

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
100V	110mΩ@10V	5A
	160mΩ@4.5V	



**合肥矽普半导体**

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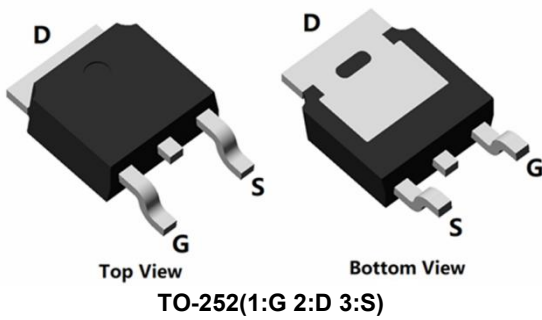
## Feature

- High power and current handing capability
- Surface mount package

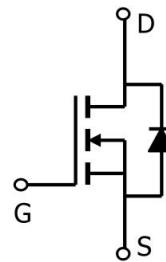
## Application

- Battery Switch
- DC/DC Converter

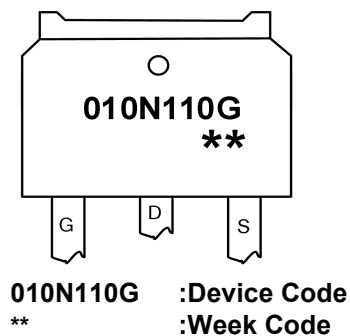
## Package



## Circuit diagram



## Marking



## Order Information

Device	Package	Unit/Tape
SP010N110GTH	TO-252	2500

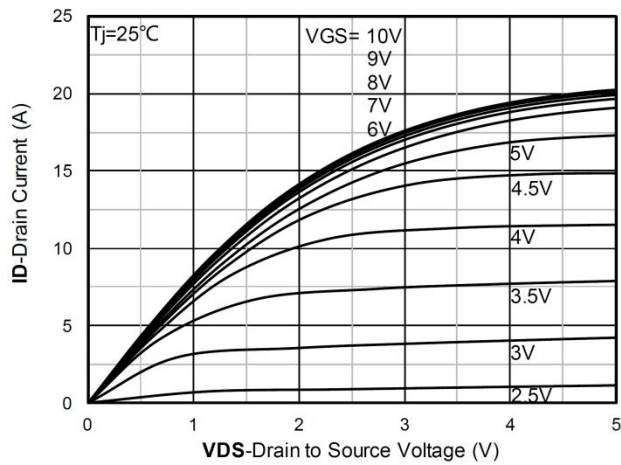
**Absolute maximum ratings (Ta=25°C, unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current (Tc=25°C)	$I_D$	5	A
Pulse Drain Current Tested	$I_{DM}$	20	A
Power Dissipation (Tc=25°C)	$P_D$	55	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	2.3	°C/W
Storage Temperature Range	$T_{STG}$	-55 to 150	°C
Operating Junction Temperature Range	$T_J$	-55 to 150	°C

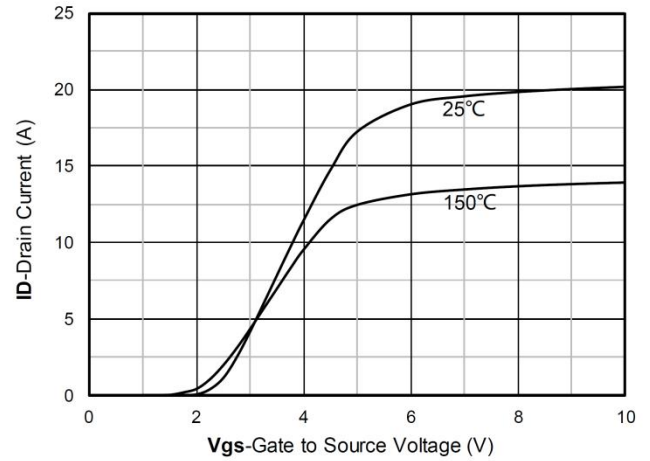
**Electrical characteristics (Ta=25°C, unless otherwise noted)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	VGS=0V , ID=250μA	100	-	-	V
Drain-Source Leakage Current	I <sub>DSS</sub>	VDS=80V , VGS=0V	-	-	1	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VDS=VGS , ID=250μA	1	1.6	2.5	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	VGS=10V , ID =3A	-	110	140	mΩ
		VGS=4.5V , ID =2A	-	160	300	
Dynamic characteristics						
Input Capacitance	C <sub>iss</sub>	VDS=50V , VGS=0V , f=1MHz	-	206	-	pF
Output Capacitance	C <sub>oss</sub>		-	29	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	1.4	-	
Total Gate Charge	Q <sub>g</sub>	VDS=50V , VGS=10V , ID=3A	-	4.3	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	1.5	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	1.1	-	
Switching Characteristics						
Turn-On Delay Time	t <sub>d(on)</sub>	VDD=50V VGS=10V , RG=2Ω, ID=3A	-	14.7	-	nS
Turn-On Rise Time	t <sub>r</sub>		-	3.5	-	
Turn-Off Delay Time	t <sub>d(off)</sub>		-	20.9	-	
Turn-Off Fall Time	t <sub>f</sub>		-	2.7	-	
Source-Drain Diode characteristics						
Diode Forward Voltage	V <sub>SD</sub>	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V

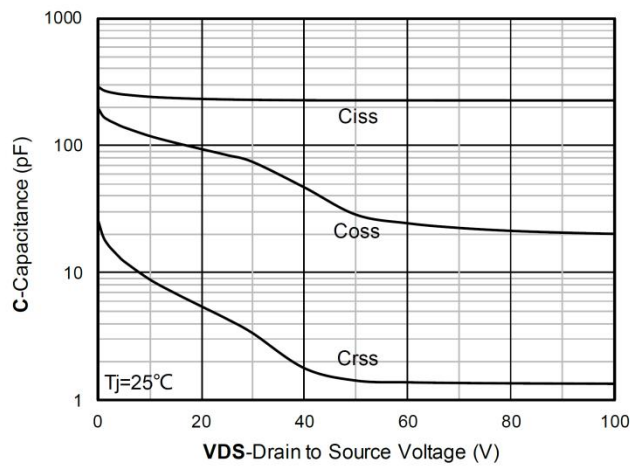
## Typical Characteristics



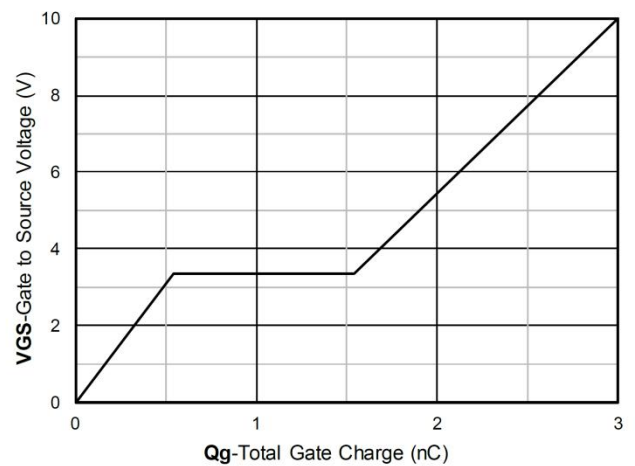
Output Characteristics



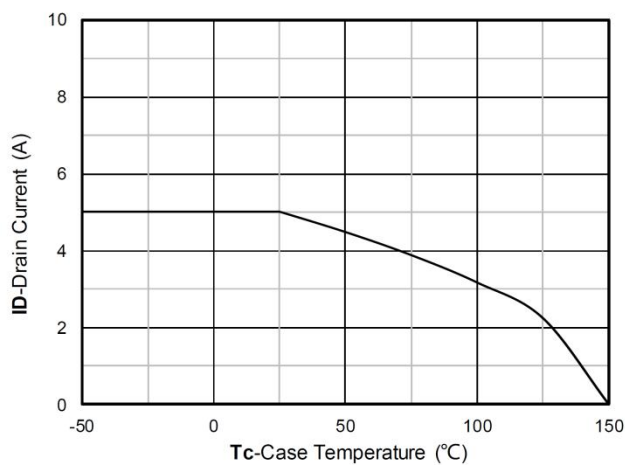
Transfer Characteristics



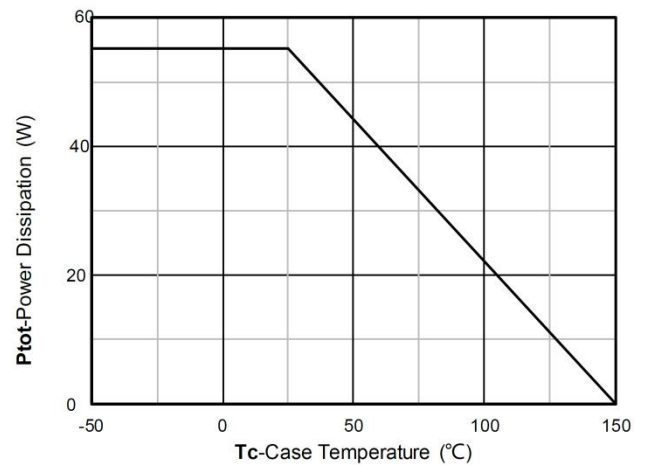
Capacitance Characteristics



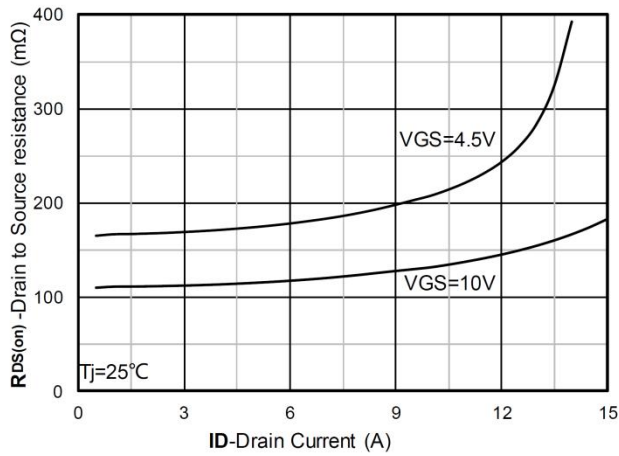
Gate Charge



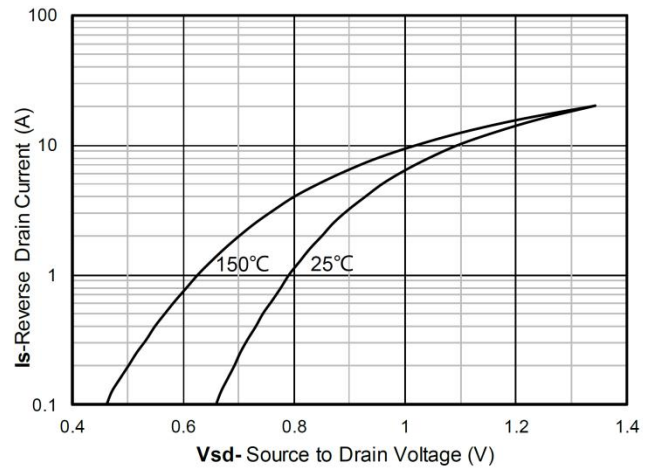
Current dissipation



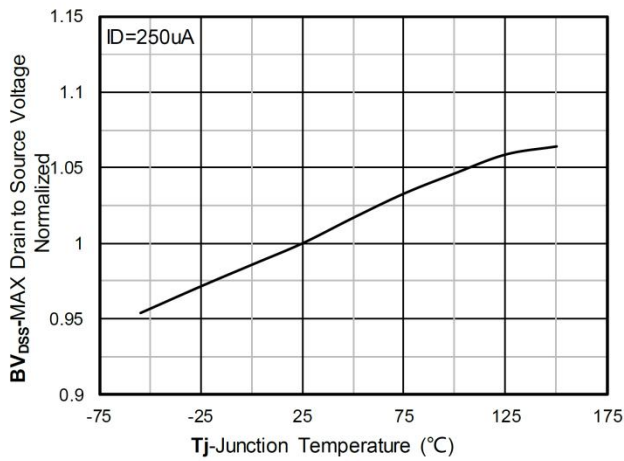
Power dissipation



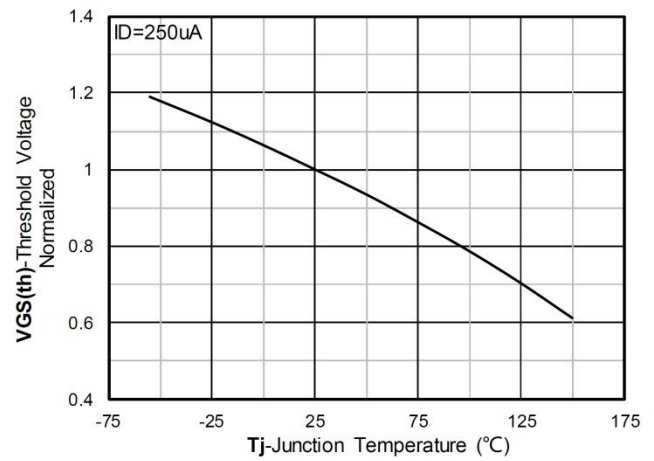
RDS(on) VS Drain Current



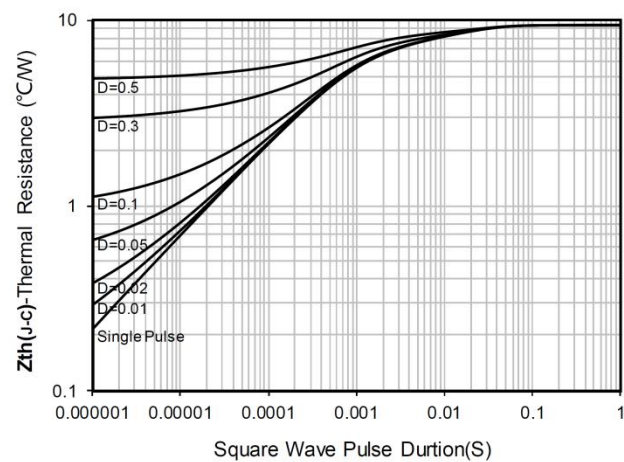
Forward characteristics of reverse diode



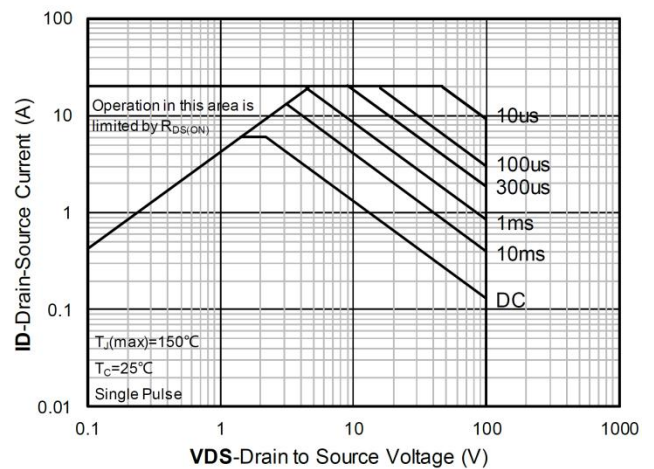
Normalized breakdown voltage



Normalized Threshold voltage

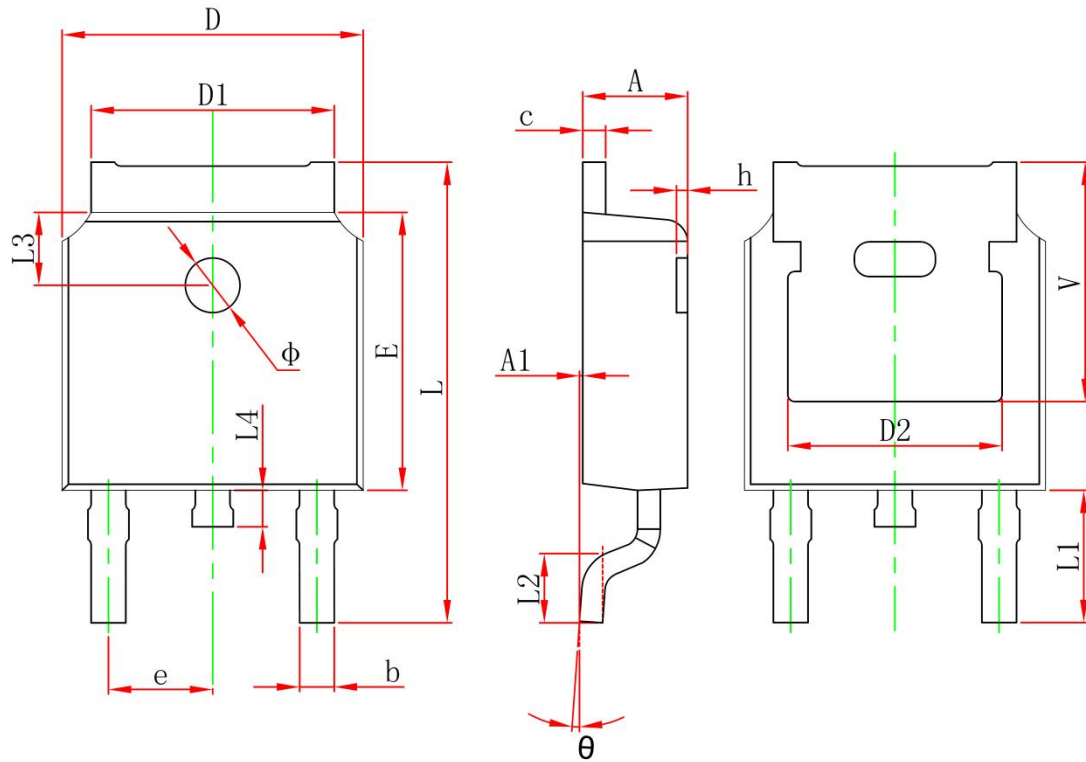


Maximum Transient Thermal Impedance



Safe Operation Area

**TO-252-2L(4R) Package Information**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	