

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-20V	80mΩ@-4.5V	-1.3A
	95mΩ@-2.5V	



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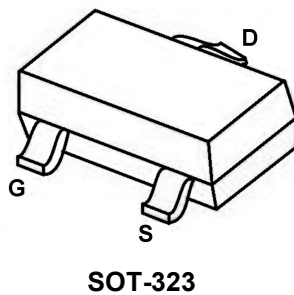
Feature

- High power and current handing capability
- Surface mount package

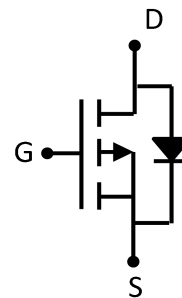
Application

- Battery Switch
- DC/DC Converter

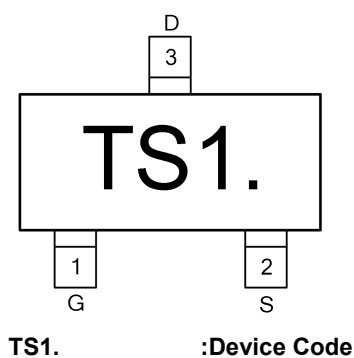
Package



Circuit diagram



Marking



Order Information

Device	Package	Unit/Tape
SP2101BT3	SOT-323	3000

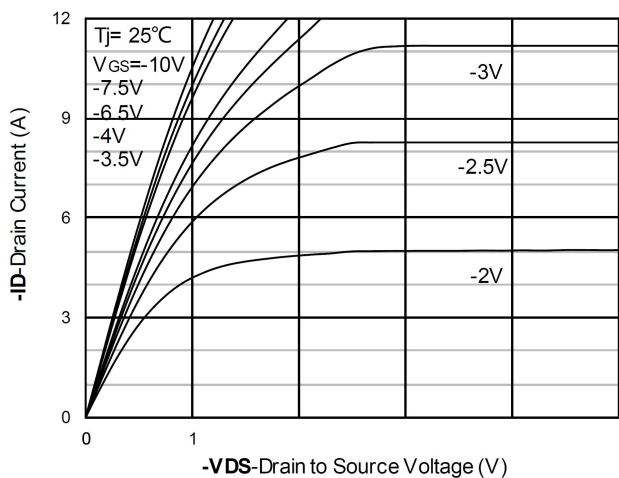
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	-20	V
Gate-Source Voltage	V _{GSS}	±12	V
Continuous Drain Current	I _D	-1.3	A
Pulse Drain Current Tested	I _{DM}	-5.2	A
Power Dissipation	P _D	320	mW
Thermal Resistance Junction-to-Ambient	R _{θJA}	390	°C/W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C

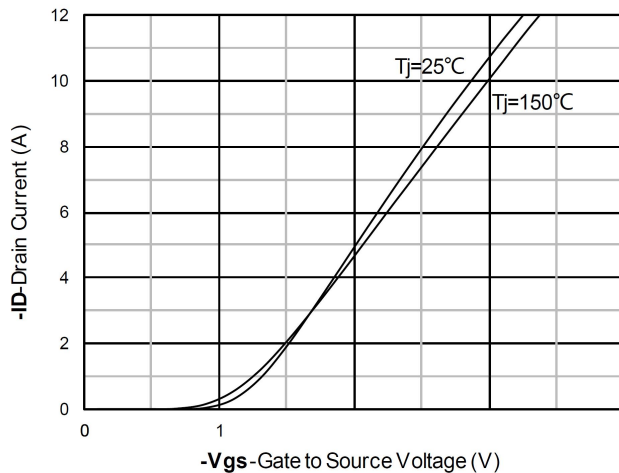
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V , I _D =-250μA	-20	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-16V , V _{GS} =0V	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±12V , V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.5	-0.7	-1.0	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-4.5V , I _D =-500mA	-	80	110	mΩ
		V _{GS} =-2.5V , I _D =-500mA	-	95	140	
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =-8V , V _{GS} =0V , f=1MHz	-	545	-	pF
Output Capacitance	C _{oss}		-	136	-	
Reverse Transfer Capacitance	C _{rss}		-	78	-	
Total Gate Charge	Q _g	V _{DS} =-10V , V _{GS} =-2.5V , I _D =-3A	-	3.5	-	nC
Gate-Source Charge	Q _{gs}		-	0.8	-	
Gate-Drain Charge	Q _{gd}		-	1.5	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DD} =-4V V _{GS} =-4.5V , R _G =6.2Ω , I _D =-1A	-	6.6	-	nS
Turn-On Rise Time	t _r		-	18	-	
Turn-Off Delay Time	t _{d(off)}		-	24	-	
Turn-Off Fall Time	t _f		-	16	-	
Source-Drain Diode characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V , I _S =-1A , T _J =25°C	-	-	-1.2	V

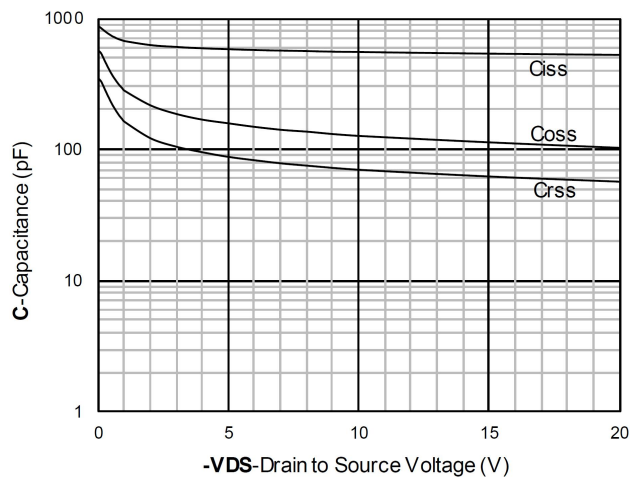
Typical Characteristics



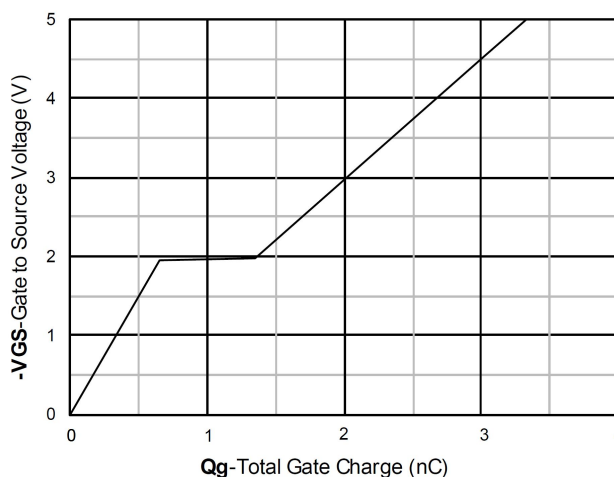
Output Characteristics



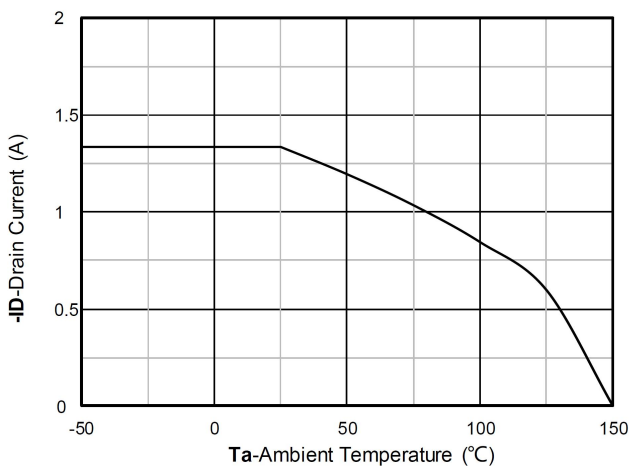
Transfer Characteristics



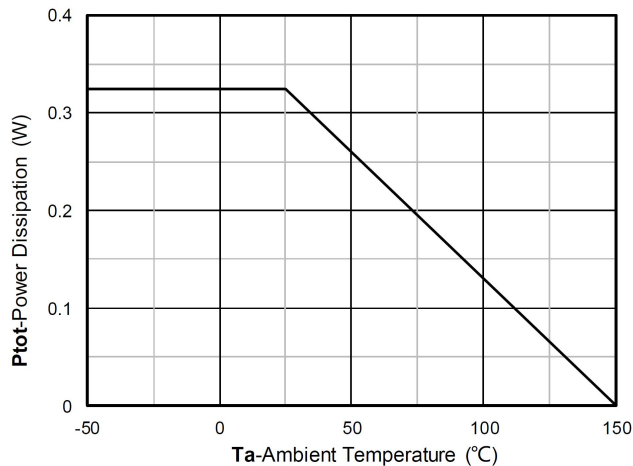
Capacitance Characteristics



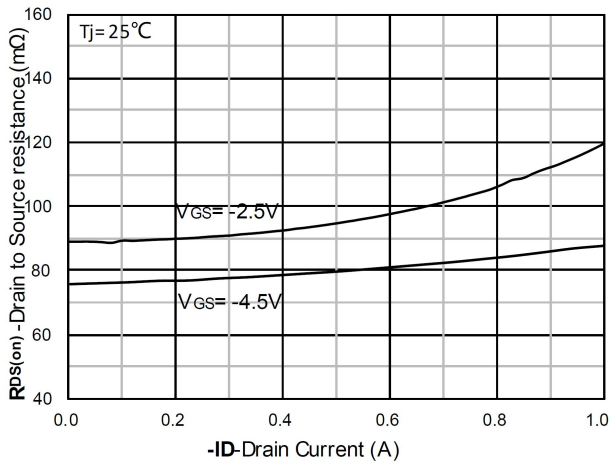
Gate Charge



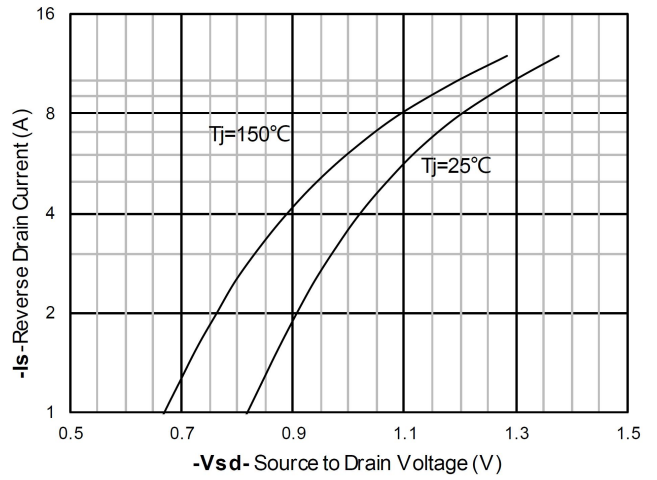
Current dissipation



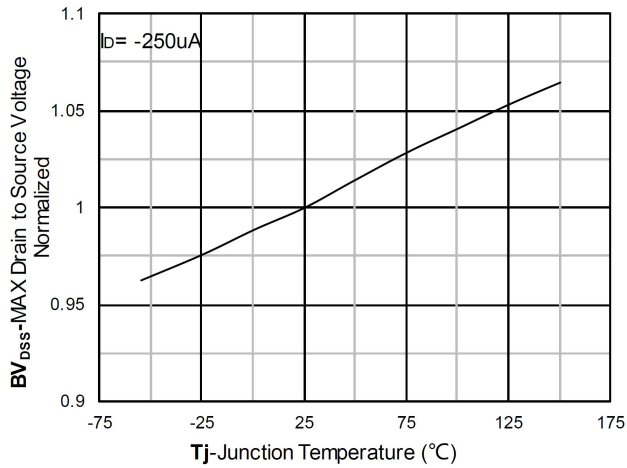
Power dissipation



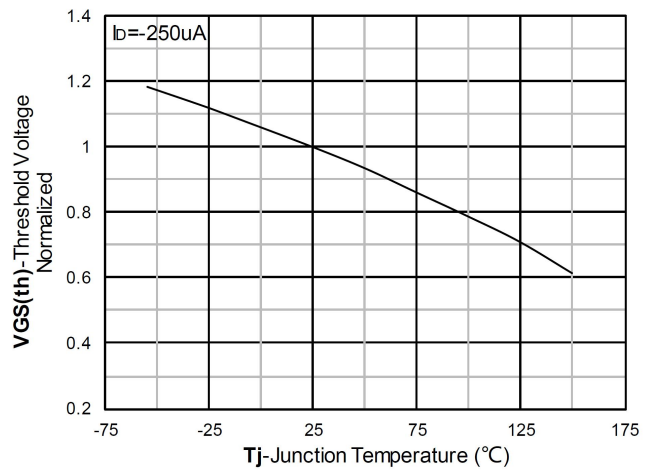
RDS(on) VS Drain Current



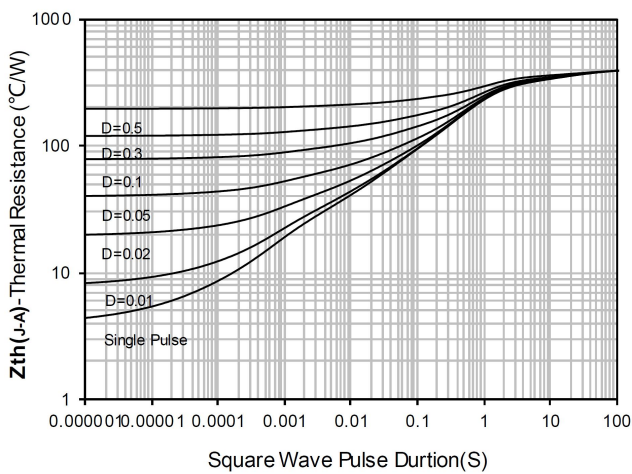
Forward characteristics of reverse diode



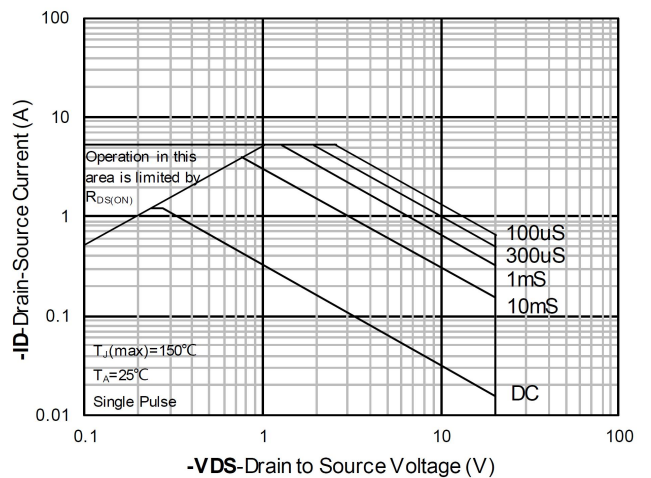
Normalized breakdown voltage



Normalized Threshold voltage

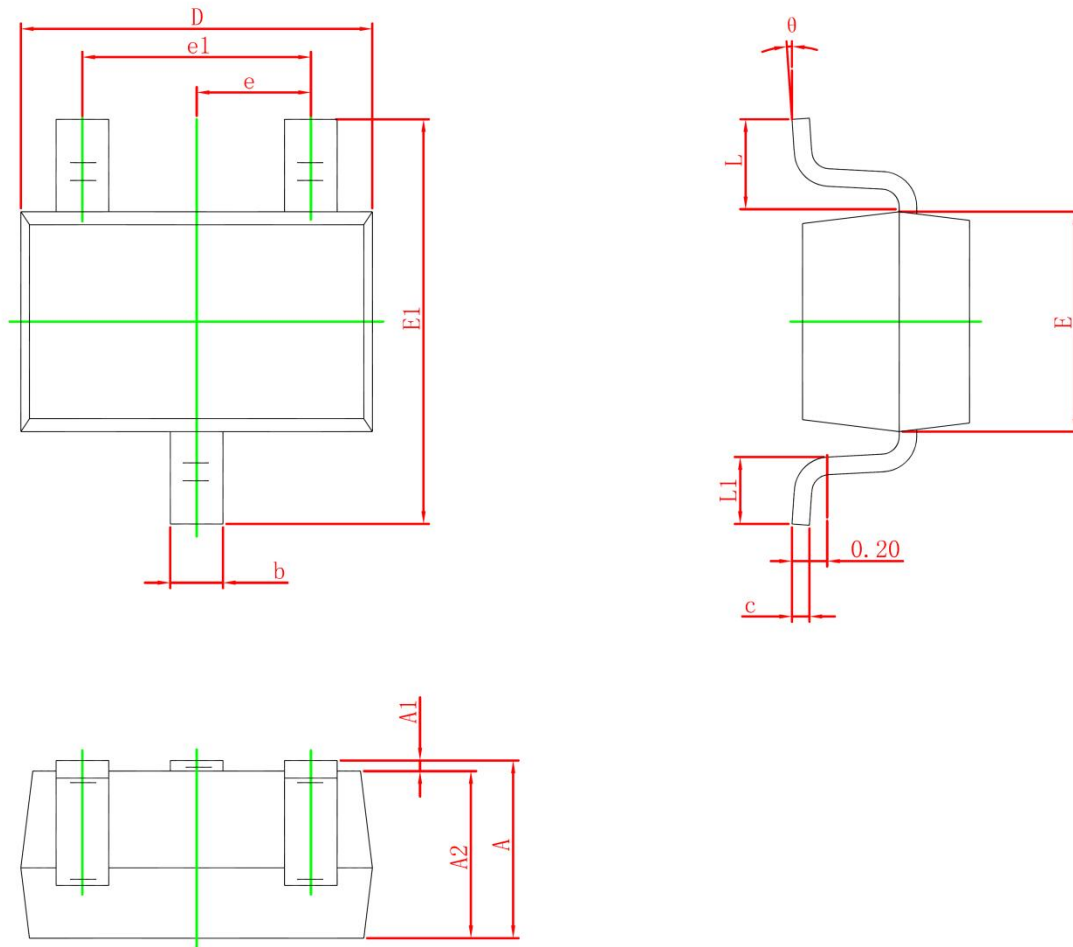


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-323 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°