

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-40V	28mΩ@-10V	-6A
	38mΩ@-4.5V	



合肥矽普半导体

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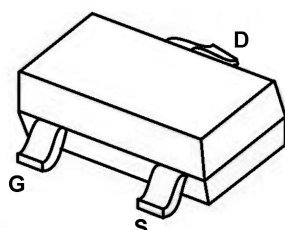
Feature

- High power and current handling capability
- Surface mount package

Application

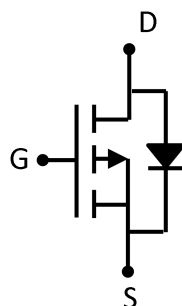
- Battery Switch
- DC/DC Converter

Package

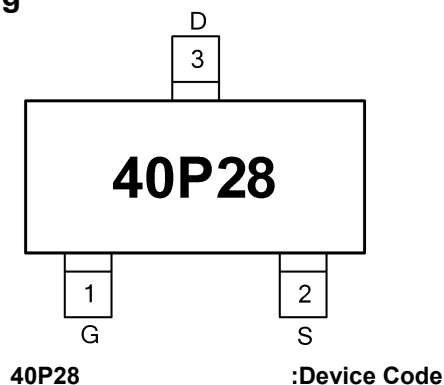


SOT-23-3L

Circuit diagram



Marking



Order Information

Device	Package	Unit/Tape
SP40P28T1	SOT-23-3L	3000

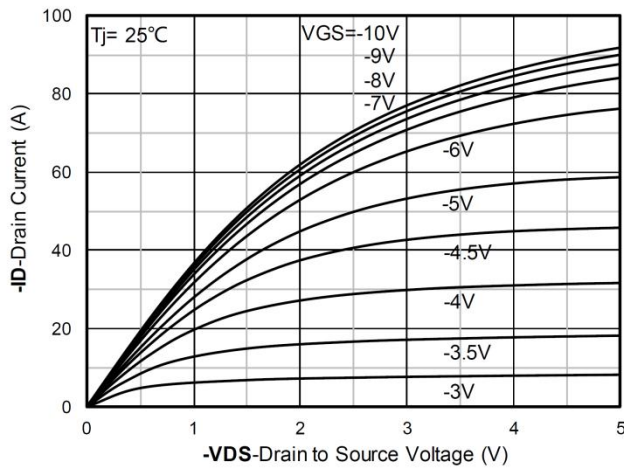
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-40	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	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	125	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

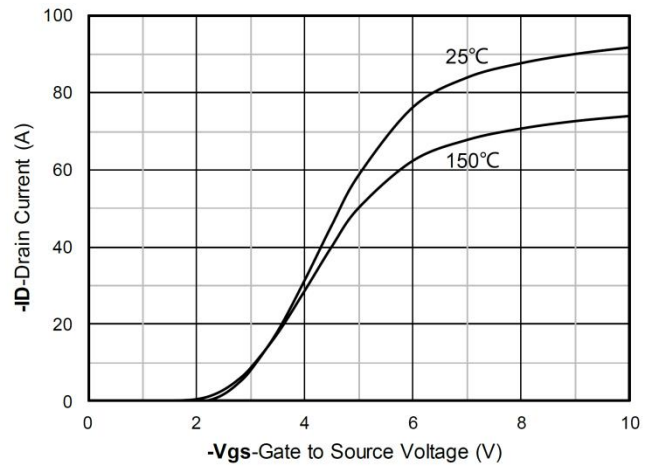
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=-250μA	-40	-	-	V
Drain-Source Leakage Current	I _{DSS}	VDS=-32V , VGS=0V	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VDS=VGS , ID=-250μA	-1.2	-1.5	-2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	VGS=-10V , ID =-4.1A	-	28	35	mΩ
		VGS=-4.5V , ID =-3A	-	38	50	
Dynamic characteristics						
Input Capacitance	C _{iss}	VDS=-15V , VGS=0V , f=1MHz	-	1415	-	pF
Output Capacitance	C _{oss}		-	134	-	
Reverse Transfer Capacitance	C _{rss}		-	102	-	
Total Gate Charge	Q _g	VDS=-15V , VGS=-10V , ID=-10A	-	23.5	-	nC
Gate-Source Charge	Q _{gs}		-	3.5	-	
Gate-Drain Charge	Q _{gd}		-	3.3	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	VDD=-15V VGS=-10V , RG=3Ω , ID=-6A	-	11	-	nS
Turn-On Rise Time	t _r		-	15.7	-	
Turn-Off Delay Time	t _{d(off)}		-	35	-	
Turn-Off Fall Time	t _f		-	5.5	-	
Source-Drain Diode characteristics						
Diode Forward Voltage	V _{SD}	VGS=0V , IS=-1A , TJ=25℃	-	-	-1.2	V

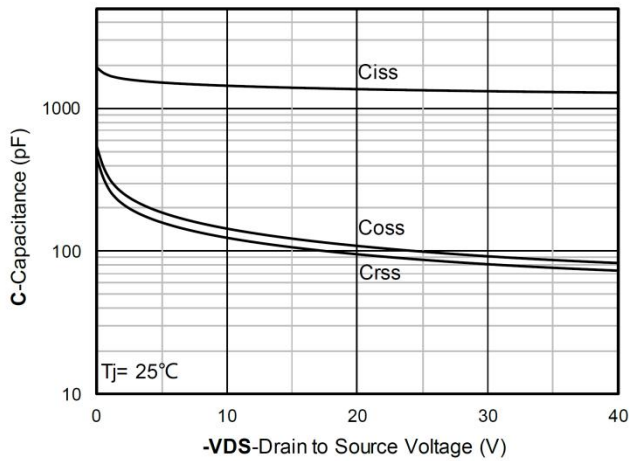
Typical Characteristics



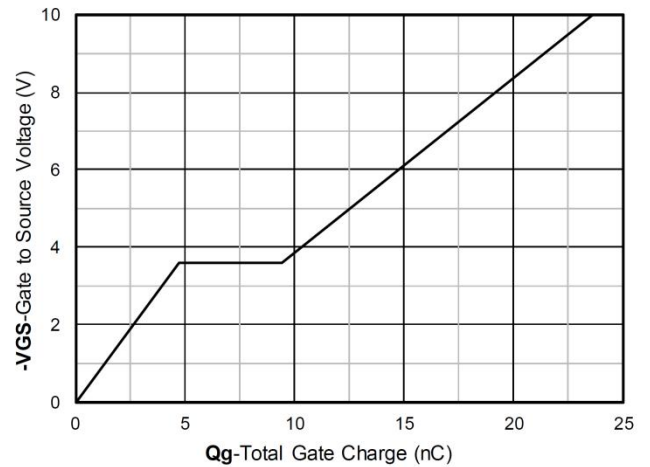
Output Characteristics



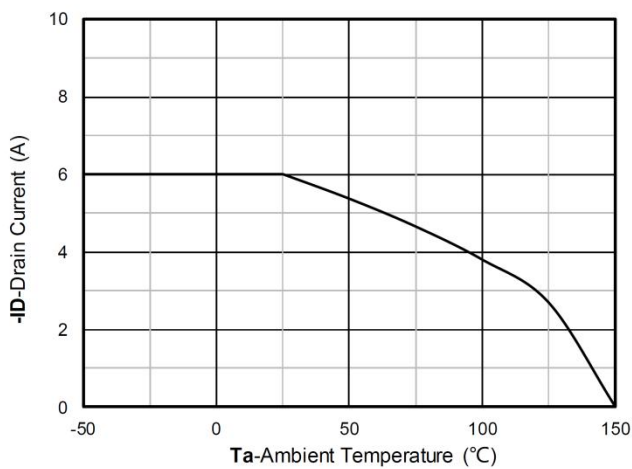
Transfer Characteristics



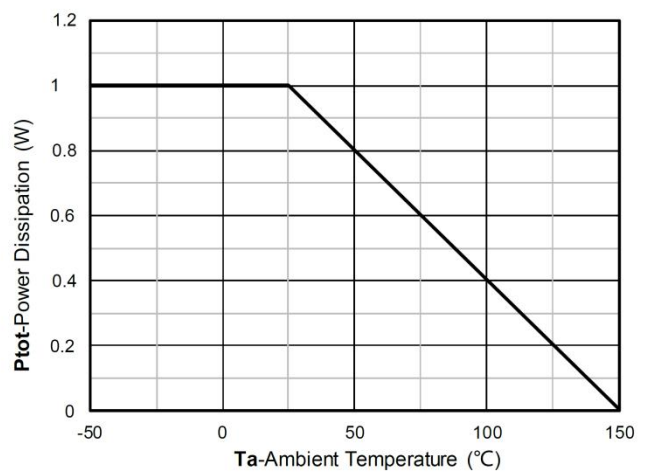
Capacitance Characteristics



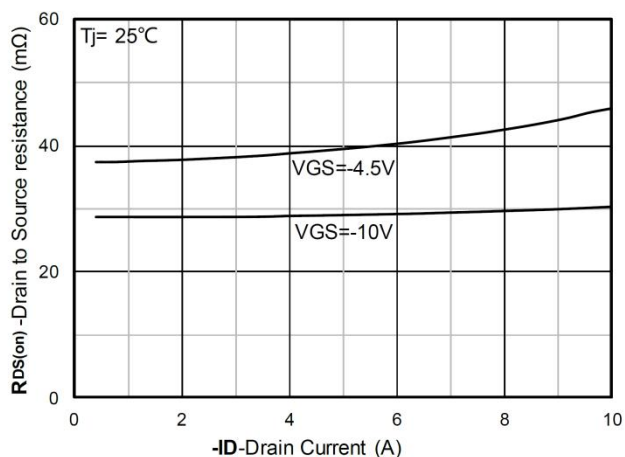
Gate Charge



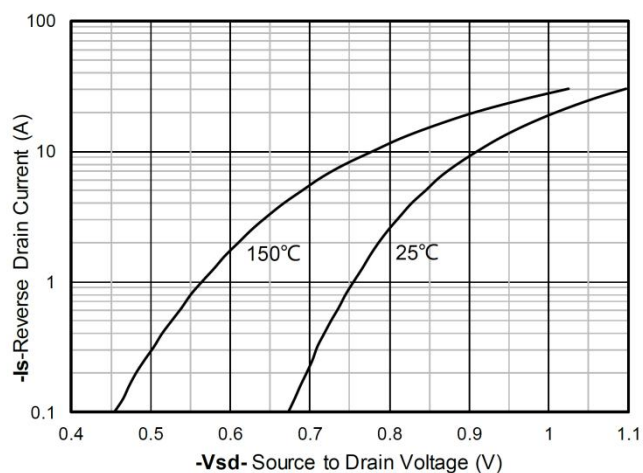
Current dissipation



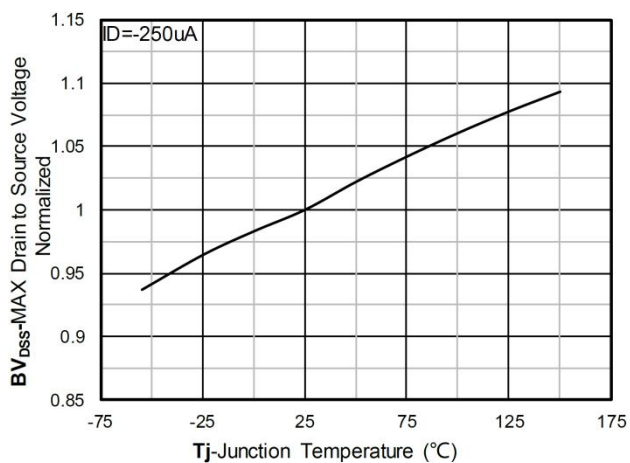
Power dissipation



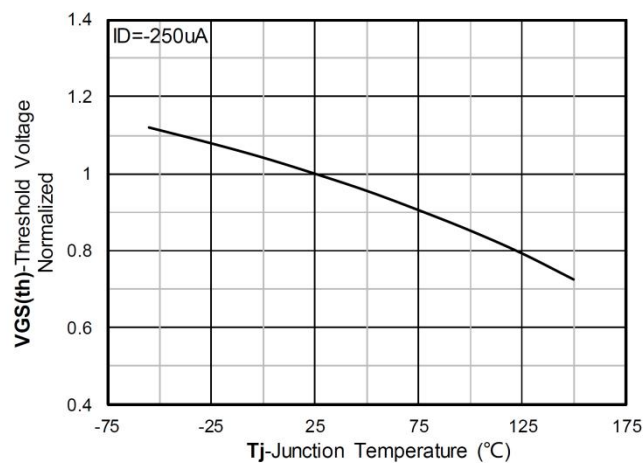
$R_{DS(on)}$ VS Drain Current



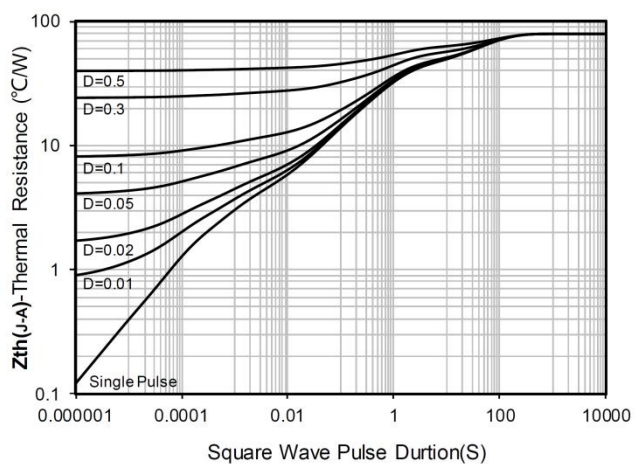
Forward characteristics of reverse diode



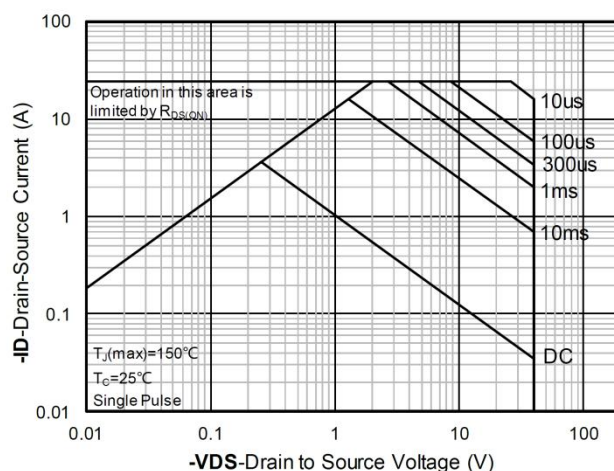
Normalized breakdown voltage



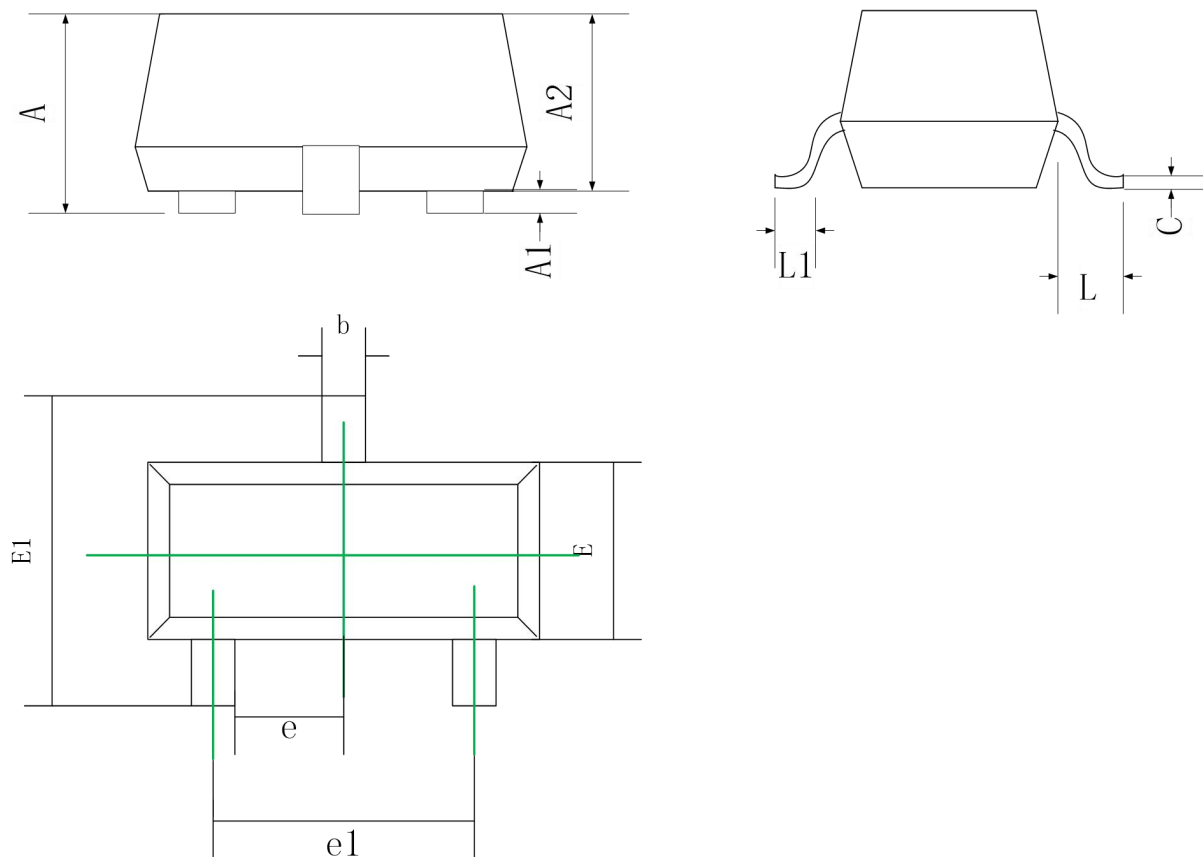
Normalized Threshold voltage



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°