

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	350mΩ@10V	0.6A
	420mΩ@4.5V	
	650mΩ@2.5V	



合肥矽普半导体

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Feature

- Surface Mount Package
- N-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive
- ESD Protected

Application

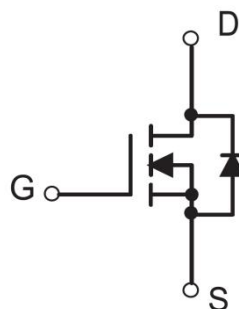
- Relay driver
- High-speed line driver
- Low-side load switch
- Switching circuits

Package

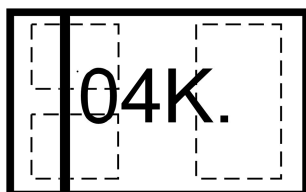


PDFN1006-3L

Circuit diagram



Marking



04K. =Device Code

Order Information

Device	Package	Unit/Tape
SP3004KNC	PDFN1006-3L	10000

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

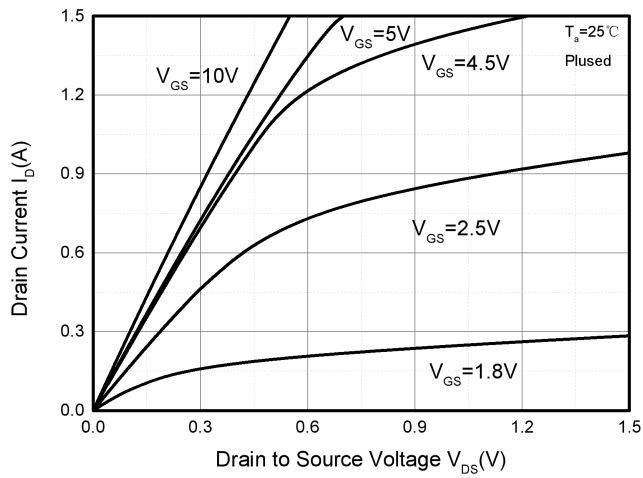
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	0.6	A
Pulsed Drain Current	I_{DM}	1.8	A
Power Dissipation	P_D	100	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	1250	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}C$

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

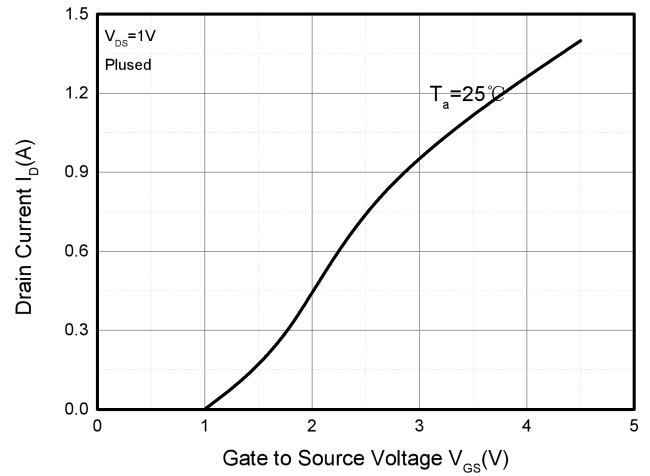
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =24V,V _{GS} = 0V			0.1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±12V, V _{DS} = 0V			±10	uA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.7	0.9	1.3	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 0.5A		350	450	mΩ
		V _{GS} =4.5V, I _D = 0.4A		420	520	
		V _{GS} =2.5V, I _D = 0.3A		650	800	
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V,V _{GS} =0V, f=1MHz		30.3		pF
Output Capacitance	C _{oss}			5.8		
Reverse Transfer Capacitance	C _{rss}			4.2		
Switching Characteristics						
Turn-on delay time	t _{d(on)}	V _{GS} =4.5V,V _{DS} =15V, I _D =590mA,R _{GEN} =10Ω		4		ns
Turn-on rise time	t _r			7		
Turn-off delay time	t _{d(off)}			12		
Turn-off fall time	t _f			3		
Source-Drain Diode characteristics						
Body Diode Voltage	V _{SD}	I _S =0.5A, V _{GS} = 0V	0.5		1.35	V

Typical Characteristics

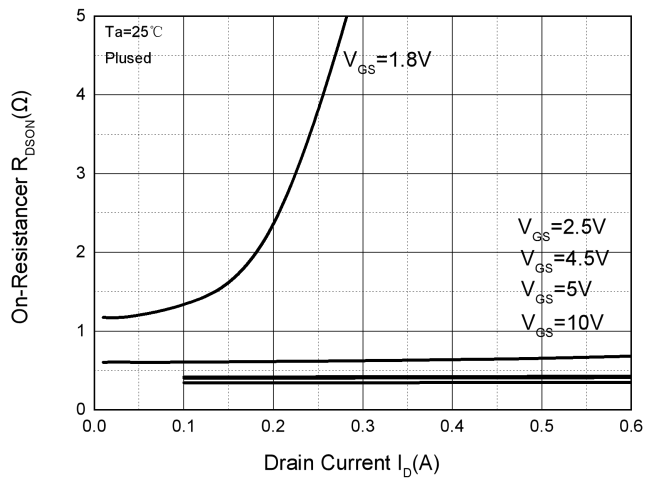
Output Characteristics



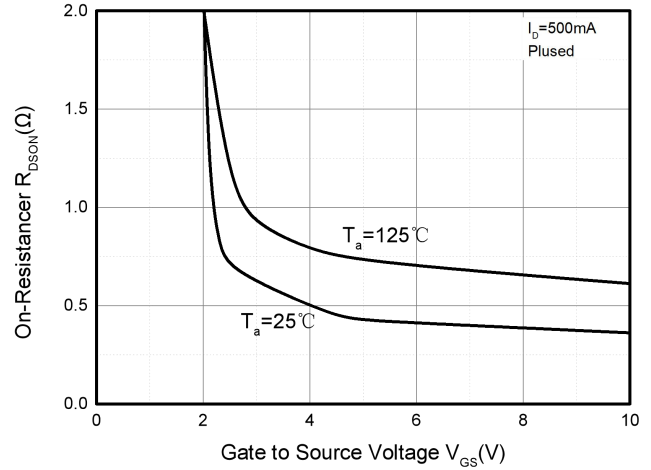
Transfer Characteristics



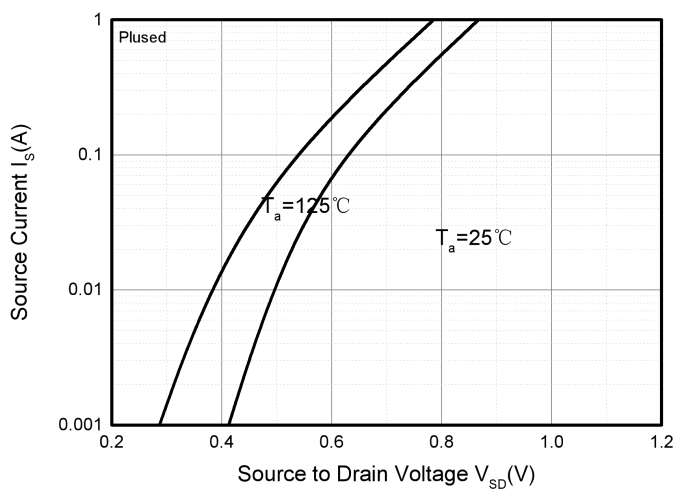
$R_{DS(ON)} - I_D$



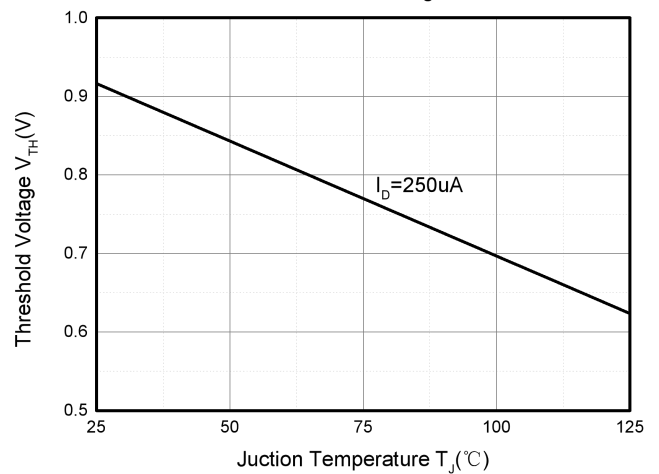
$R_{DS(ON)} - V_{GS}$

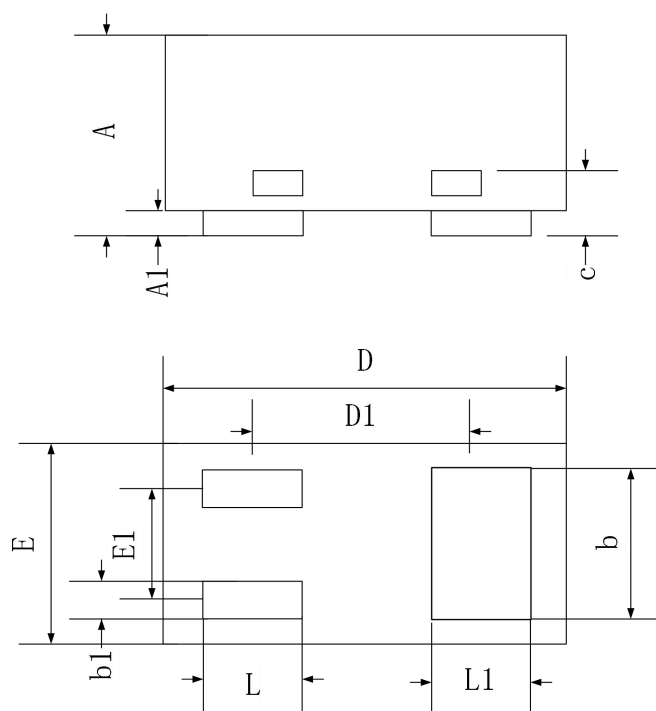


$I_S - V_{SD}$



Threshold Voltage



PDFN1006-3L Package Information


Symbol	Dimensions in millimeters	
	Min.	Max.
A	0.46	0.51
A1	0	0.05
b	0.45	0.55
b1	0.1	0.2
c	0.08	0.18
D	0.95	1.05
D1	0.65	
E	0.55	0.65
E1	0.325	
L	0.2	0.3
L1	0.2	0.3