

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

Siliup Semiconductor Technology Co., Ltd

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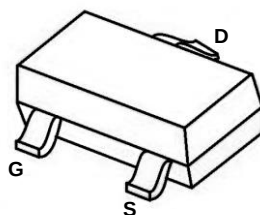
Feature

- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current

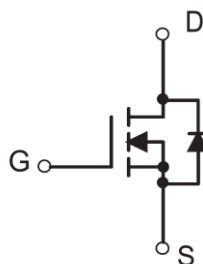
Application

- DC-DC Converters
- Power management functions

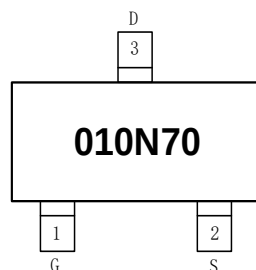
Package


SOT-23-3L

Circuit diagram



Marking


010N70 =Device Code

Order Information

Device	Package	Unite/Tape
SP010N70T1	SOT-23	3000

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

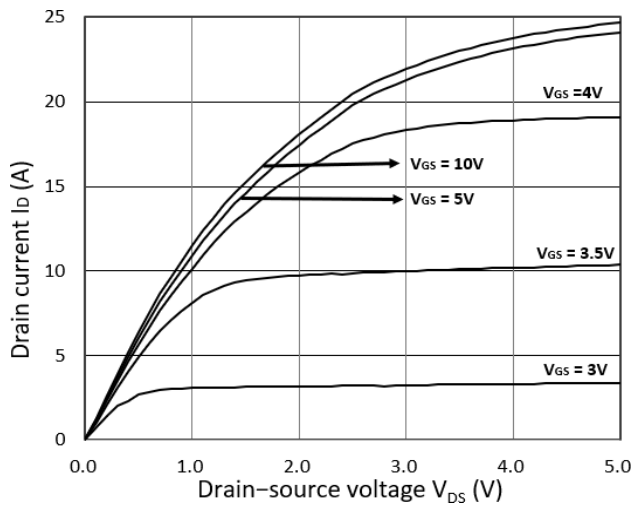
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current-Continuous		I_D	4.5	A
Pulsed Drain Current		I_{DM}	18	A
Maximum Power Dissipation	$T_A=25^\circ\text{C}$	P_D	1.2	W
	$T_C=25^\circ\text{C}$		3.0	
Thermal Resistance,Junction-to-Ambient ¹		$R_{\theta JA}$	104.2	$^\circ\text{C/W}$
Thermal Resistance,Junction-to-Case ¹		$R_{\theta JC}$	41.7	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 To 150	$^\circ\text{C}$

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

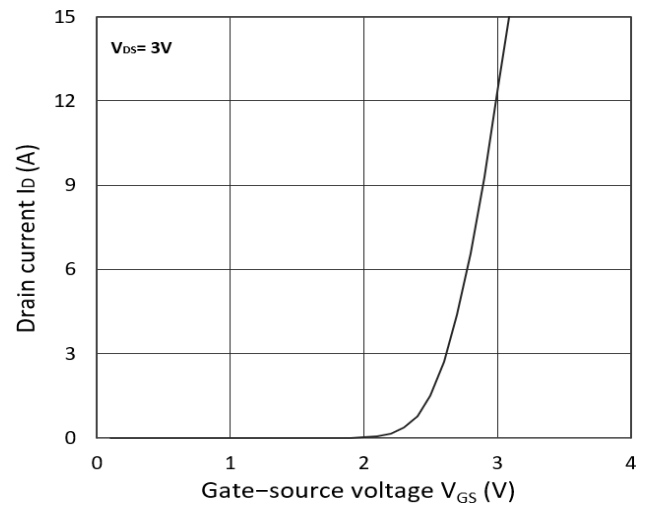
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V ID=250μA	100	-	-	V
Zero Gate Voltage Drain Current	IDSS	VDS=100V,VGS=0V	-	-	1	μA
Gate-Body Leakage Current	IGSS	VGS=±20V,VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VDS=VGS,ID=250μA	1	1.5	2.5	V
Drain-Source On-State 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	-	
Switching Characteristics						
Turn-on Delay Time	td(on)	VGS =10V, VDD =50V, 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	-	
Total Gate Charge	Qg	VGS = 10V,VDS = 50V, ID=5A	-	22	-	nC
Gate-Source Charge	Qgs		-	2.9	-	
Gate-Drain Charge	Qgd		-	5.4	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V,IS=1A	-	-	1.2	V
Diode Forward Current	Is		-	-	6	A



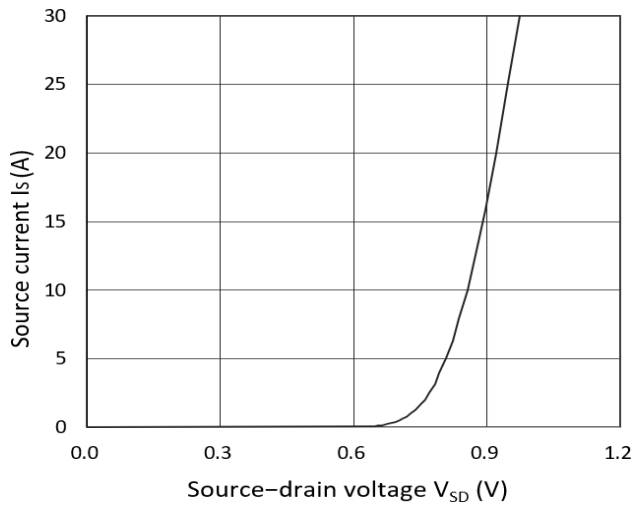
Typical Characteristics



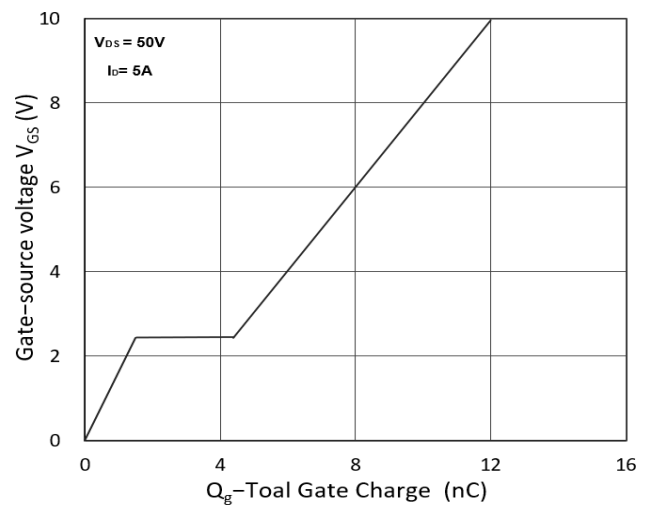
Output Characteristics



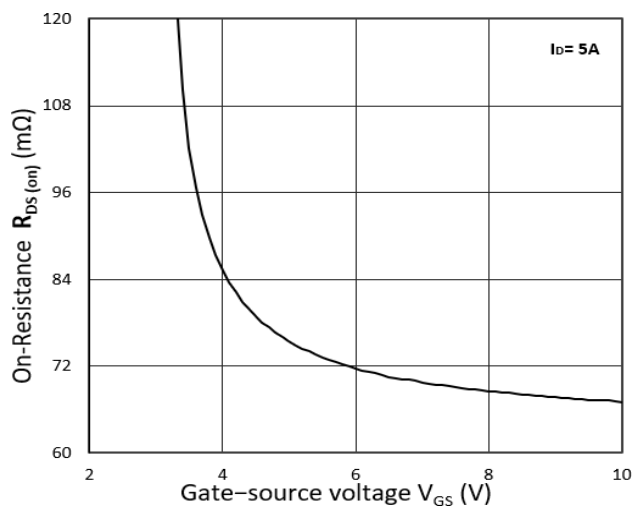
Transfer Characteristics



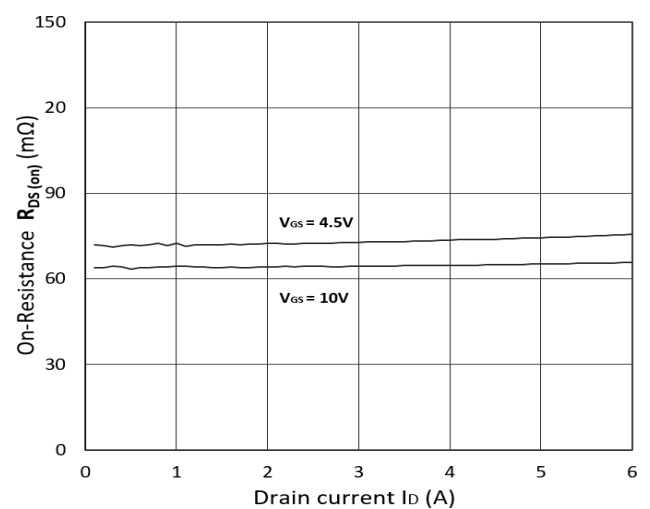
Forward Characteristics of Reverse



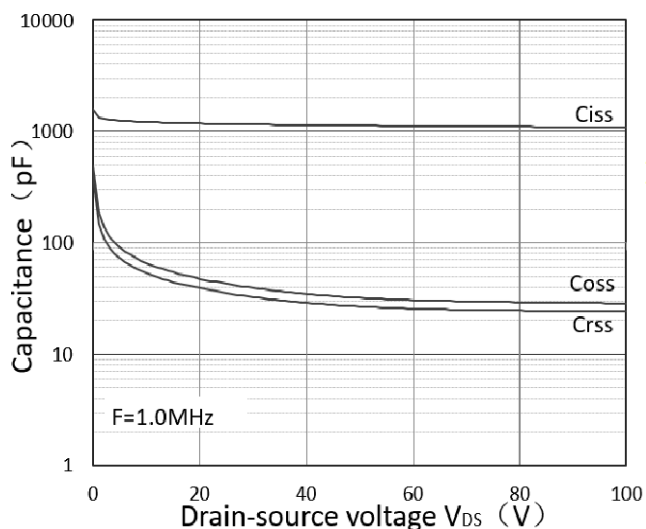
Gate Charge Characteristics



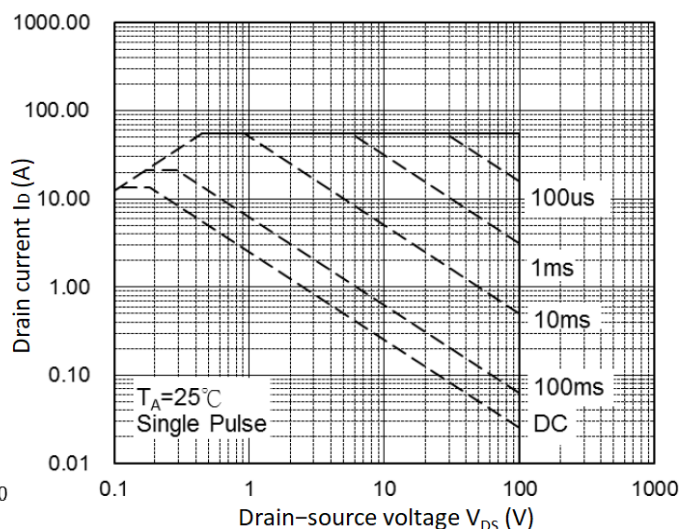
$R_{DS(on)}$ vs. V_{GS}



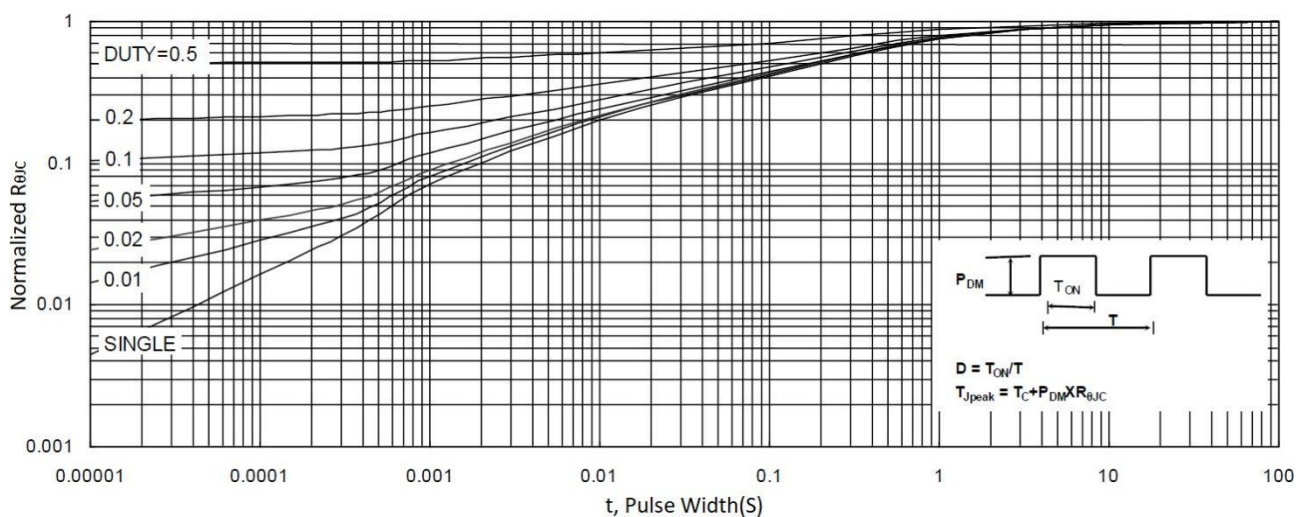
$R_{DS(on)}$ vs. I_D



Capacitance Characteristics



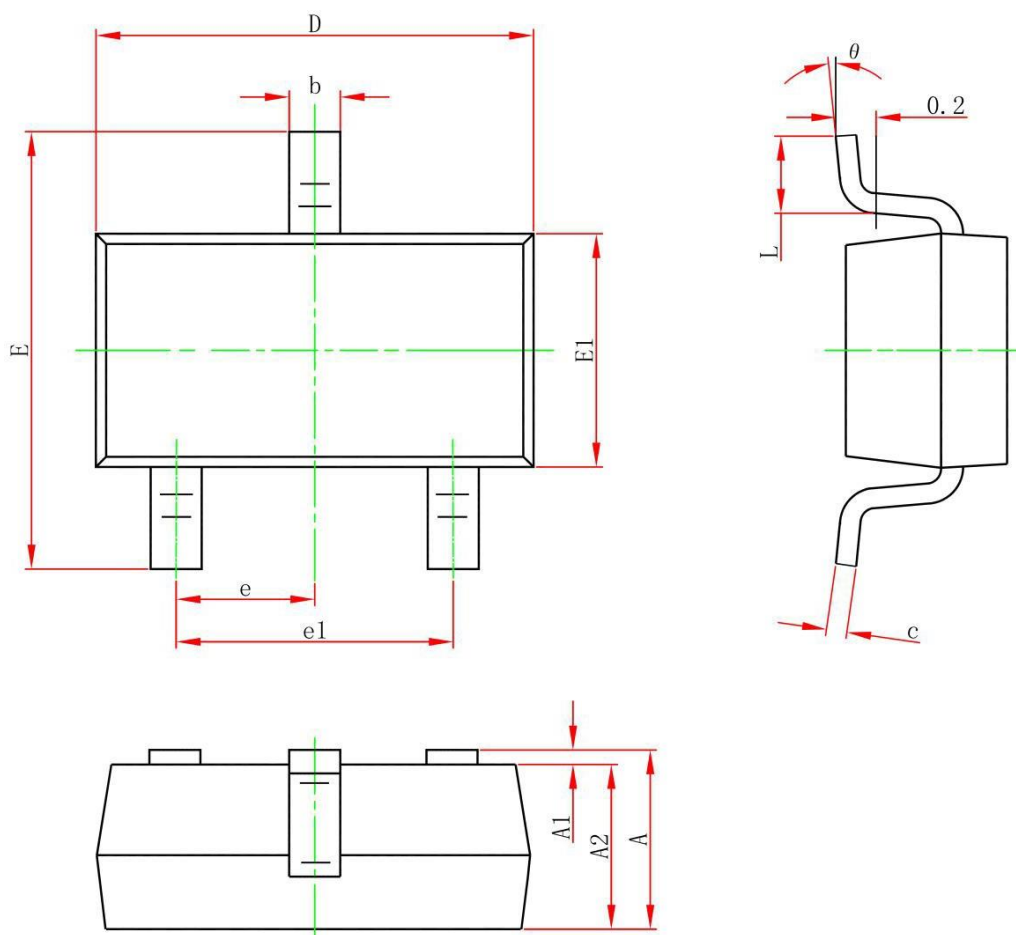
Safe Operating Area



Normalized Maximum Transient Thermal Impedance



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
E1	1.500	1.700
E	2.650	2.950
e	0.950 Typ.	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°