

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	70mΩ@10V	6A
	85mΩ@4.5V	



合肥矽普半导体

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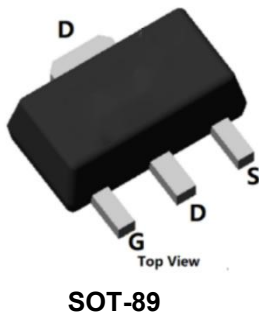
Feature

- High power and current handing capability
- Surface mount package

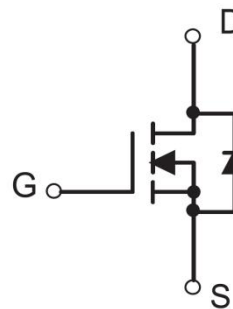
Application

- Battery Switch
- DC/DC Converter

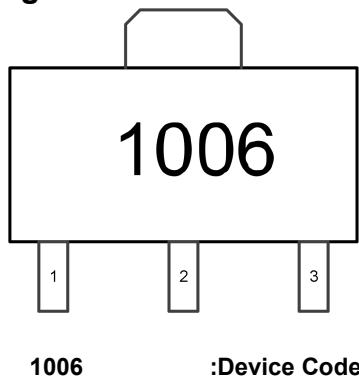
Package



Circuit diagram



Marking



Order Information

Device	Package	Unit/Tape
SP010N70T8	SOT-89	1000

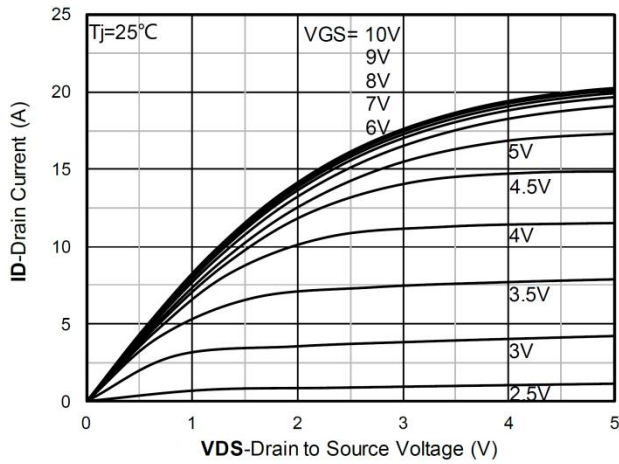
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	6	A
Pulse Drain Current Tested	I_{DM}	24	A
Power Dissipation	P_D	1.5	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	83	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

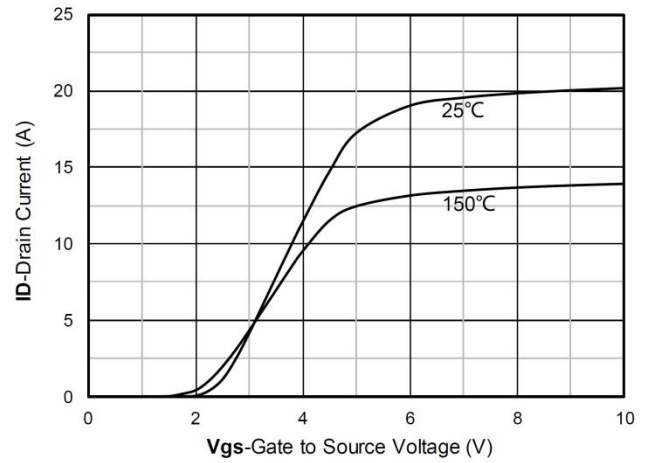
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250μA	100	-	-	V
Drain-Source Leakage Current	IDSS	VDS=80V , VGS=0V	-	-	1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VDS=VGS , ID=250μA	1.2	1.8	2.5	V
Static Drain-Source On-Resistance	RDS(ON)	VGS=10V, ID=5A	-	70	100	mΩ
		VGS=4.5V, ID=3A	-	85	120	
Dynamic characteristics						
Input Capacitance	Ciss	VDS=15V , VGS=0V , f=1MHz	-	900	-	pF
Output Capacitance	Coss		-	35	-	
Reverse Transfer Capacitance	Crss		-	30	-	
Total Gate Charge	Qg	VDS=50V , VGS=10V , ID=5A	-	22	-	nC
Gate-Source Charge	Qgs		-	2.9	-	
Gate-Drain Charge	Qgd		-	5.4	-	
Switching Characteristics						
Turn-On Delay Time	td(on)	VDD=50V VGS=10V , RG=3Ω, ID=5A	-	3.9	-	nS
Turn-On Rise Time	tr		-	26	-	
Turn-Off Delay Time	td(off)		-	16.2	-	
Turn-Off Fall Time	tf		-	8.9	-	
Source-Drain Diode characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V

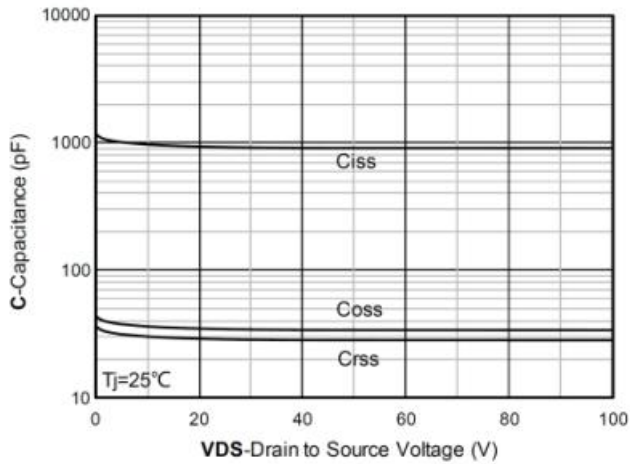
Typical Characteristics



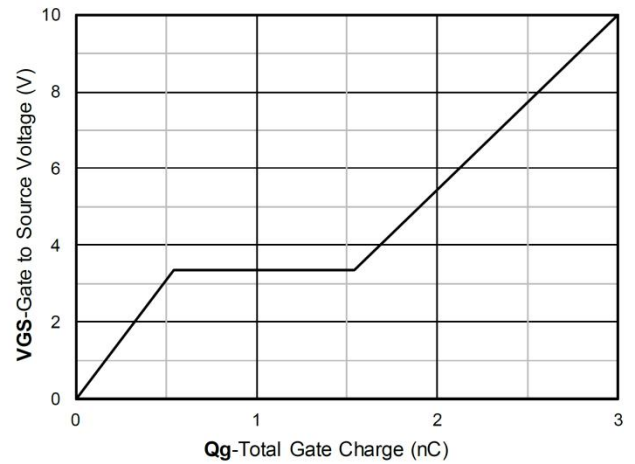
Output Characteristics



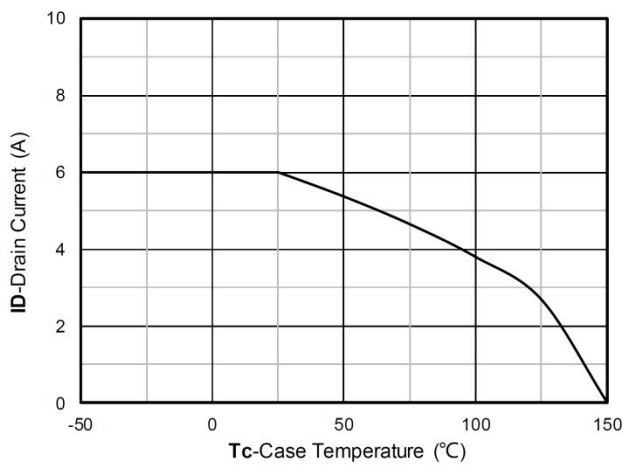
Transfer Characteristics



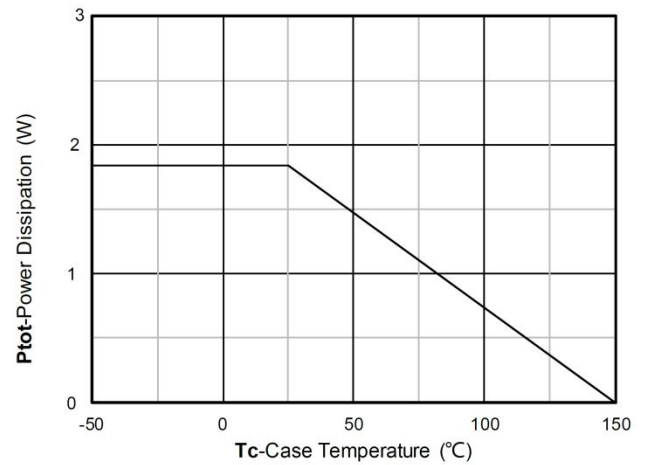
Capacitance Characteristics



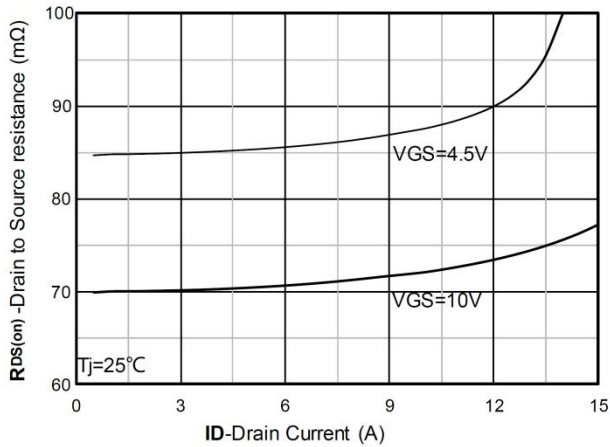
Gate Charge



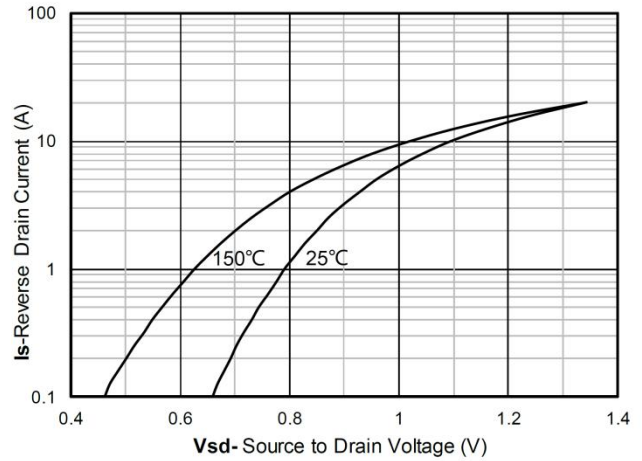
Current dissipation



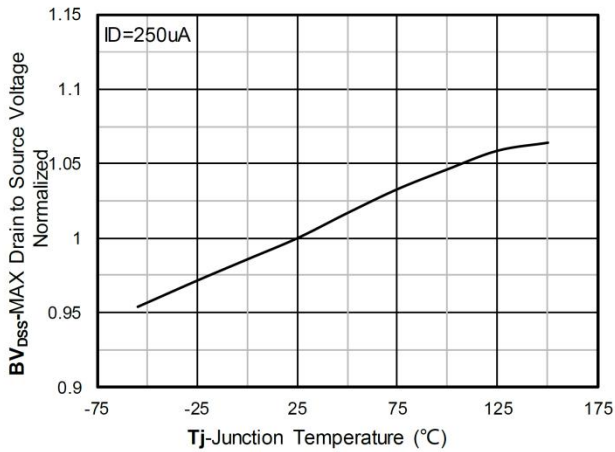
Power dissipation



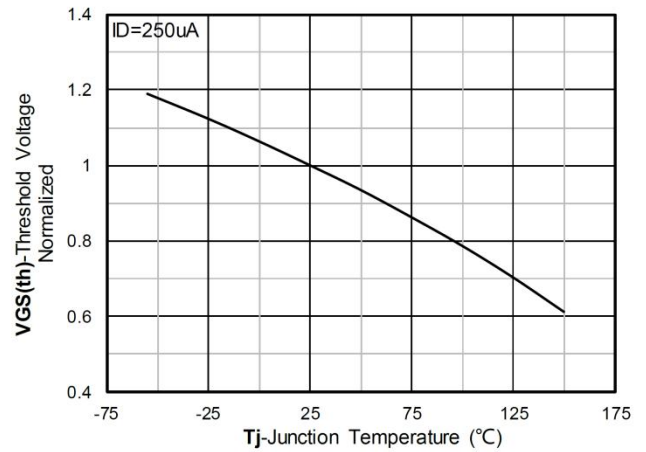
$R_{DS(on)}$ VS Drain Current



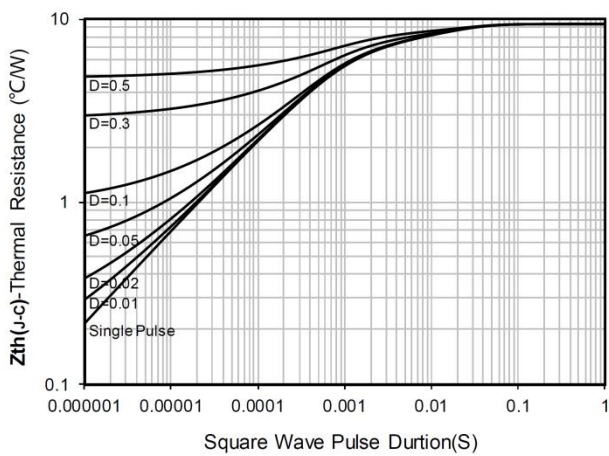
Forward characteristics of reverse diode



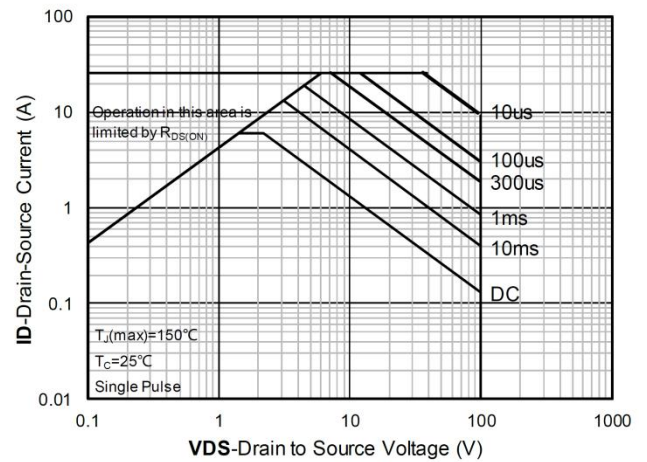
Normalized breakdown voltage



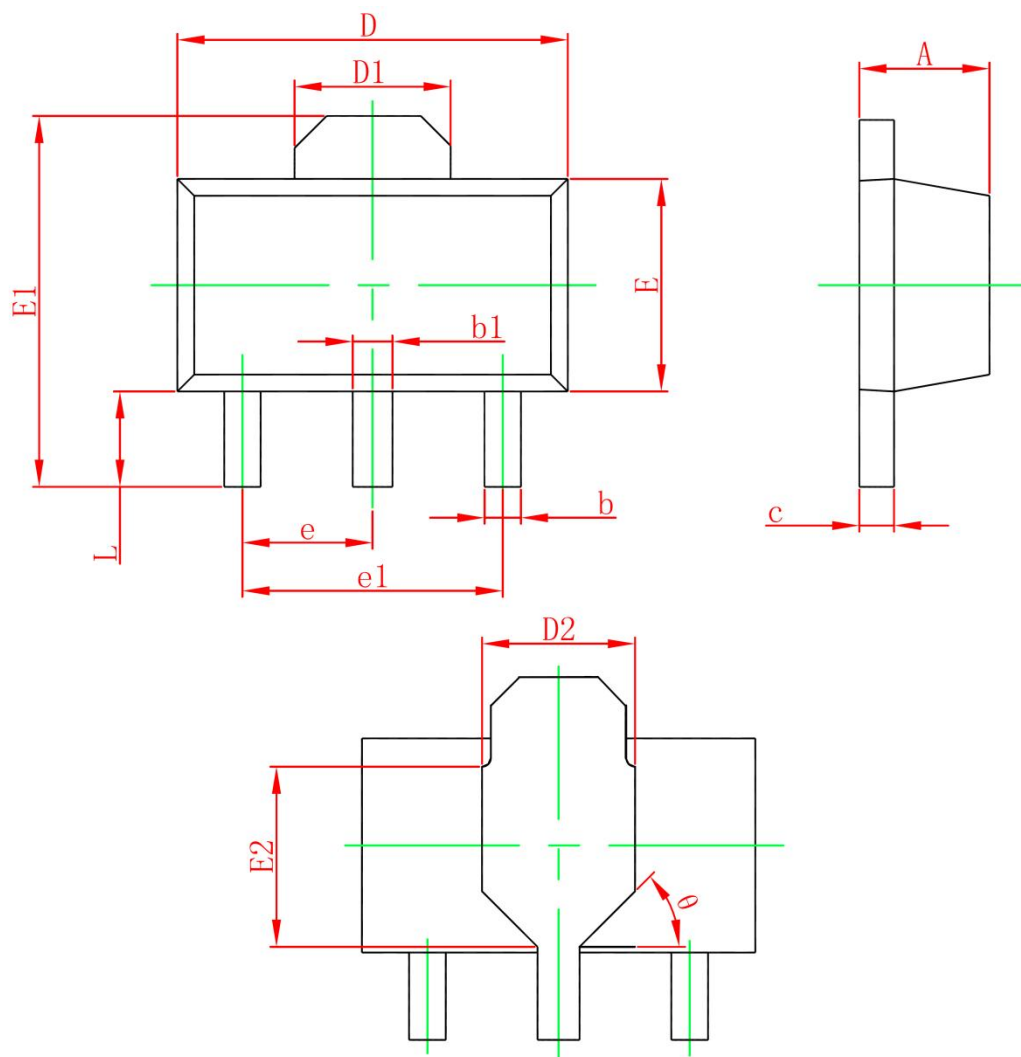
Normalized Threshold voltage



Maximum Transient Thermal Impedance



Safe Operation Area

SOT-89 Package Outline


Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.400	1.600
b	0.320	0.520
b1	0.400	0.580
c	0.350	0.440
D	4.400	4.600
D1	1.550 REF.	
D2	1.750 REF.	
E	2.300	2.600
E1	3.940	4.250
E2	1.900 REF.	
e	1.500 TYP.	
e1	3.000 TYP.	
L	0.900	1.200
θ	45°	

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