulsed avalanche energy[1]	E_{AS}	1225	mJ
Power dissipation (Tc=25℃)	P_D	298	W
Thermal resistance Junction-to-case	$R_{\theta JC}$	0.42	℃/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)

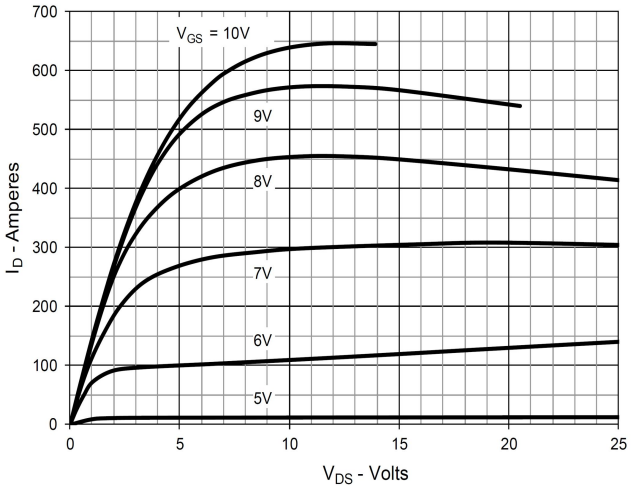
Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS = 0V,ID = 250μA	300	-	-	V
Drain Cut-Off Current	I_{DSS}	VDS = 240V, VGS = 0V	-	-	1	μA
Gate Leakage Current	I_{GSS}	VGS = ±30V, VDS = 0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VDS = VGS, ID = 250μA	3	4	5	V
Drain-Source ON Resistance	$R_{DS(ON)}$	VGS = 10V, ID = 30A	-	8.3	9.5	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	VDS =50V, V_{GS} = 0V, f = 1.0MHz	-	10816	-	pF
Output Capacitance	C_{oss}		-	1648	-	
Reverse Transfer Capacitance	C_{rss}		-	5.4	-	
Switching Characteristics						
Total Gate Charge	Q_g	VDS=100V , VGS=10V , ID=40A	-	163	-	nC
Gate-Source Charge	Q_{gs}		-	50	-	
Gate-Drain Charge	Q_{gd}		-	57	-	
Turn-On Delay Time	$t_{d(on)}$	VGS = 10V, VDS = 100V, ID=40A , RG = 20Ω	-	42	-	nS
Rise Time	t_r		-	51	-	
Turn-Off Delay Time	$t_{d(off)}$		-	166	-	
Fall Time	t_f		-	25	-	
Drain-Source Body Diode Characteristics						
Diode Forward Voltage	V_{SD}	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	155	A
Reverse Recovery Time	Trr	V_R=100V,I_S=40A,di/dt=100A/us	-	108	-	nS
Reverse Recovery Charge	Qrr		-	1.6	-	uC

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

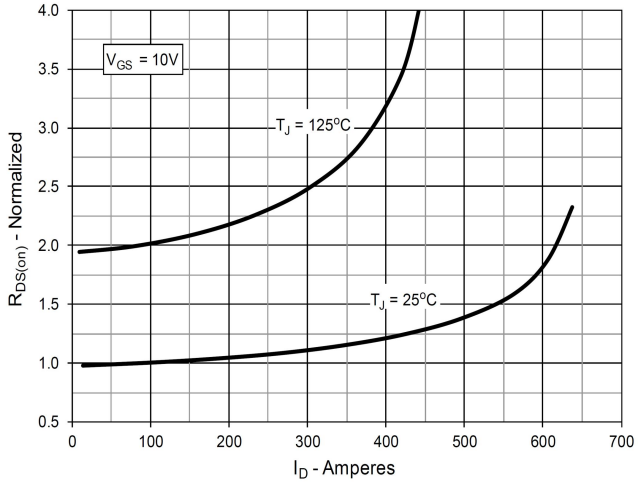
Typical Characteristics



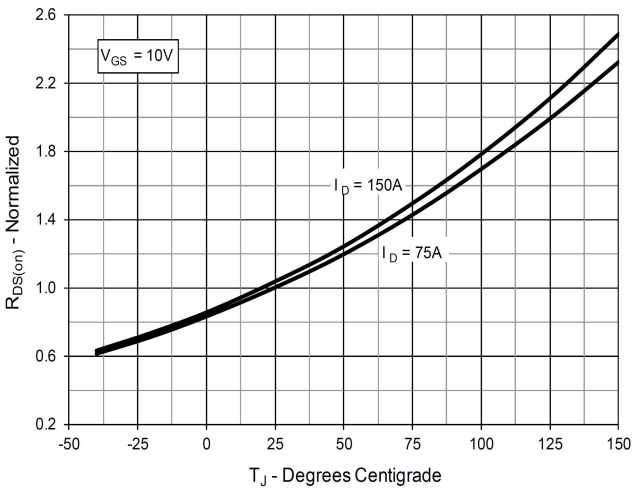
Output Characteristics



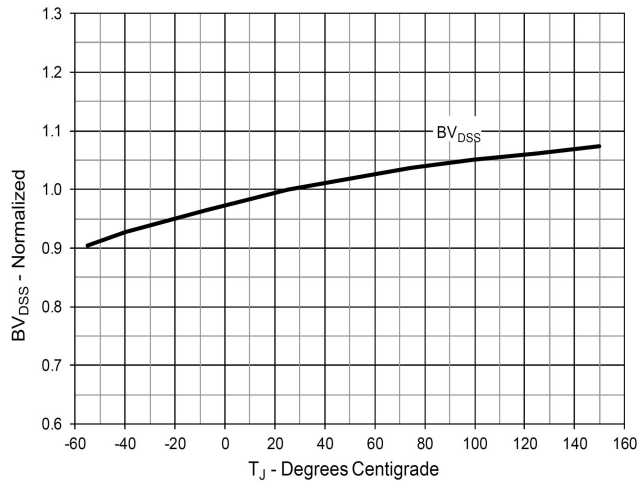
Extended Output Characteristics



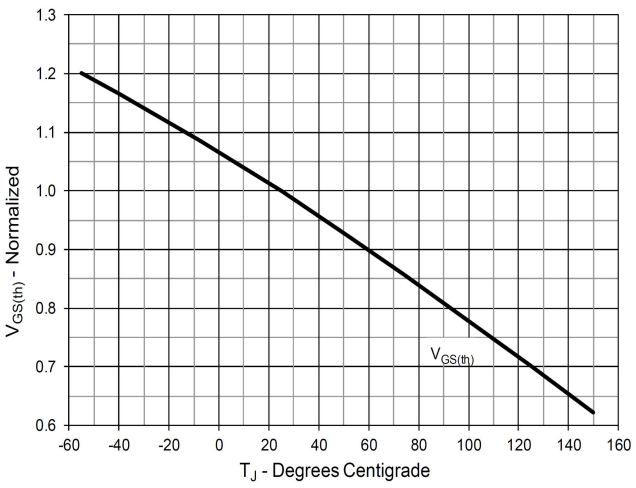
$R_{DS(on)}$ vs. Drain Current



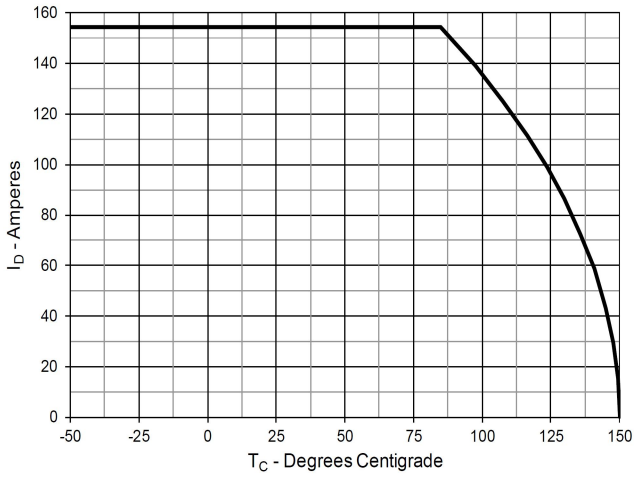
$R_{DS(on)}$ vs. Junction Temperature



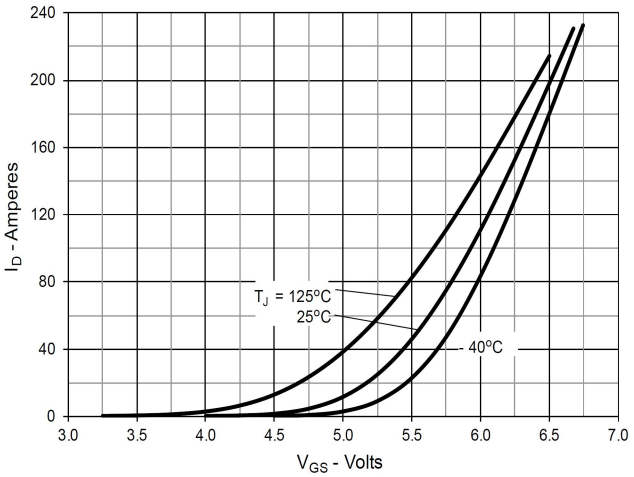
Normalized Breakdown vs. Junction Temperature



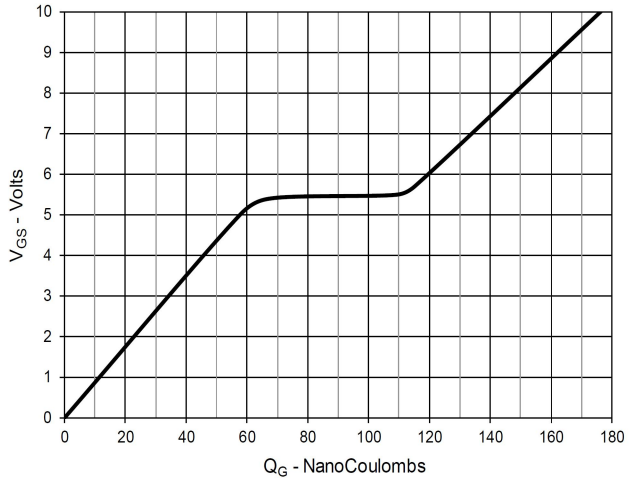
Threshold Voltages vs. Junction Temperature



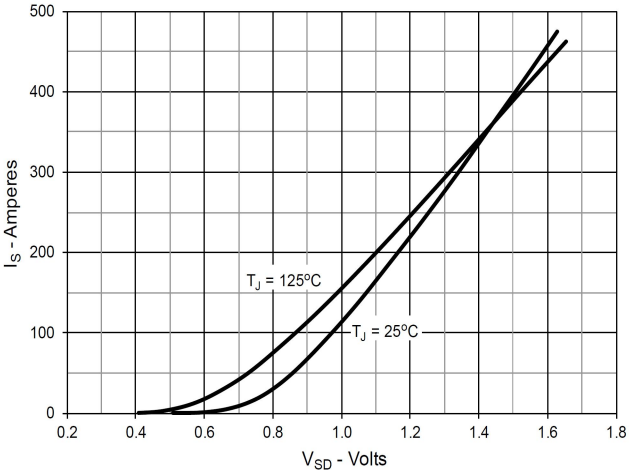
Maximum Drain Current vs. Case Temperature



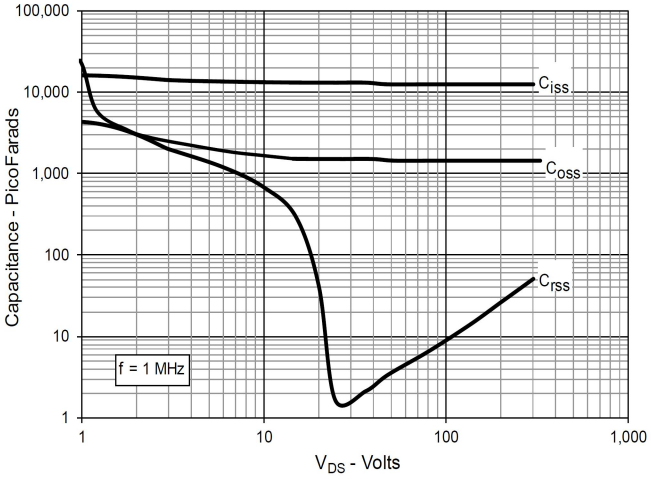
Input Admittance



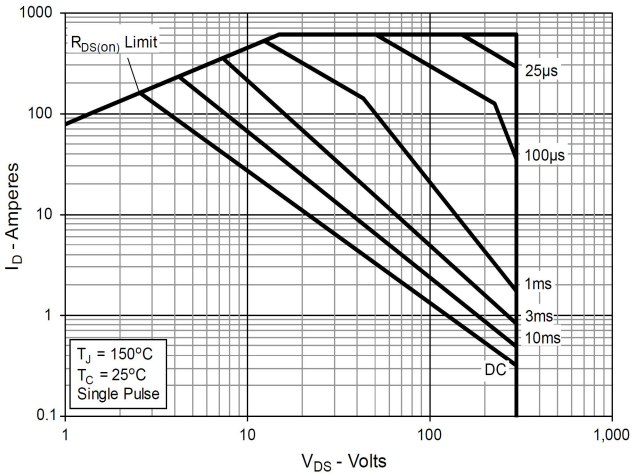
Gate Charge



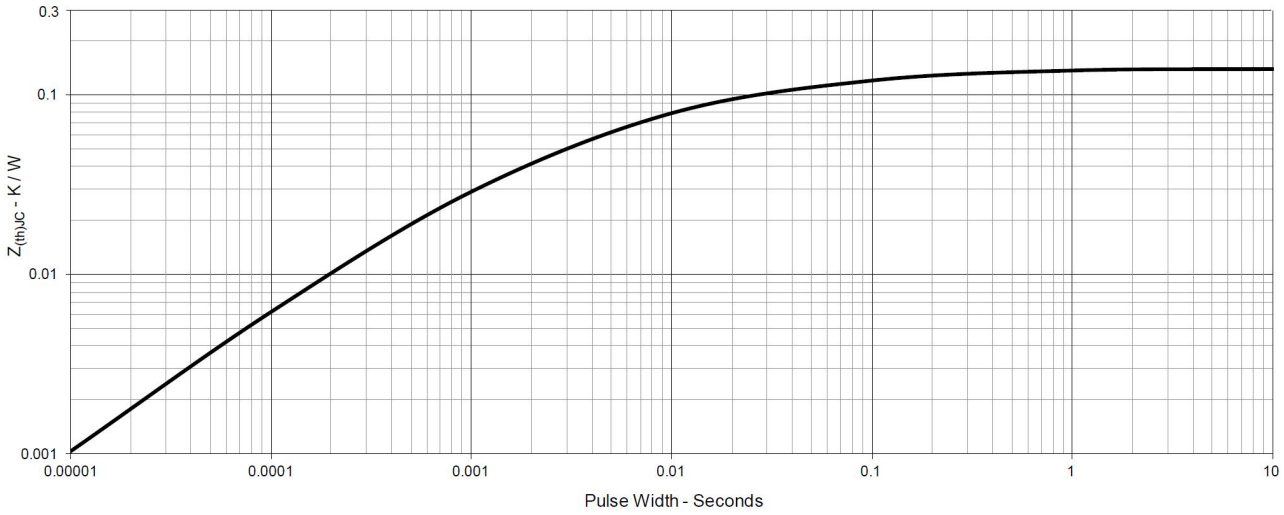
Forward Voltage Drop of Intrinsic Diode



Capacitance

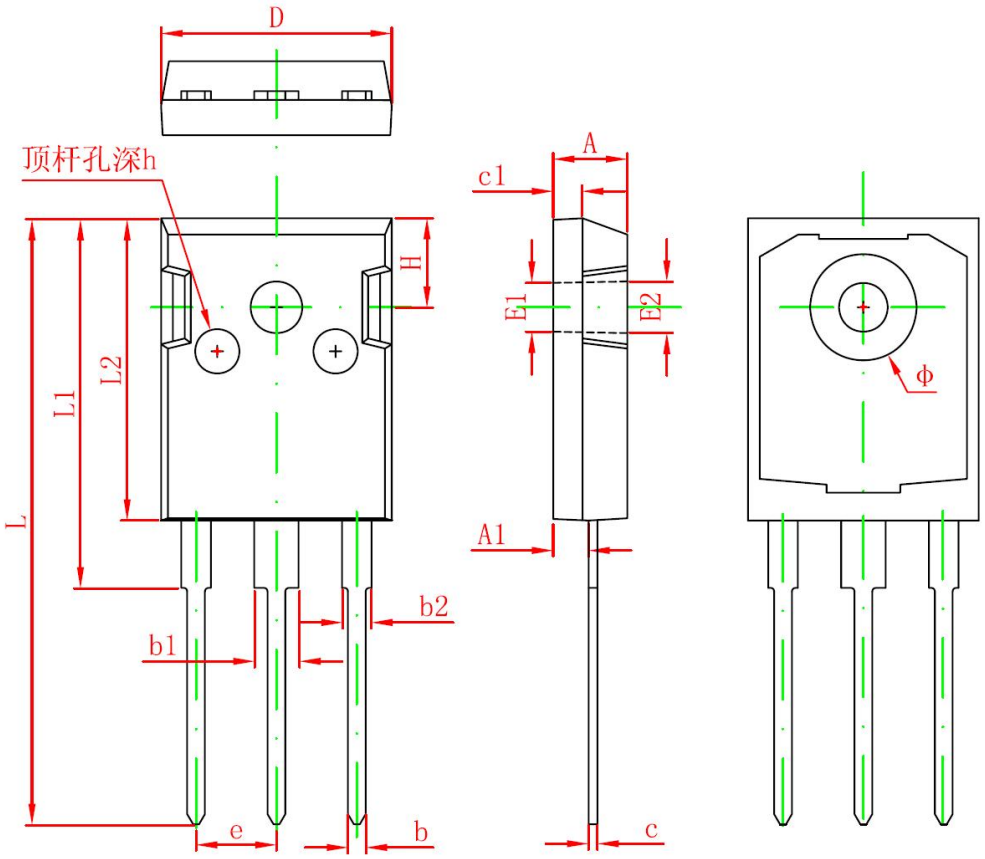


Forward-Bias Safe Operating Area



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