

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
1000V	40Ω@10V	0.5A



合肥矽普半导体

Siliup Semiconductor Technology Co., Ltd

技术 品质 服务

www.siliup.com

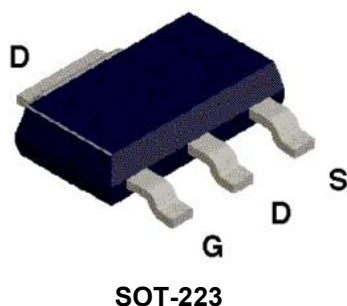
Feature

- Fast Switching
- Low Gate Charge and Rdson

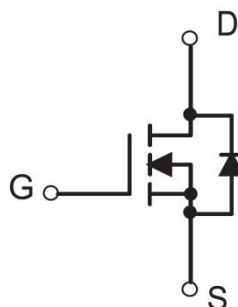
Application

- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

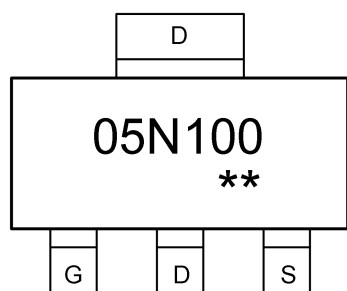
Package



Circuit diagram



Marking



05N100

:Device Code

Order Information

Device	Package	Unit/Tape
SP05N100TC	SOT-223	4000

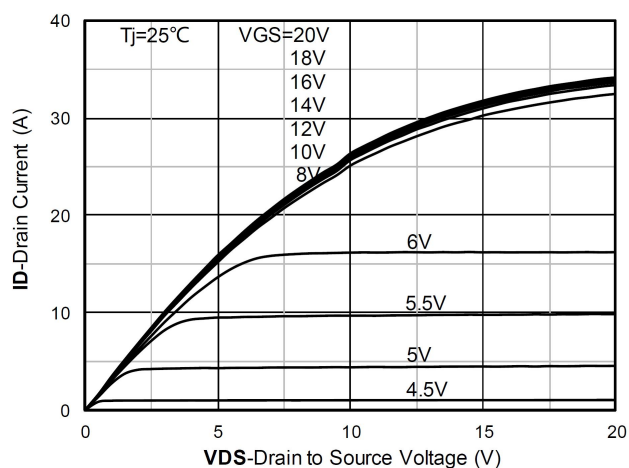
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	1000	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current	I_D	0.5	A
Pulse Drain Current Tested	I_{DM}	2	A
Power Dissipation	P_D	3.6	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	35	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

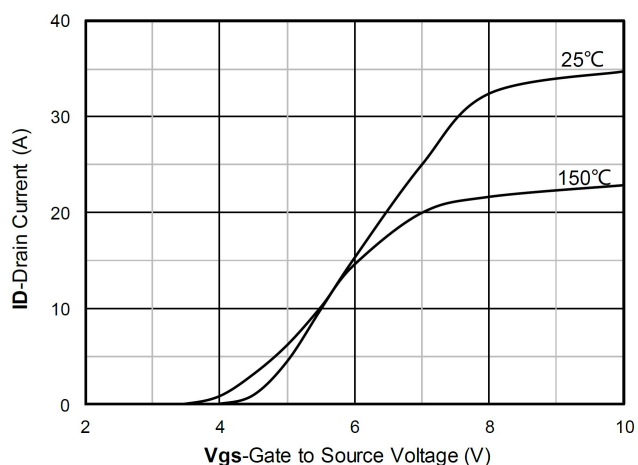
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250μA	1000	-	-	V
Drain-Source Leakage Current	I _{DSS}	VDS=800V , VGS=0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	VGS=±30V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	VDS=VGS , ID=250μA	2	3	4	V
Static Drain-Source On-Resistance	R _{DS(ON)}	VGS =10V, ID =0.3A	-	40	55	Ω
Dynamic characteristics						
Input Capacitance	C _{iss}	VDS=25V , VGS=0V , f=1MHz	-	472	-	pF
Output Capacitance	C _{oss}		-	43	-	
Reverse Transfer Capacitance	C _{rss}		-	1.2	-	
Total Gate Charge	Q _g	VDS=800V , VGS=10V , ID=0.3A	-	7.5	-	nC
Gate-Source Charge	Q _{gs}		-	2.5	-	
Gate-Drain Charge	Q _{gd}		-	2.7	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	VDD=500V VGS=10V , RG=25Ω, ID=0.3A	-	17	-	nS
Turn-On Rise Time	t _r		-	22	-	
Turn-Off Delay Time	t _{d(off)}		-	17.3	-	
Turn-Off Fall Time	t _f		-	18	-	
Source-Drain Diode characteristics						
Diode Forward Voltage	V _{SD}	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V

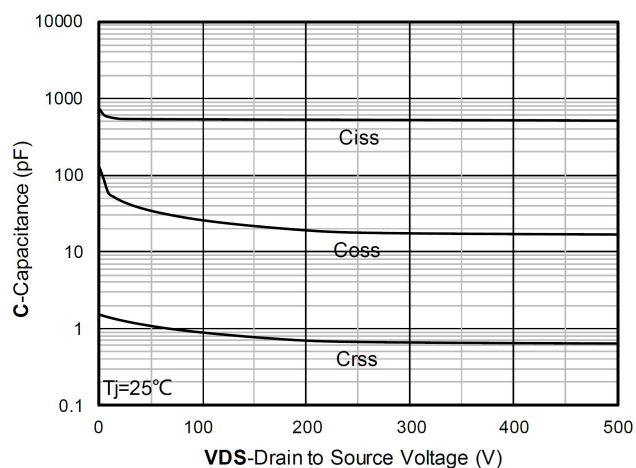
Typical Characteristics



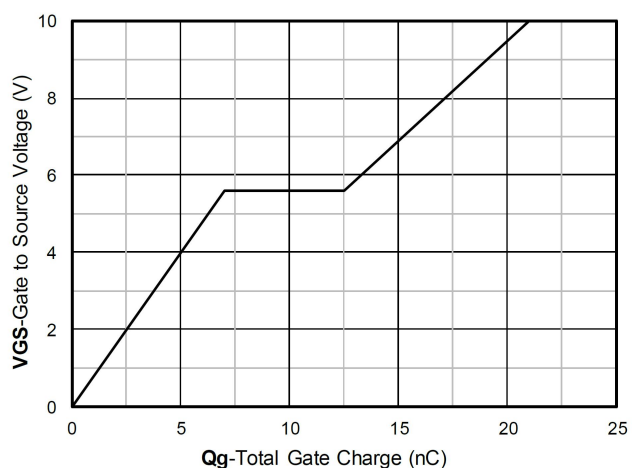
Output Characteristics



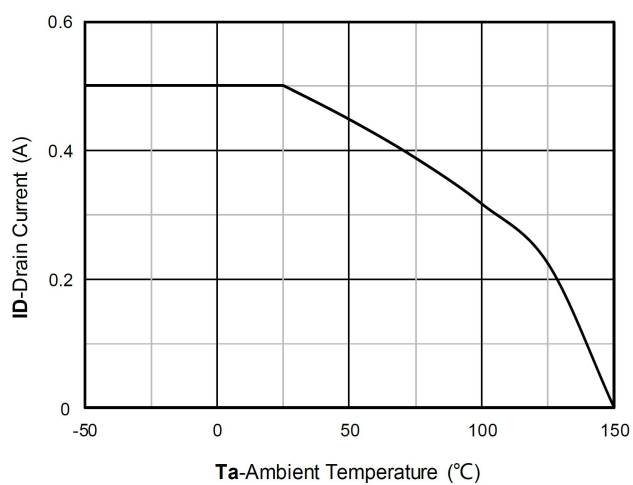
Transfer Characteristics



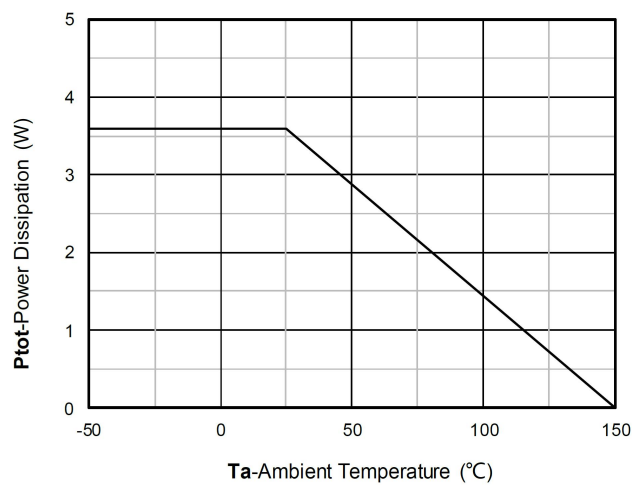
Capacitance Characteristics



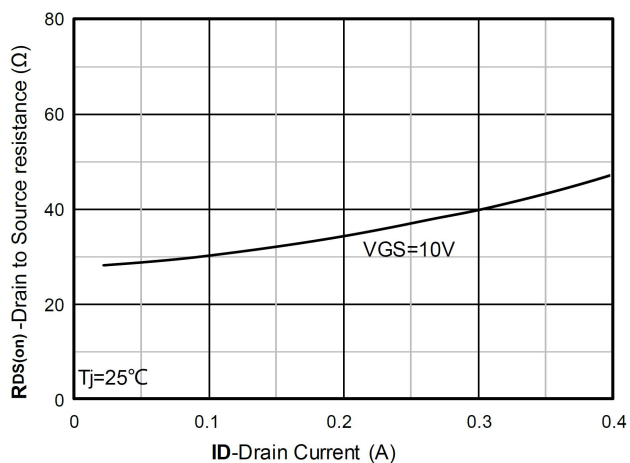
Gate Charge



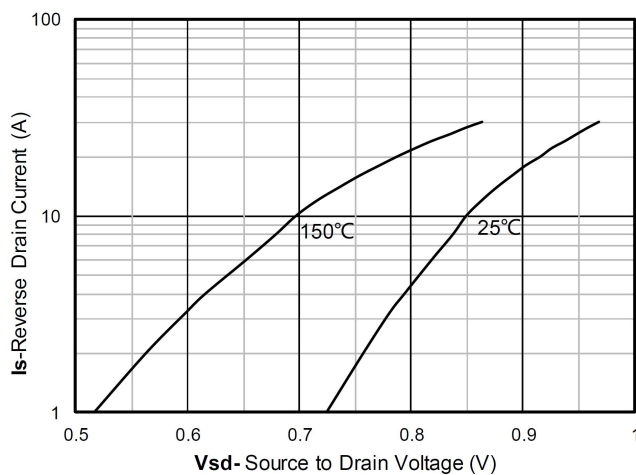
Current dissipation



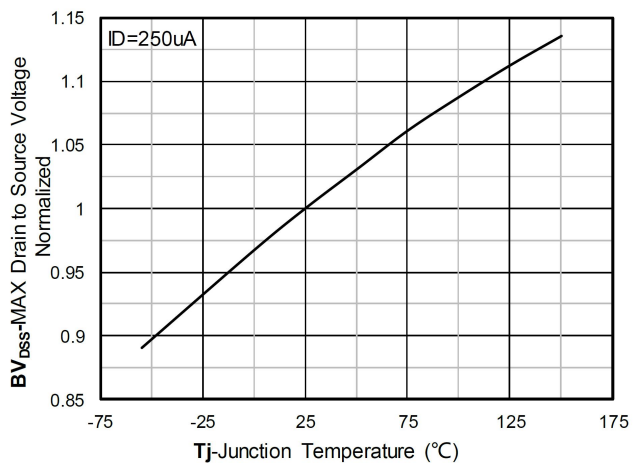
Power dissipation



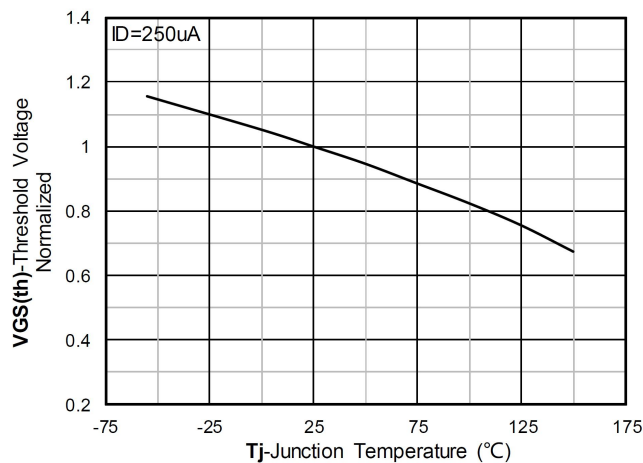
RDS(on) VS Drain Current



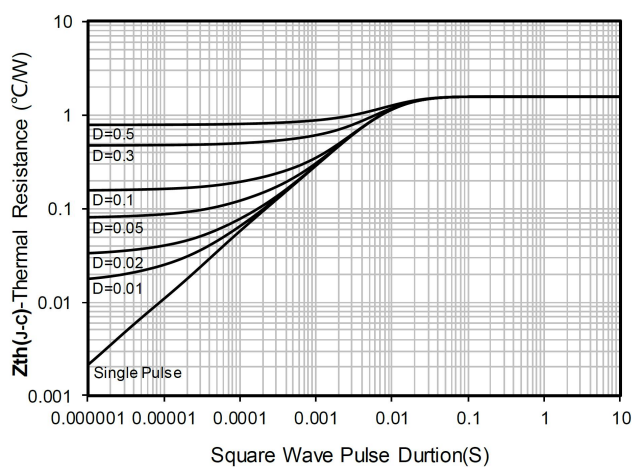
Forward characteristics of reverse diode



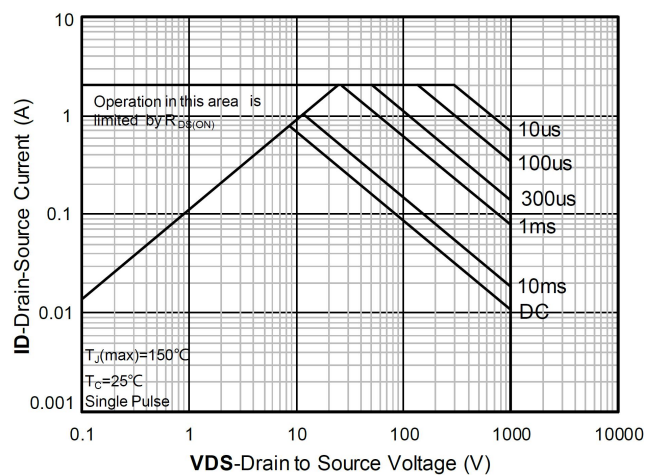
Normalized breakdown voltage



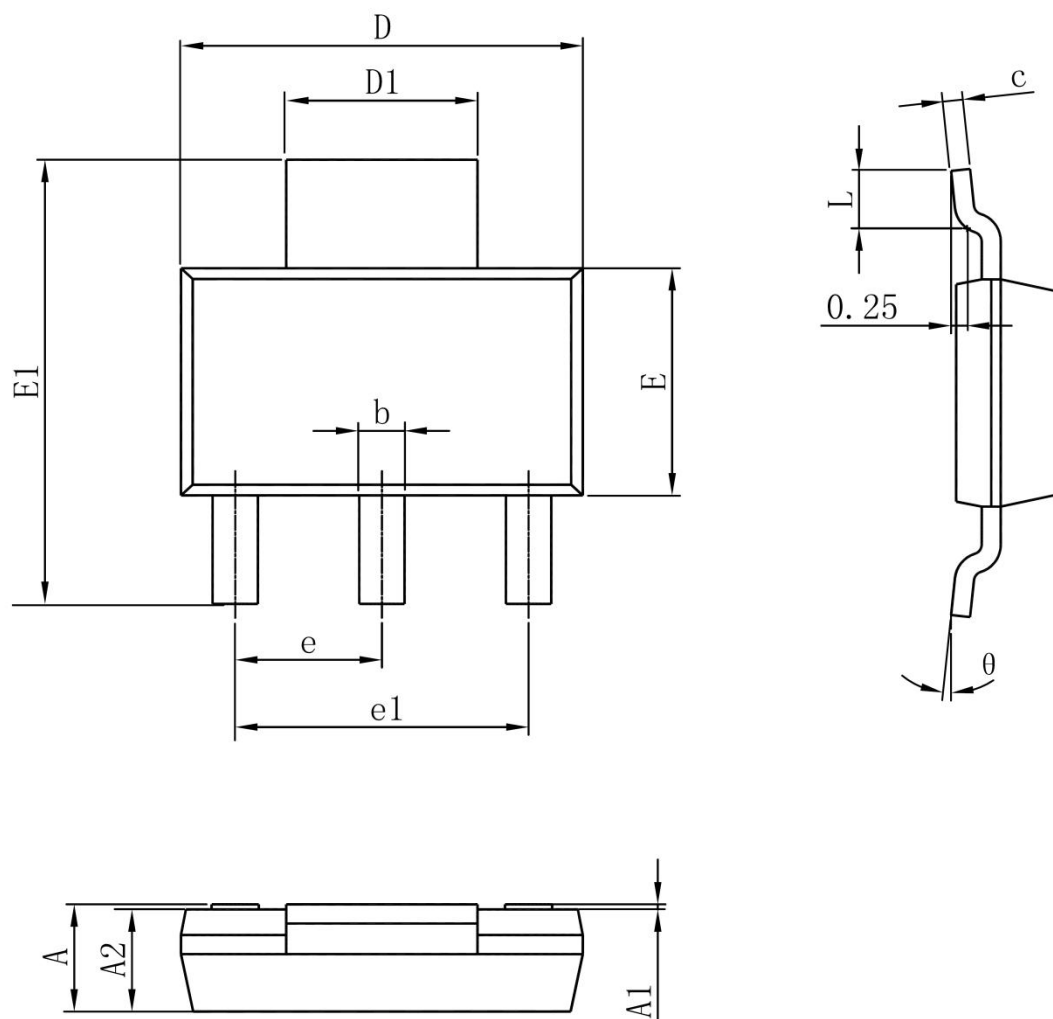
Normalized Threshold voltage



Maximum Transient Thermal Impedance



Safe Operation Area

SOT-223 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.820	0.026	0.032
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300(BSC)		0.091(BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°