

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	45mΩ@-10V	-4.2A
	55mΩ@-4.5V	
	65mΩ@-2.5V	



合肥矽普半导体

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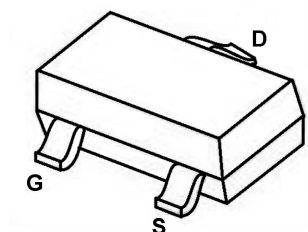
Feature

- High power and current handling capability
- Surface mount package

Application

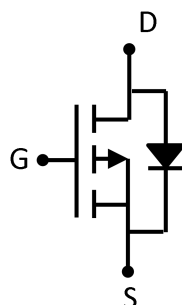
- Battery Switch
- DC/DC Converter

Package

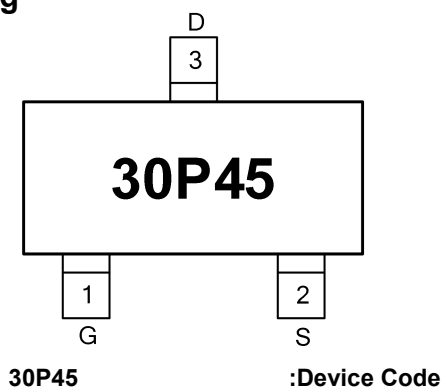


SOT-23

Circuit diagram



Marking



Order Information

Device	Package	Unit/Tape
SP30P45T2	SOT-23	3000

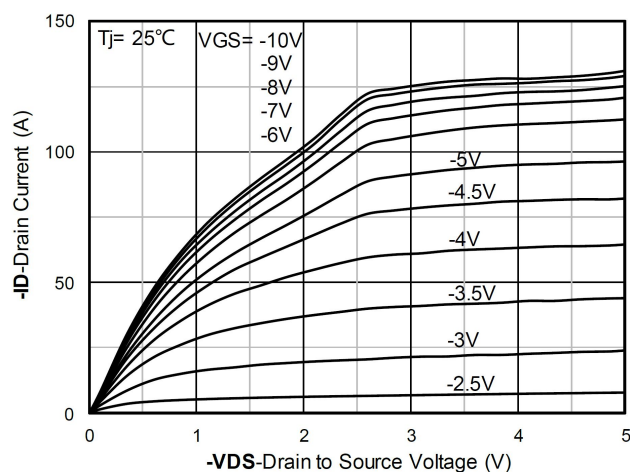
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-4.2	A
Pulse Drain Current Tested	I_{DM}	-16.8	A
Power Dissipation	P_D	1.2	W
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	104	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

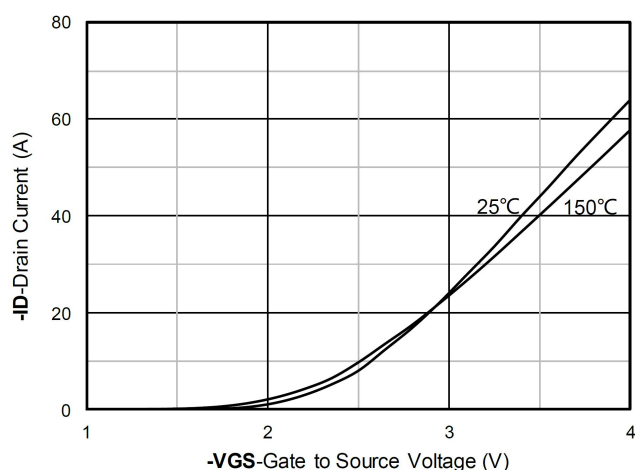
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=-250μA	-30	-	-	V
Drain-Source Leakage Current	I _{DSS}	VDS=-24V , VGS=0V	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	VGS=±12V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	VDS=VGS , ID=-250μA	-0.7	-0.9	-1.3	V
Static Drain-Source On-Resistance	R _{DS(ON)}	VGS=-10V , ID =-4.2A	-	45	65	mΩ
		VGS=-4.5V , ID =-4A	-	55	75	
		VGS=-2.5V , ID =-1A	-	65	90	
Dynamic characteristics						
Input Capacitance	C _{iss}	VDS=-15V , VGS=0V , f=1MHz	-	880	-	pF
Output Capacitance	C _{oss}		-	105	-	
Reverse Transfer Capacitance	C _{rss}		-	60	-	
Total Gate Charge	Q _g	VDS=-15V , VGS=-4.5V , ID=-4.2A	-	8.5	-	nC
Gate-Source Charge	Q _{gs}		-	1.8	-	
Gate-Drain Charge	Q _{gd}		-	2.7	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	VDD=-15V VGS=-10V , RG=6Ω , ID=-4.2A	-	6.3	-	nS
Turn-On Rise Time	t _r		-	3.2	-	
Turn-Off Delay Time	t _{d(off)}		-	38.2	-	
Turn-Off Fall Time	t _f		-	12	-	
Source-Drain Diode characteristics						
Diode Forward Voltage	V _{SD}	VGS=0V , IS=-1A , TJ=25℃	-	-	-1.2	V

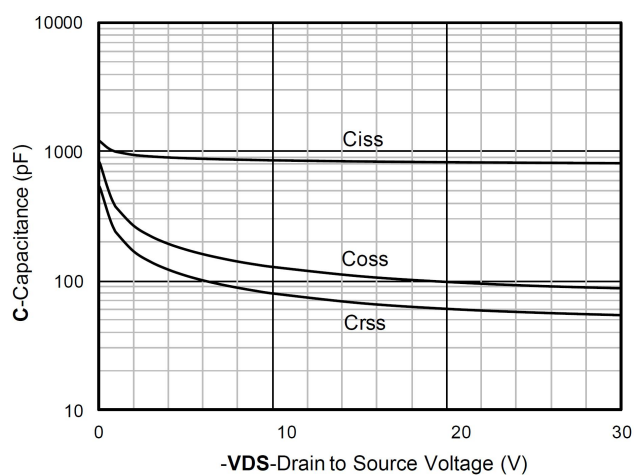
Typical Characteristics



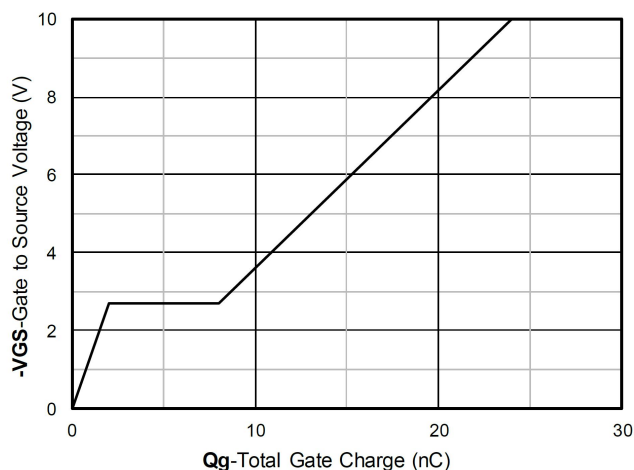
Output Characteristics



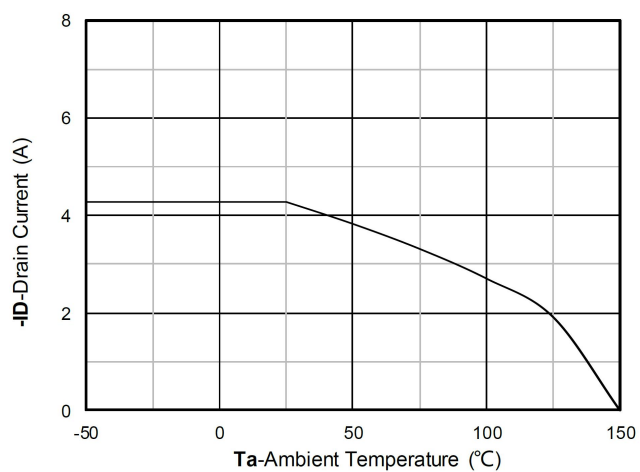
Transfer Characteristics



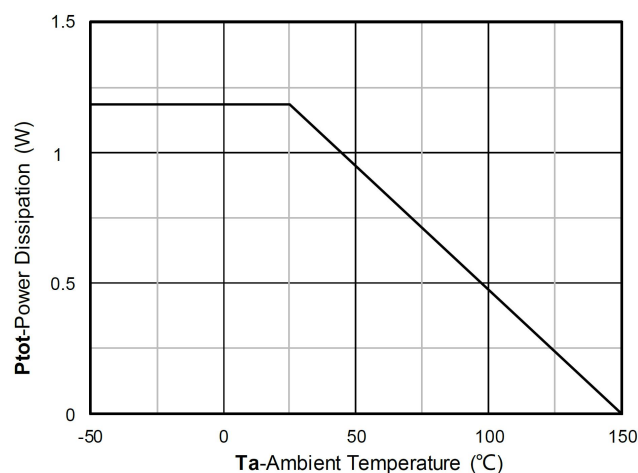
Capacitance Characteristics



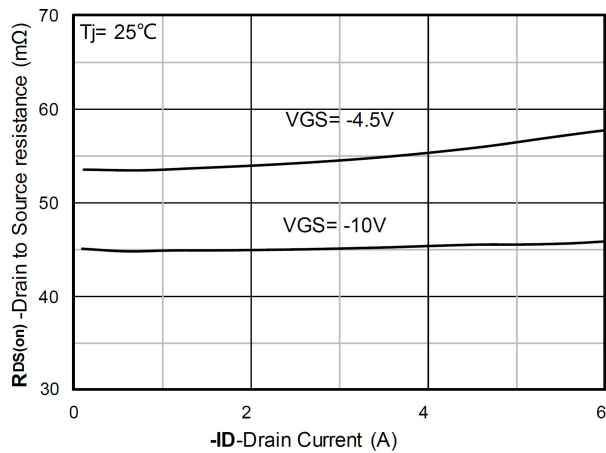
Gate Charge



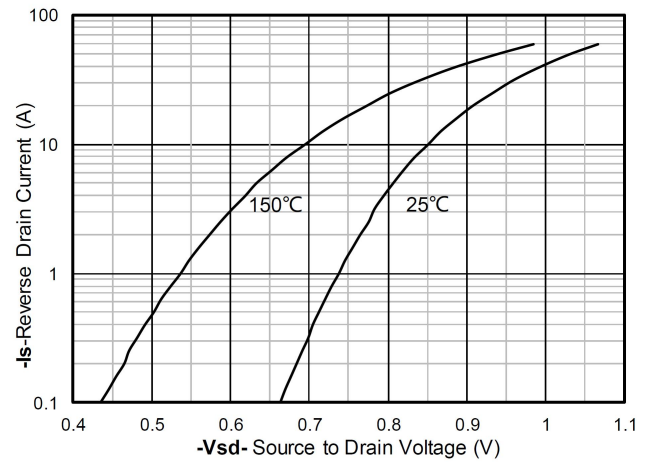
Current dissipation



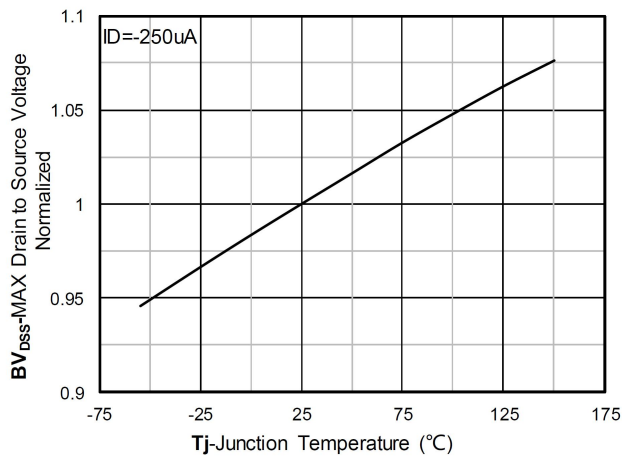
Power dissipation



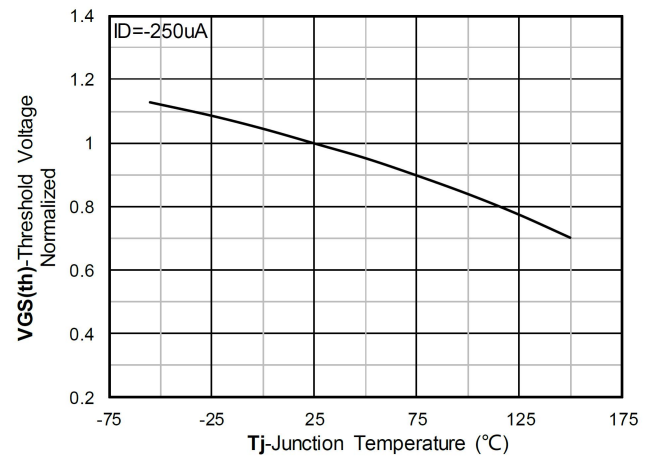
$R_{DS(on)}$ VS Drain Current



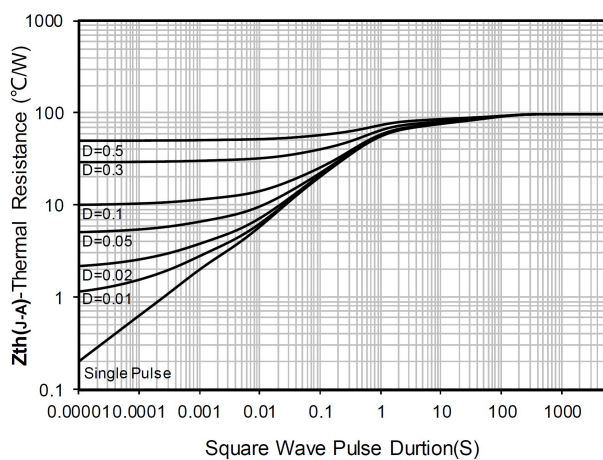
Forward characteristics of reverse diode



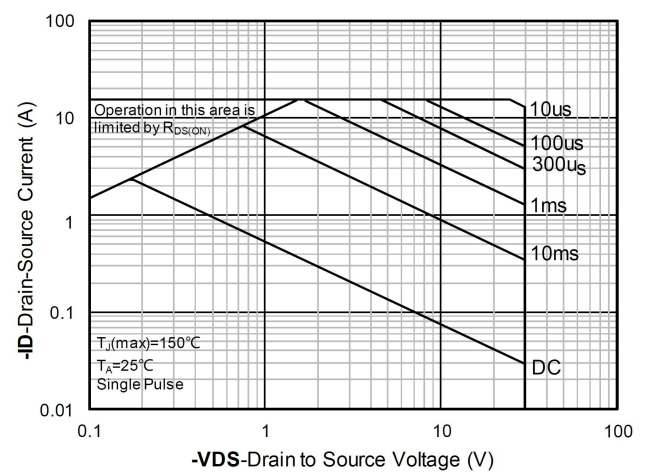
Normalized breakdown voltage



Normalized Threshold voltage

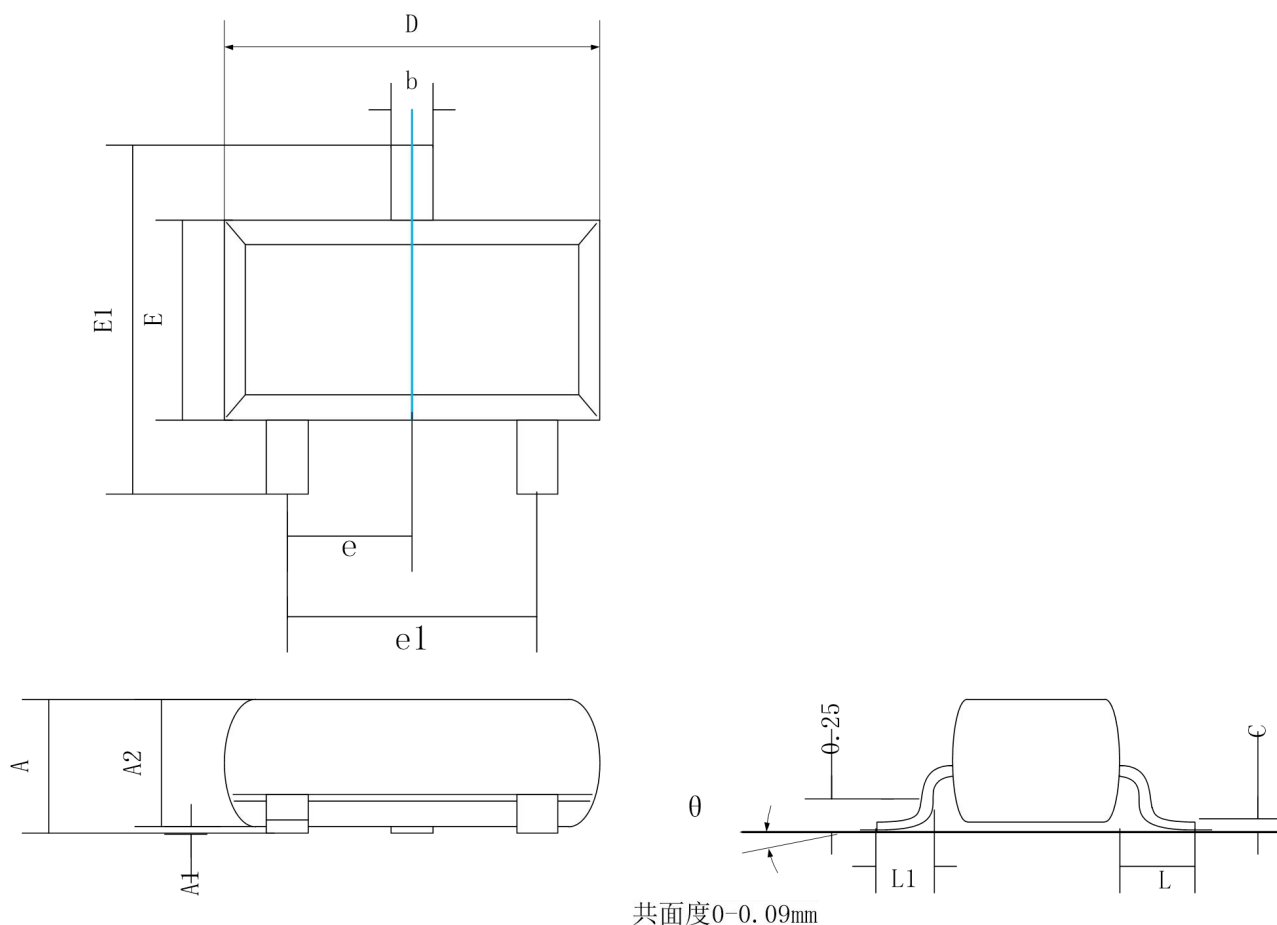


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-23 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50
θ	0°	8°