

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	250mΩ@4.5V	0.75A
	350mΩ@2.5V	



合肥矽普半导体

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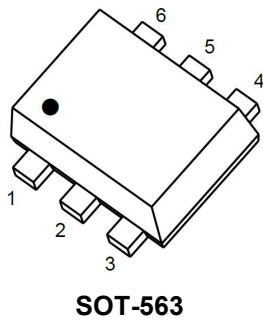
Feature

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

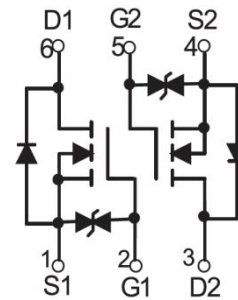
Application

- Battery Switch
- DC/DC Converter

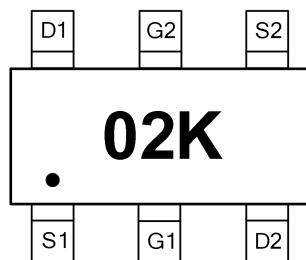
Package



Circuit diagram



Marking



02K :Device Code

Order Information

Device	Package	Unit/Tape
SP2002KDTL	SOT-563	3000

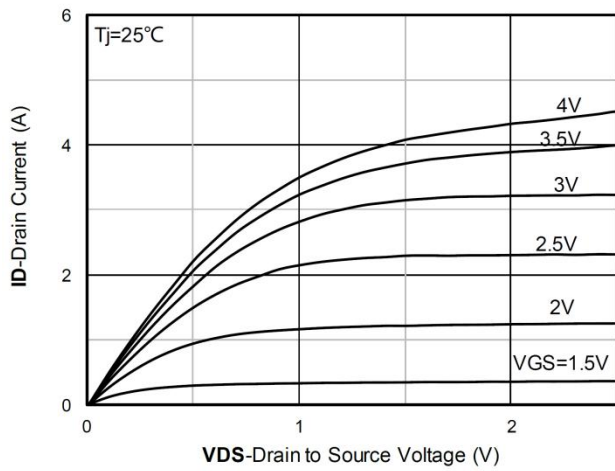
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	0.75	A
Pulse Drain Current Tested	I_{DM}	3	A
Power Dissipation	P_D	150	mW
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	833	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

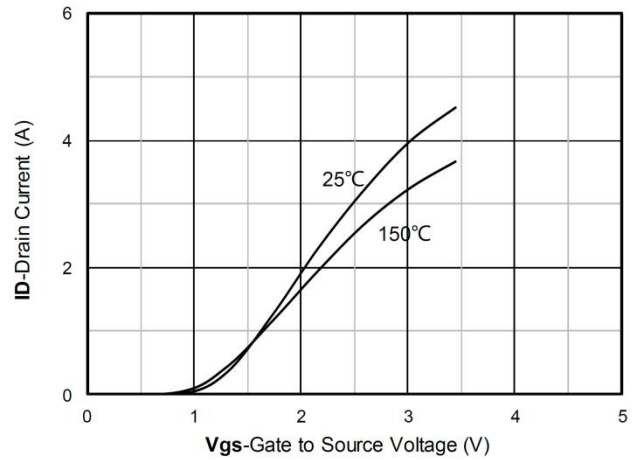
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250μA	20	-	-	V
Drain-Source Leakage Current	IDSS	VDS=16V , VGS=0V	-	-	1	uA
Gate-Source Leakage Current	IGSS	VGS=±12V , VDS=0V	-	-	±10	uA
Gate Threshold Voltage	VGS(th)	VDS=VGS , ID=250μA	0.30	0.65	1.00	V
Static Drain-Source On-Resistance	RDS(on)	VGS=4.5V , ID=500mA	-	250	380	mΩ
		VGS=2.5V , ID=200mA	-	350	450	
Dynamic characteristics						
Input Capacitance	Ciss	VDS=10V , VGS=0V , f=1MHz	-	35	-	pF
Output Capacitance	Coss		-	19	-	
Reverse Transfer Capacitance	Crss		-	9	-	
Total Gate Charge	Qg	VDS=10V , VGS=4.5V , ID=500mA	-	0.8	-	nC
Gate-Source Charge	Qgs		-	0.3	-	
Gate-Drain Charge	Qgd		-	0.16	-	
Switching Characteristics						
Turn-On Delay Time	td(on)	VDD=10V VGS=4.5V , RG=10Ω , ID=500mA	-	4	-	nS
Turn-On Rise Time	tr		-	19	-	
Turn-Off Delay Time	td(off)		-	10	-	
Turn-Off Fall Time	tr		-	21	-	
Source-Drain Diode characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V

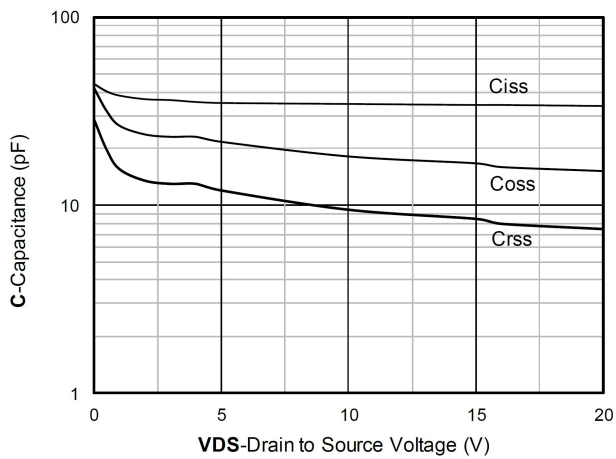
Typical Characteristics



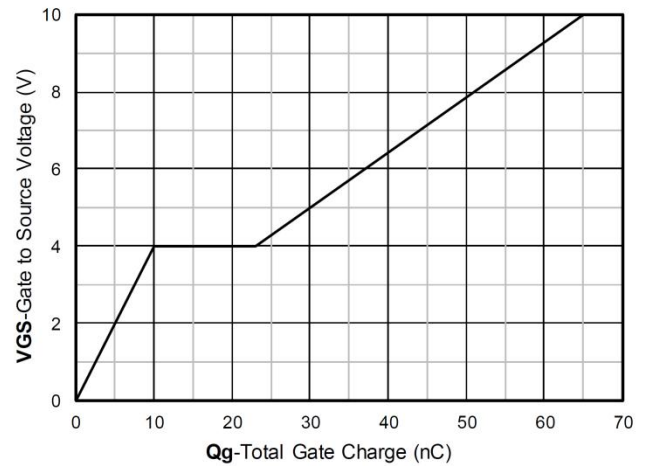
Output Characteristics



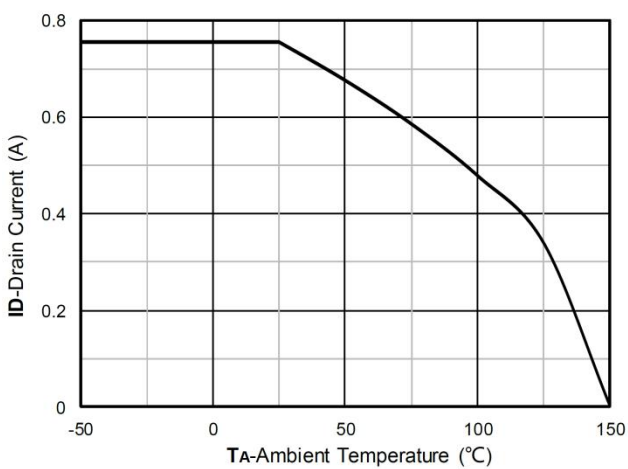
Transfer Characteristics



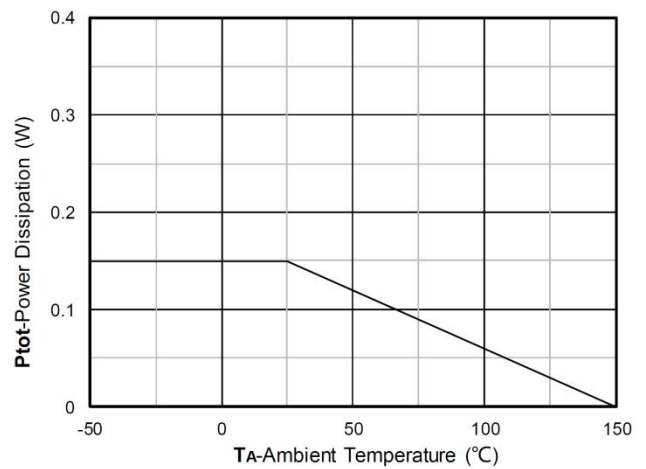
Capacitance Characteristics



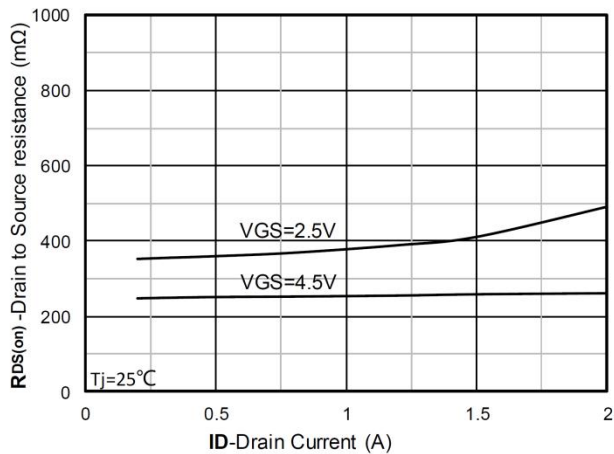
Gate Charge



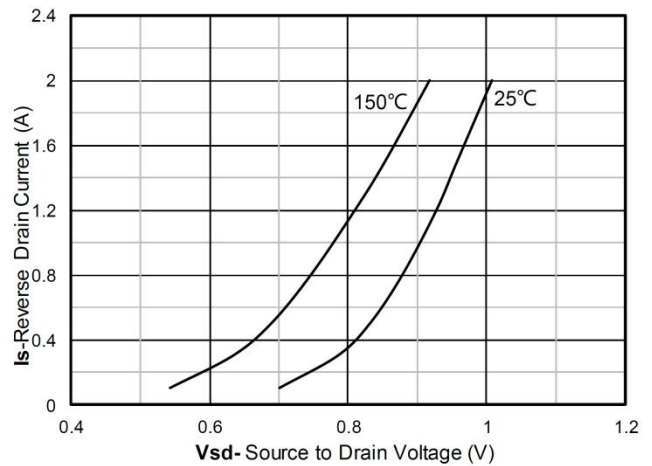
Current dissipation



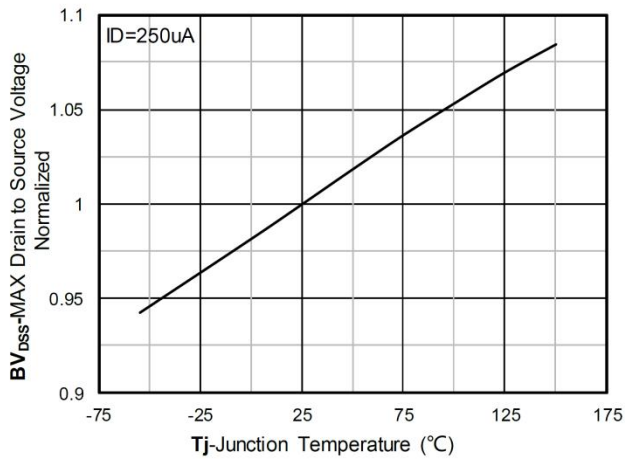
Power dissipation



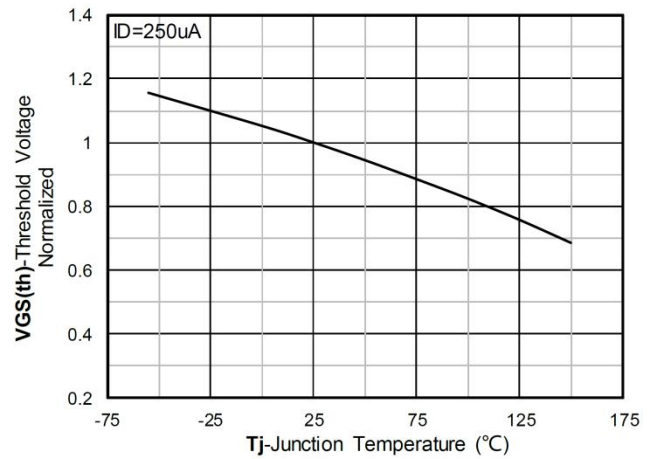
$R_{DS(on)}$ VS Drain Current



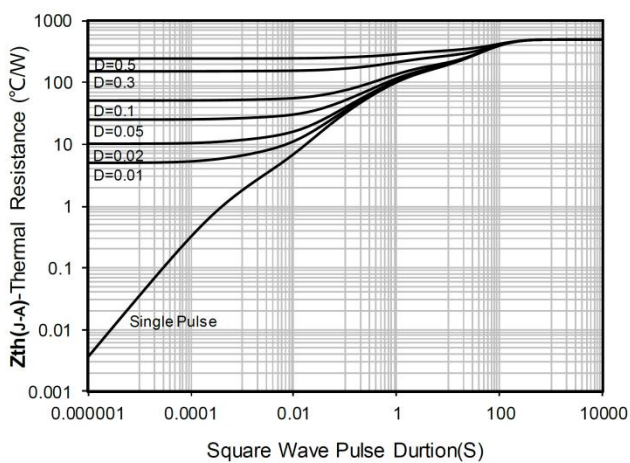
Forward characteristics of reverse diode



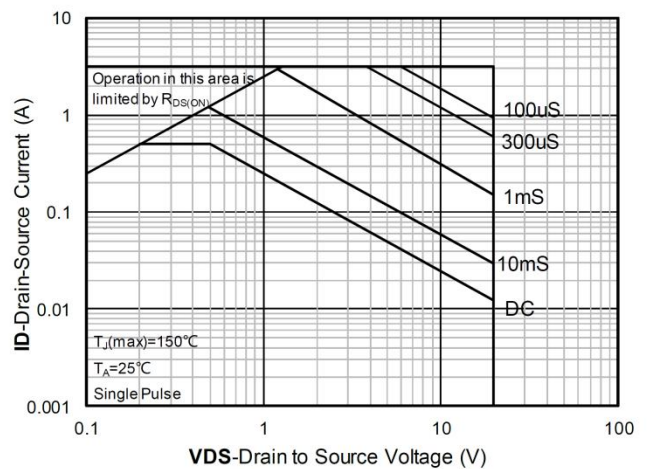
Normalized breakdown voltage



Normalized Threshold voltage

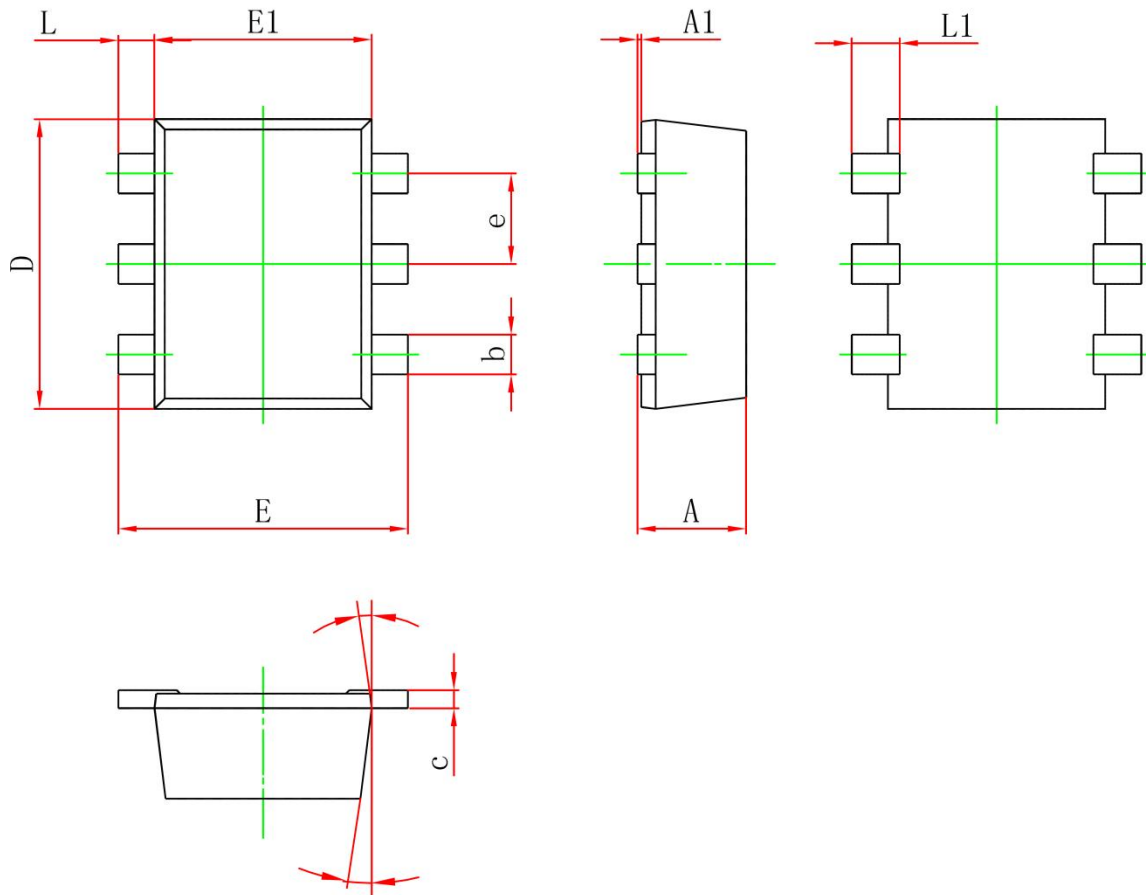


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-563 Package Information



Symbol	Dimensions In Millimeters	
	Min	Max
A	0.525	0.600
A1	0.000	0.050
e	0.450	0.550
c	0.090	0.160
D	1.500	1.700
b	0.170	0.270
E1	1.100	1.300
E	1.500	1.700
L	0.100	0.300
L1	0.200	0.400
θ	7°Ref.	

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