

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 handing capability
- Surface mount package
- ESD protected 2KV

Application

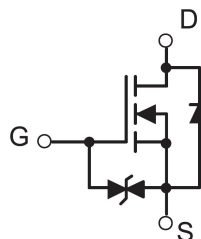
- Battery Switch
- DC/DC Converter

Package

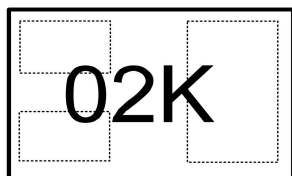


DFN1006-3L

Circuit diagram



Marking



02K

:Device Code

Order Information

Device	Package	Unit/Tape
SP2002KNC	DFN1006-3L	10000

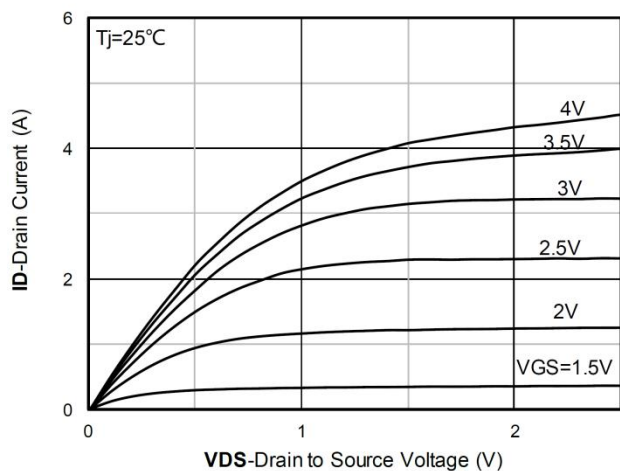
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

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

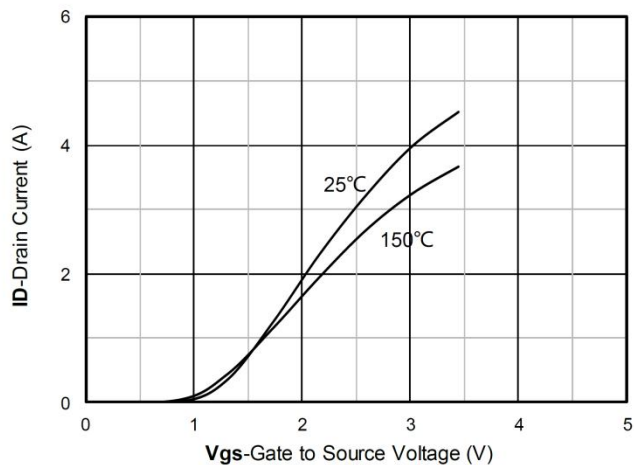
Electrical characteristics (Ta=25°C, unless otherwise noted)

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=500mA	-	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

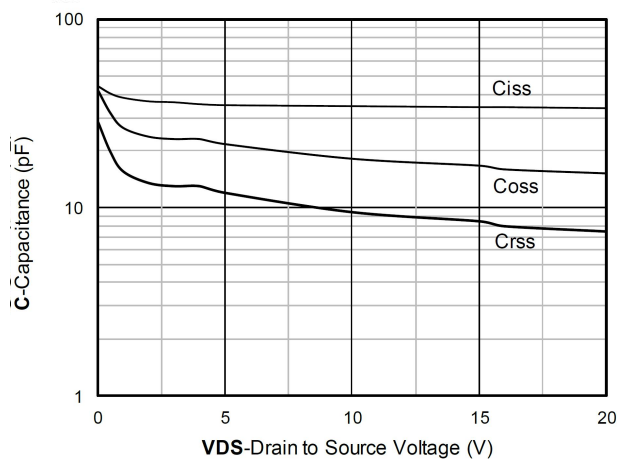
Typical Characteristics



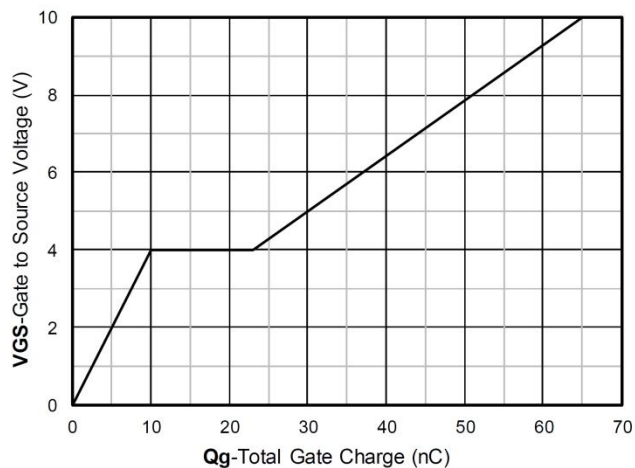
Output Characteristics



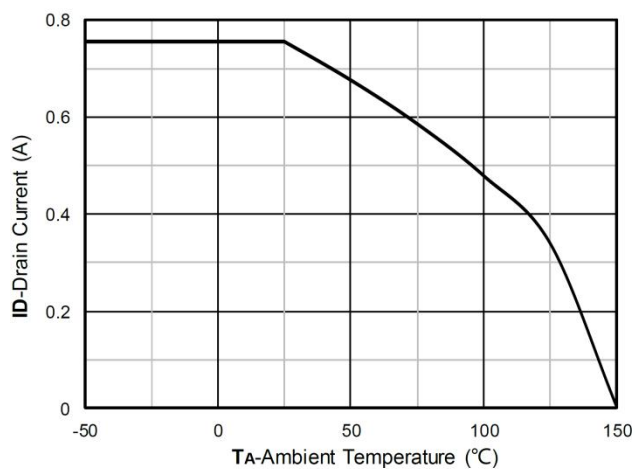
Transfer Characteristics



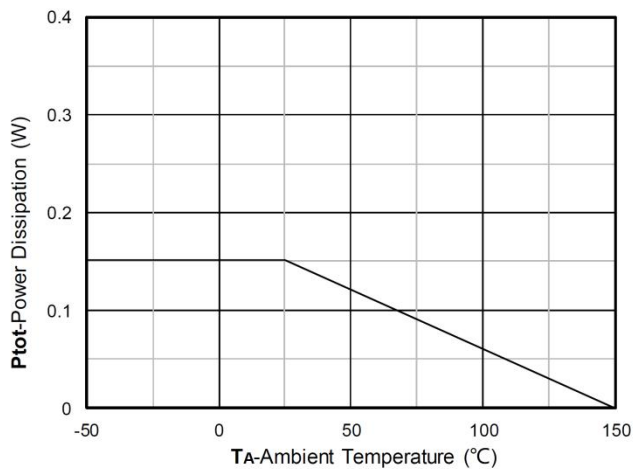
Capacitance Characteristics



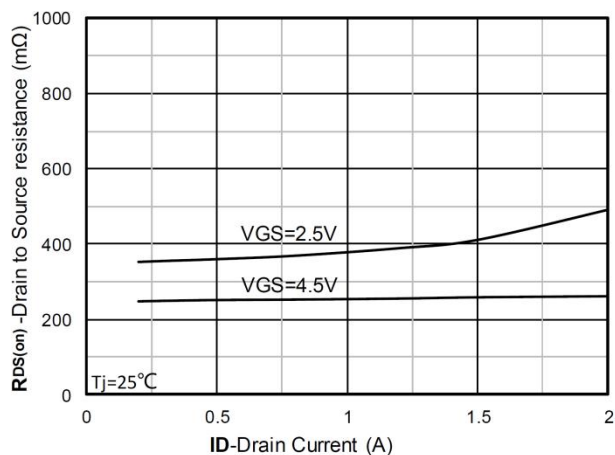
Gate Charge



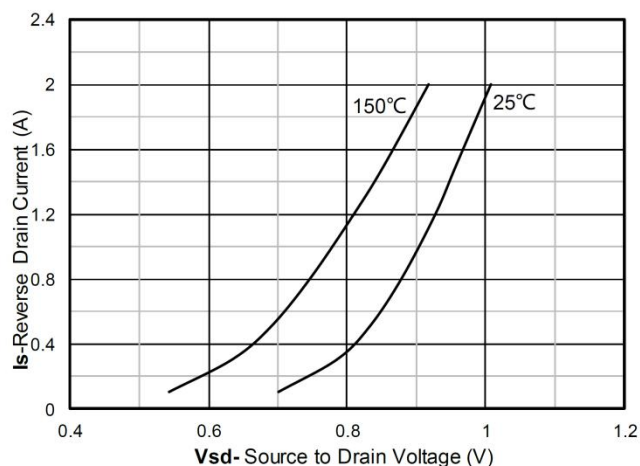
Current dissipation



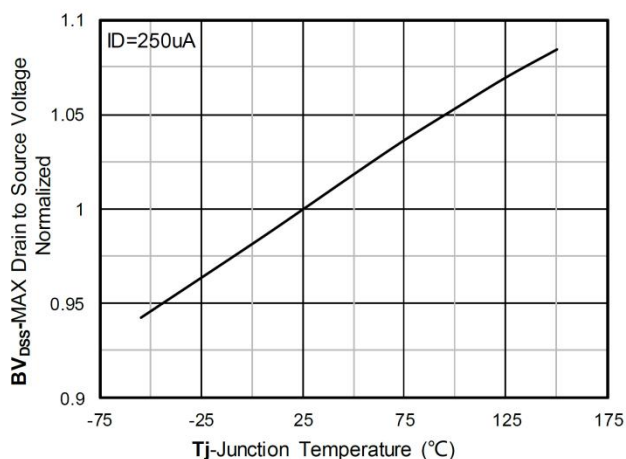
Power dissipation



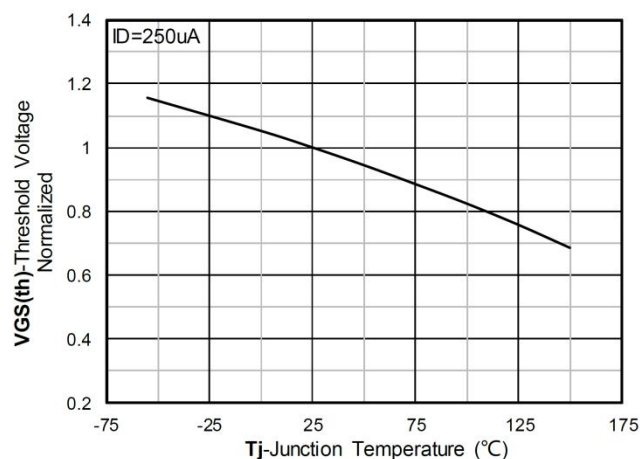
RDS(on) VS Drain Current



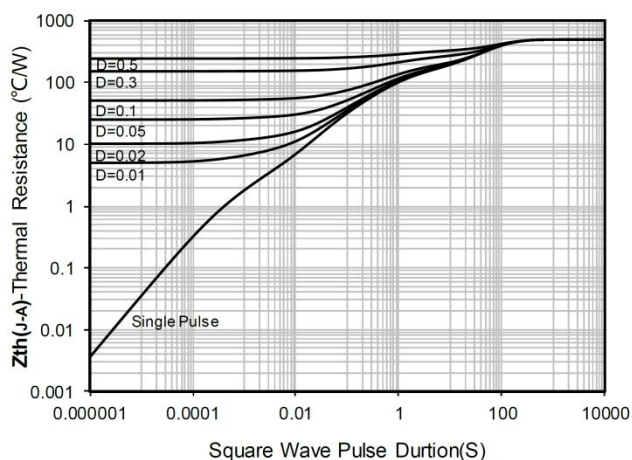
Forward characteristics of reverse diode



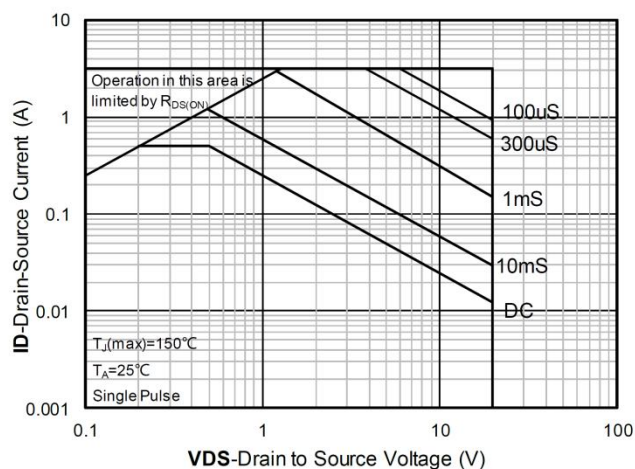
Normalized breakdown voltage



Normalized Threshold voltage

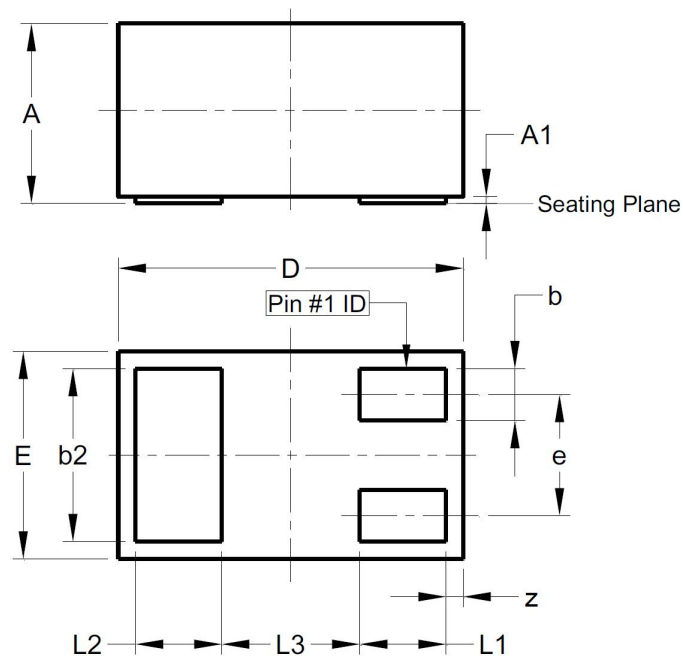


Maximum Transient Thermal Impedance



Safe Operation Area

DFN1006-3L Package Information



Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.47	0.50	0.55
A1	0.00	-	0.05
b	0.10	0.15	0.20
b2	0.45	0.50	0.55
D	0.95	1.0	1.05
E	0.55	0.60	0.65
e	0.35BSC		
L1	0.20	0.25	0.30
L2	0.20	0.25	0.30
L3	0.40		
z	0.02	0.05	0.08