

Product Summary

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



合肥矽普半导体

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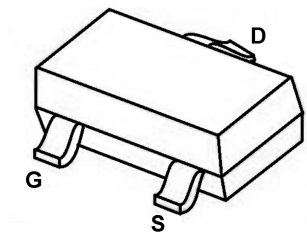
Feature

- High power and current handling capability
- Surface mount package

Application

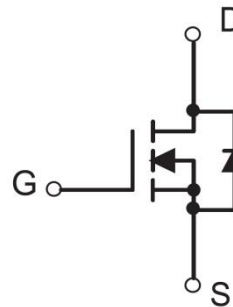
- Battery Switch
- DC/DC Converter

Package

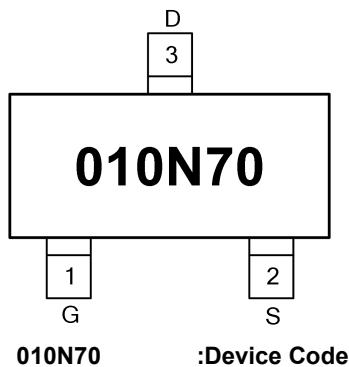


SOT-23-3L

Circuit diagram



Marking



Order Information

Device	Package	Unit/Tape
SP010N70T1	SOT-23-3L	3000

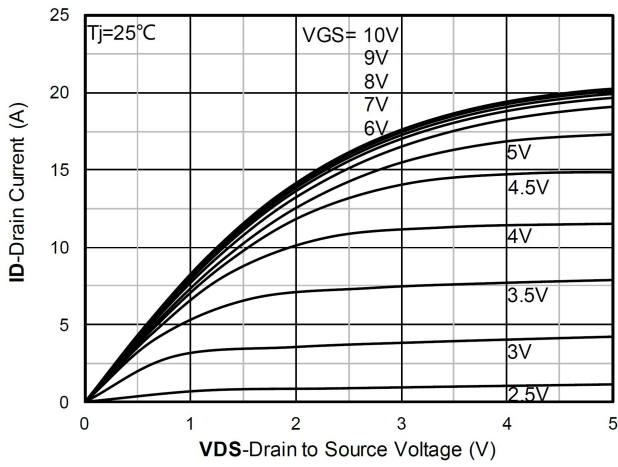
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	4.5	A
Pulse Drain Current Tested	I_{DM}	18	A
Power Dissipation	P_D	1.2	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	104	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

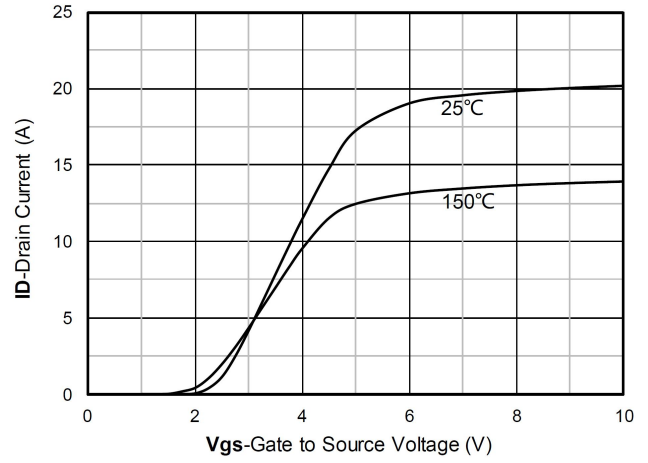
Electrical characteristics (Ta=25°C, unless otherwise noted)

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=60V , VGS=0V	-	-	1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VDS=VGS , ID=250μA	1.0	1.5	2.5	V
Static Drain-Source On-Resistance	RDS(ON)	VGS=10V, ID=2A	-	70	100	mΩ
		VGS=4.5V, ID=1A	-	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

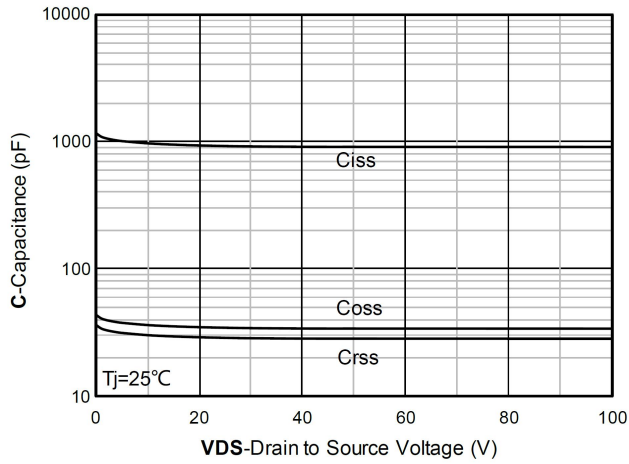
Typical Characteristics



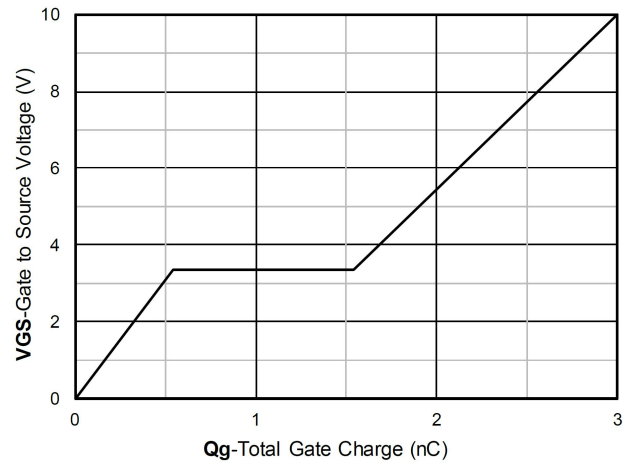
Output Characteristics



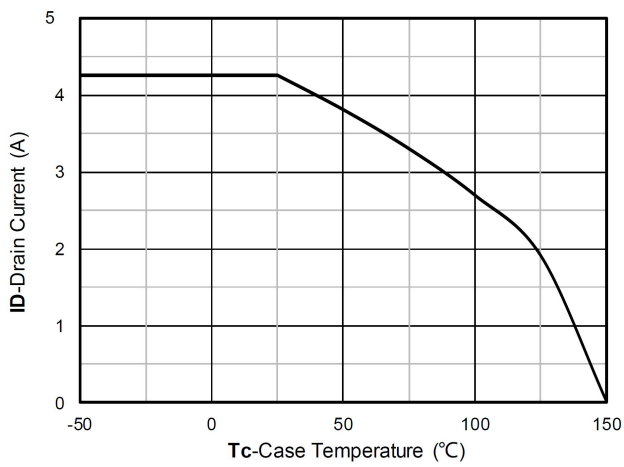
Transfer Characteristics



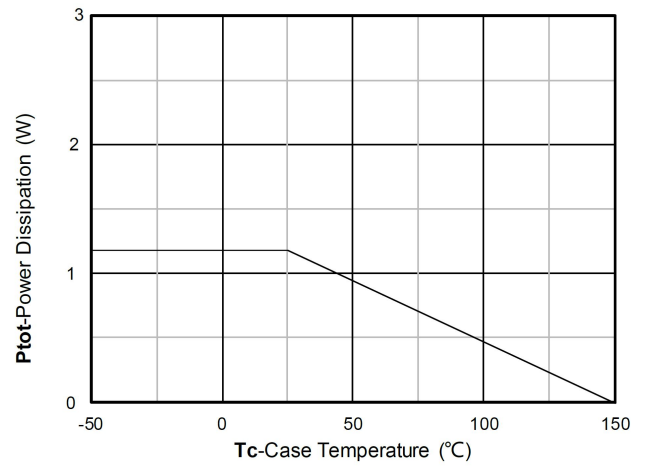
Capacitance Characteristics



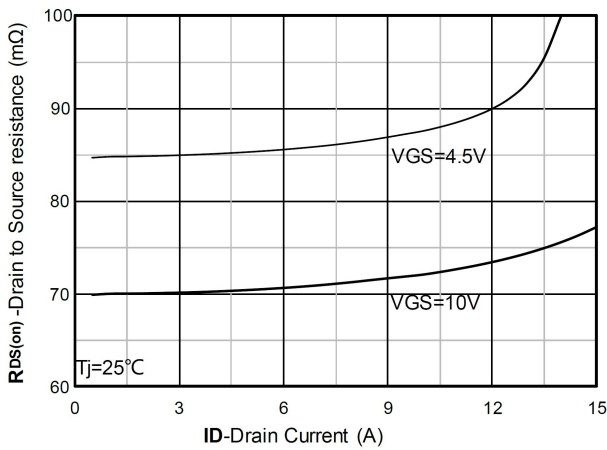
Gate Charge



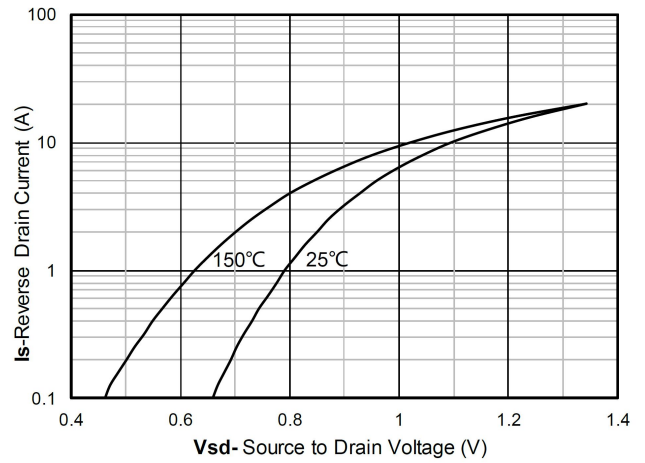
Current dissipation



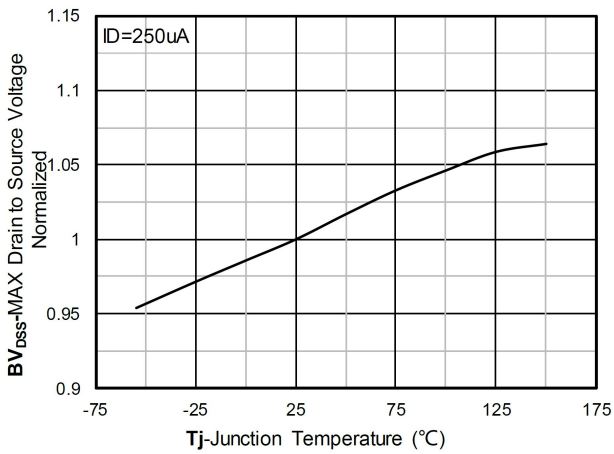
Power dissipation



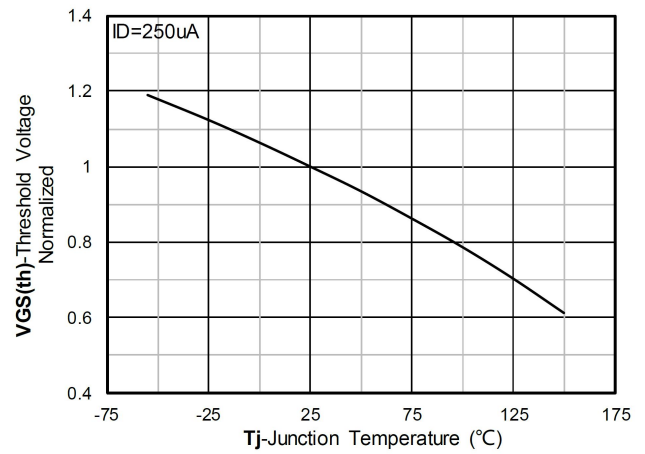
$R_{DS(on)}$ VS Drain Current



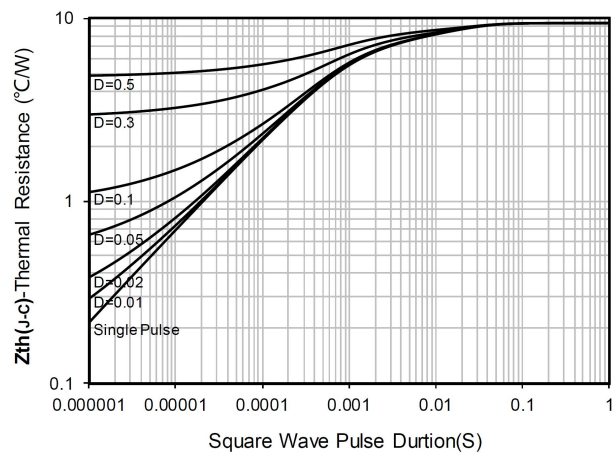
Forward characteristics of reverse diode



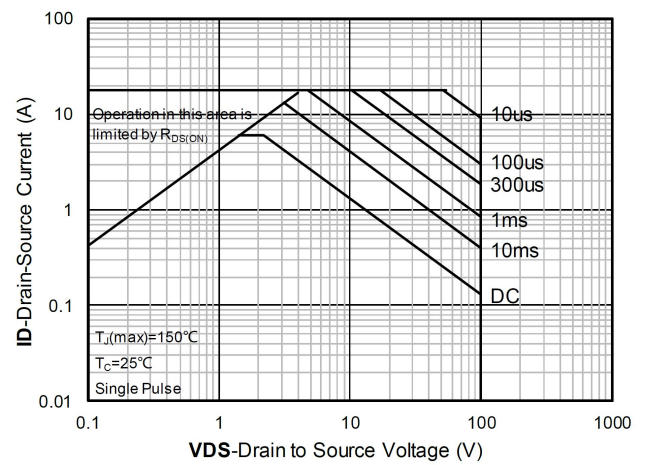
Normalized breakdown voltage



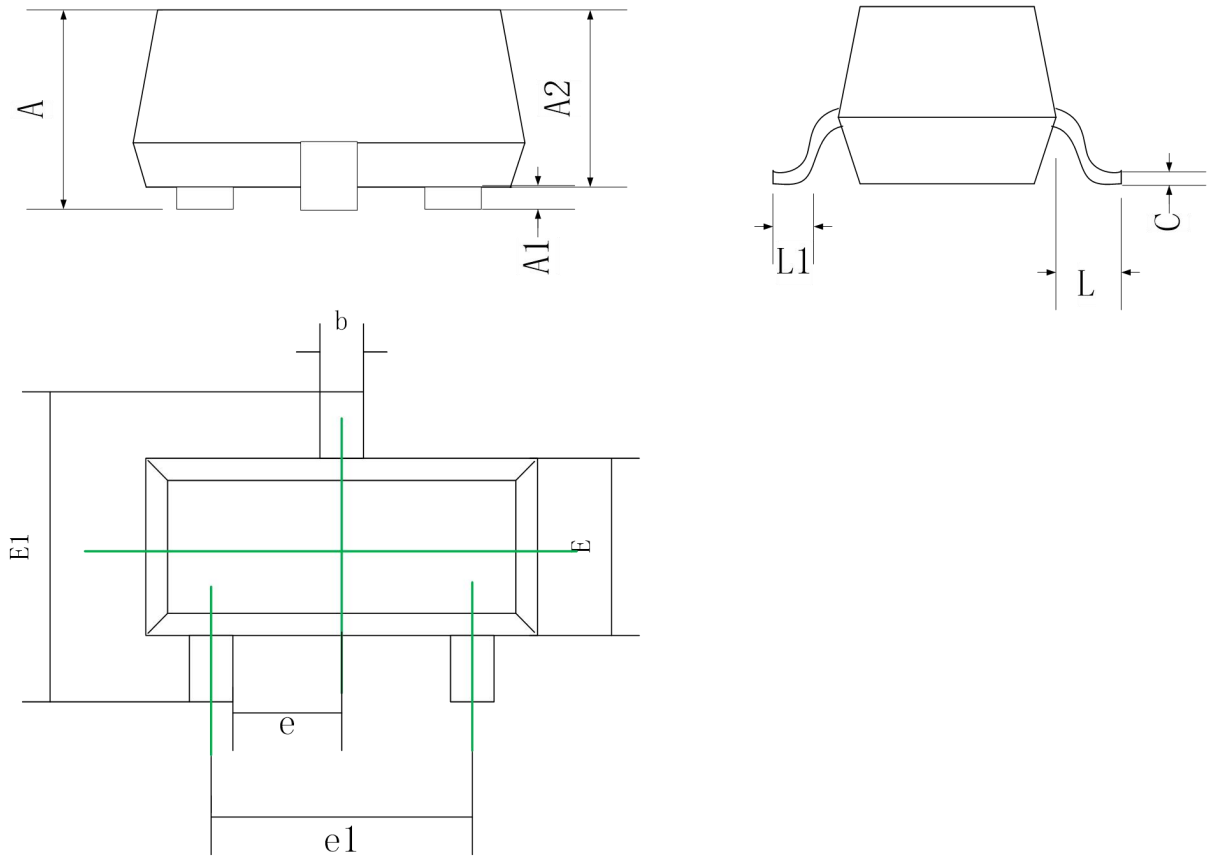
Normalized Threshold voltage



Maximum Transient Thermal Impedance



Safe Operation Area

SOT-23-3L Package Information


Symbol	Dimensions in millimeters	
	Min.	Max.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.820	3.020
E	1.500	1.700
E1	2.650	2.950
e	0.950 Typ.	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°