

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	1.5Ω@10V	220mA
	1.8Ω@4.5V	



合肥矽普半导体

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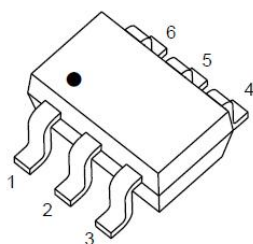
Feature

- High power and current handing capability
- Surface mount package
- ESD protected 2KV

Application

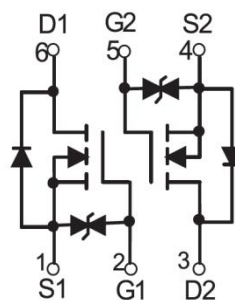
- Battery Switch
- DC/DC Converter

Package

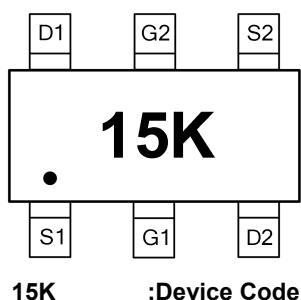


SOT-363

Circuit diagram



Marking



Order Information

Device	Package	Unit/Tape
SP60N1K5KDTW	SOT-363	3000

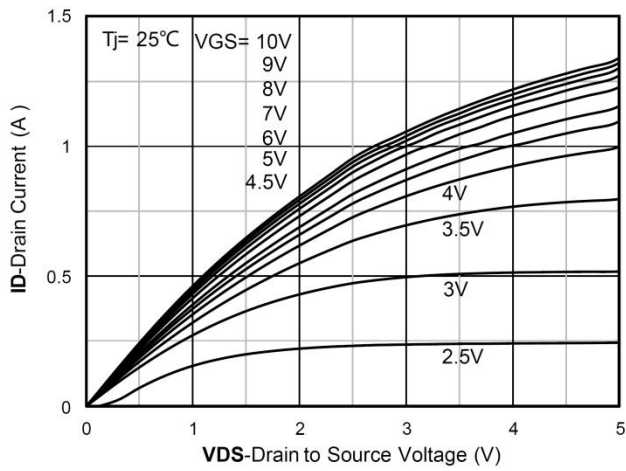
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	220	mA
Pulse Drain Current Tested	I_{DM}	880	mA
Power Dissipation	P_D	320	mW
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	390	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

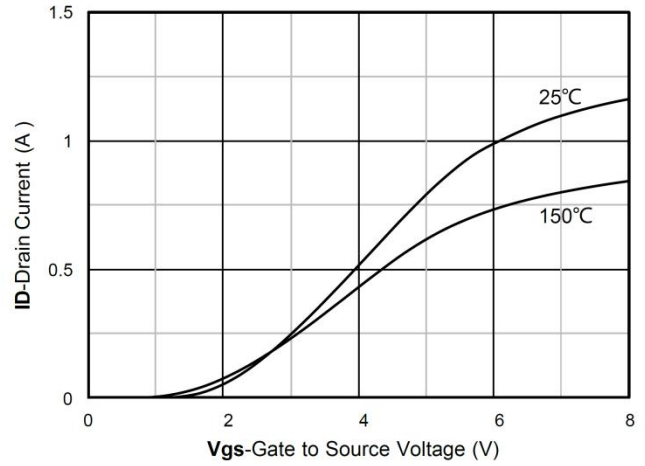
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250μA	60	-	-	V
Drain-Source Leakage Current	IDSS	VDS=48V , VGS=0V	-	-	1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	-	-	±10	uA
Gate Threshold Voltage	VGS(th)	VDS=VGS , ID=250μA	0.7	1.0	1.5	V
Static Drain-Source On-Resistance	RDS(on)	VGS =10V, ID =200mA	-	1.5	3	Ω
		VGS =4.5V, ID =200mA	-	1.8	4	
		VGS =2.5V, ID =100mA	-	2.5	8	
Dynamic characteristics						
Input Capacitance	Ciss	VDS=25V , VGS=0V , f=1MHz	-	12	-	pF
Output Capacitance	Coss		-	6	-	
Reverse Transfer Capacitance	Crss		-	2.5	-	
Total Gate Charge	Qg	VDS=10V , VGS=15V , ID=1A	-	1.34	-	nC
Gate-Source Charge	Qgs		-	0.29	-	
Gate-Drain Charge	Qgd		-	0.2	-	
Switching Characteristics						
Turn-On Delay Time	td(on)	VDD=15V VGS=10V , RG=2.3Ω , ID=1A	-	5	-	nS
Turn-On Rise Time	tr		-	18	-	
Turn-Off Delay Time	td(off)		-	8	-	
Turn-Off Fall Time	tr		-	14	-	
Source-Drain Diode characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V

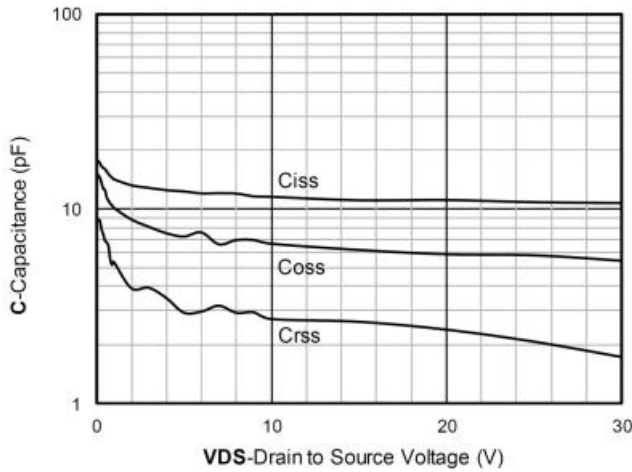
Typical Characteristics



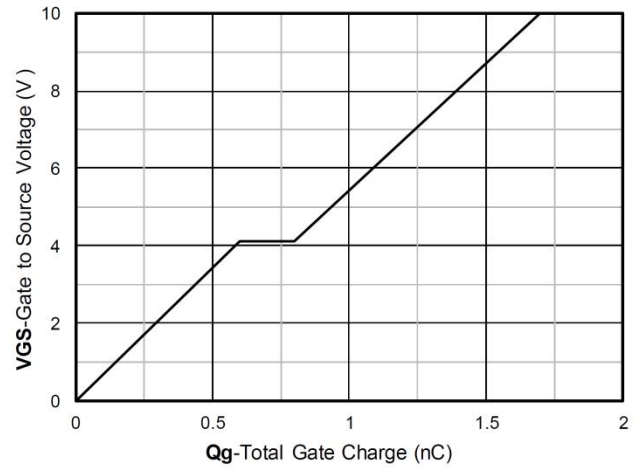
Output Characteristics



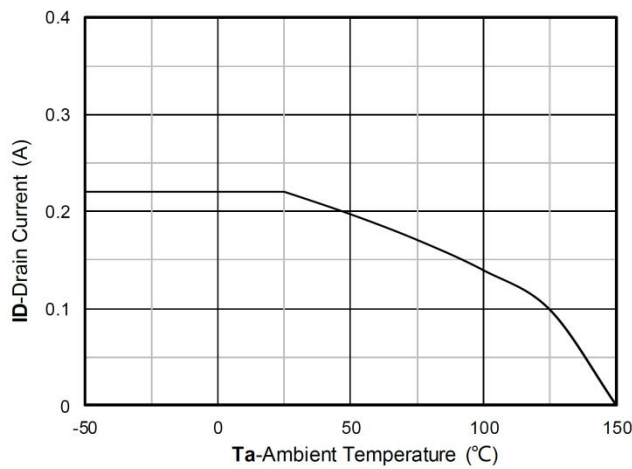
Transfer Characteristics



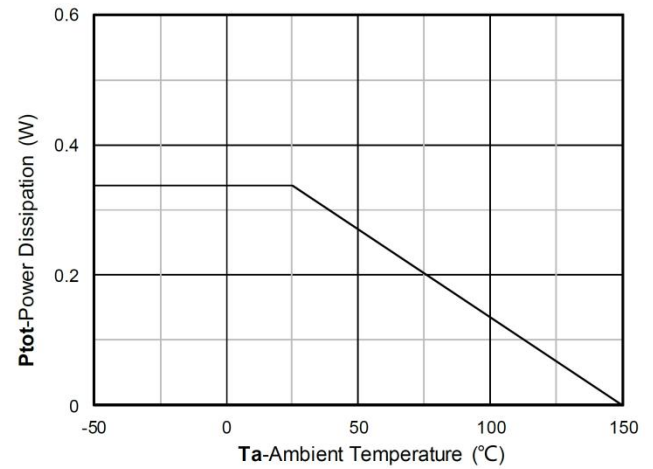
Capacitance Characteristics



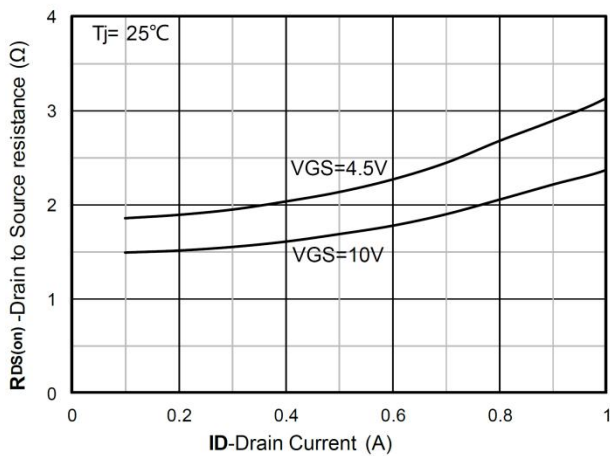
Gate Charge



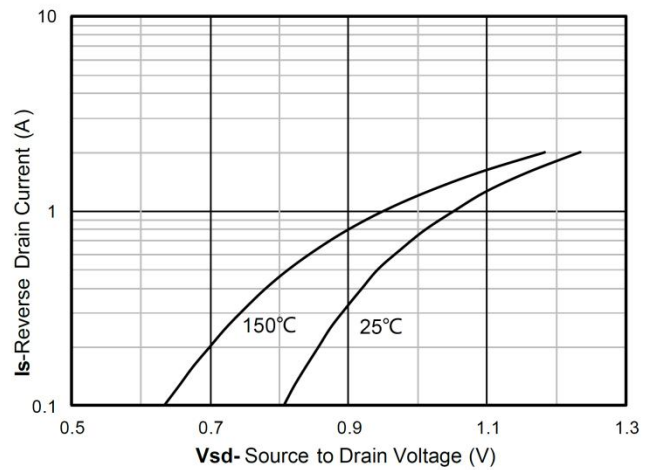
Current dissipation



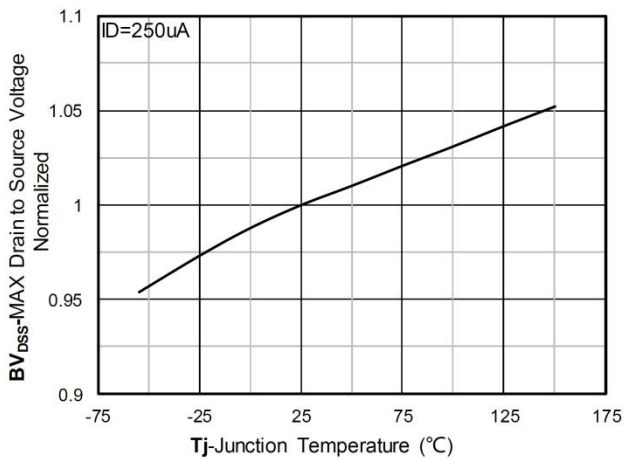
Power dissipation



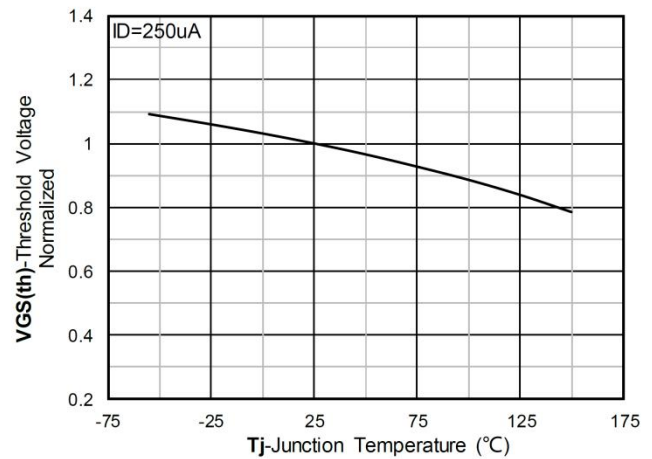
RDS(on) VS Drain Current



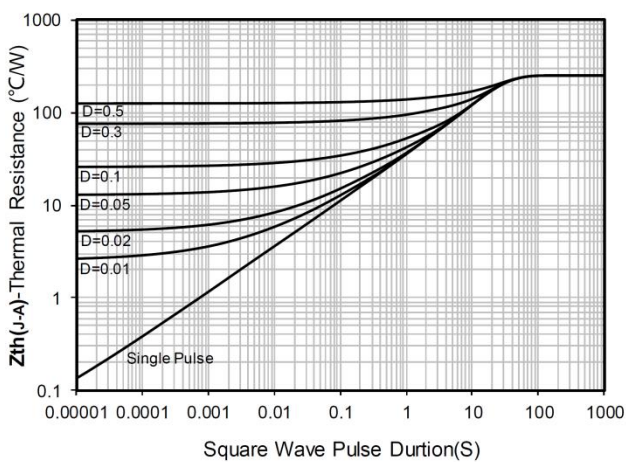
Forward characteristics of reverse diode



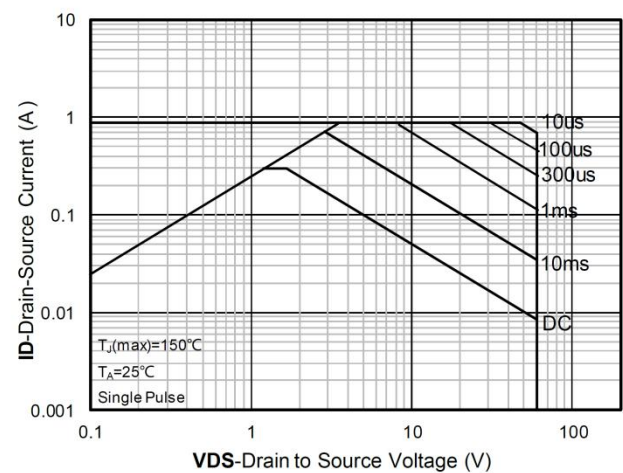
Normalized breakdown voltage



Operation in this area is limited by $R_{DS(on)}$ Normalized Threshold voltage

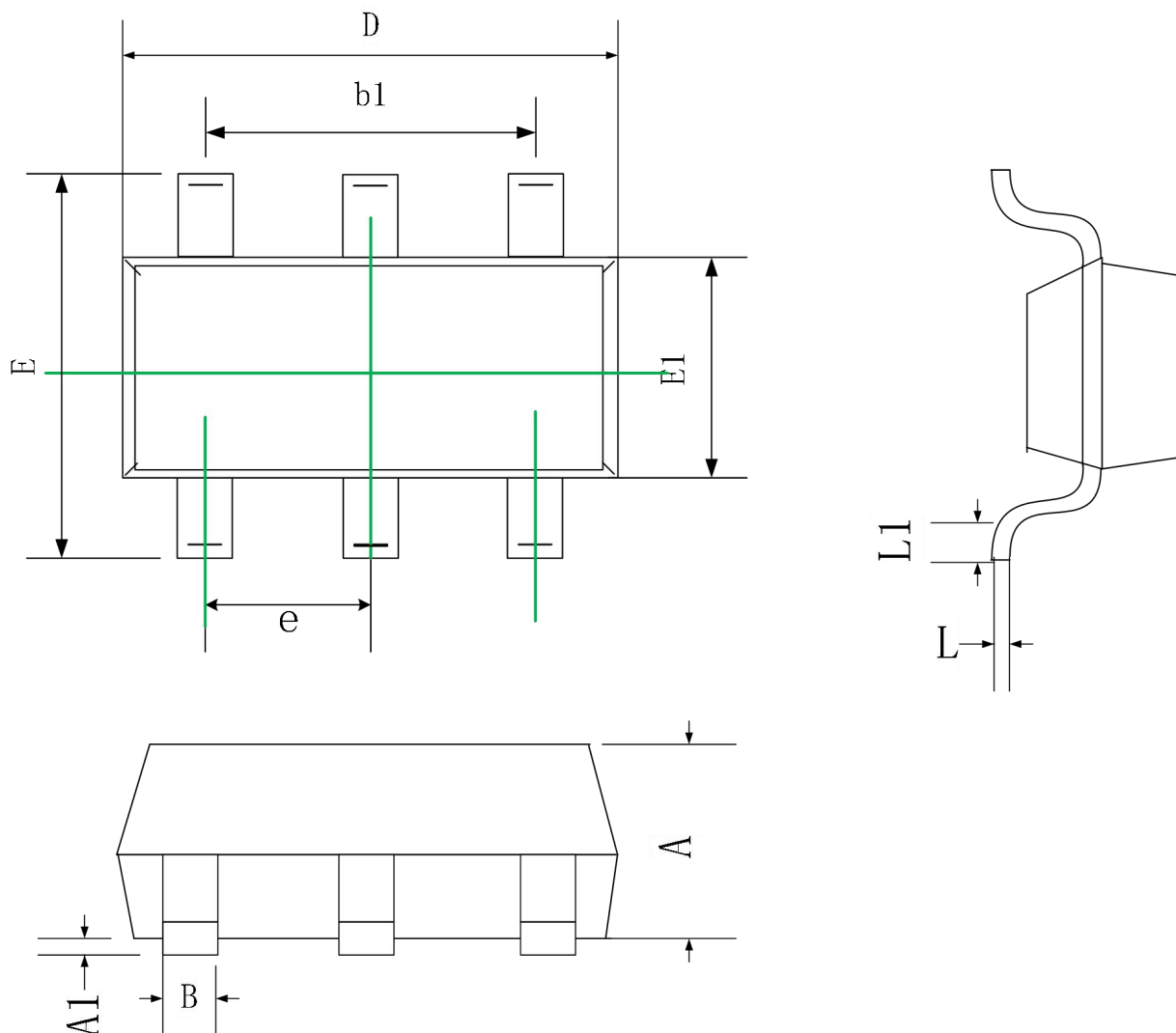


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-363 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.00
A1	0.00	0.10
B	0.10	0.30
b1	1.30	
D	1.80	2.20
E	2.00	2.20
E1	1.15	1.35
e	0.65 TYP.	
L	0.10	0.25
L1	0.15	0.4