AT0P2SN100ESB

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	6Ω@10V	0.19A
	10Ω@4.5V	

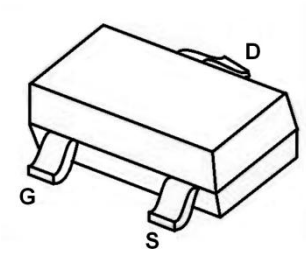
Feature

- ESD protection
- High speed switch

Application

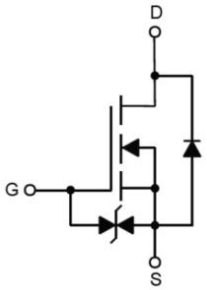
- Portable appliances
- Battery management

Package

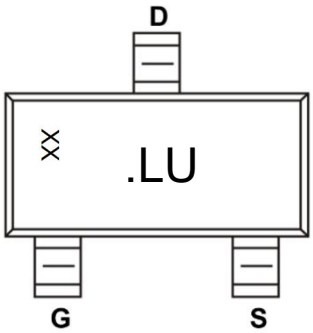


SOT-323

Circuit diagram



Marking



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Absolute maximum ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	0.19	A
Pulsed Drain Current[1)]	I_{DM}	1	A
Power Dissipation[2)]	P_D	0.2	W
Thermal Resistance Junction to Ambient[2)]	$R_{\theta JA}$	625	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_A=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	100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =80V, V_{GS} =0V			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±10	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.5		2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =0.19A			6	Ω
		V_{GS} =4.5V, I_D =0.15A			10	
Dynamic characteristics[3)]						
Input Capacitance	C_{iss}	V_{DS} =25V, V_{GS} =0V, f =1MHz		40		pF
Output Capacitance	C_{oss}			10		
Reverse Transfer Capacitance	C_{rss}			6.6		
Total Gate Charge	Q_g	V_{DS} =30V, V_{GS} =10V, I_D =1A		1.5		nC
Gate-Source Charge	Q_{gs}			0.5		
Gate-Drain Charge	Q_{gd}			0.6		
Turn-on delay time	$t_{d(on)}$	V_{DS} =50V, V_{GS} =10V, I_D=0.19A R_G =6Ω		5.4		nS
Turn-on rise time	t_r			6.6		
Turn-off delay time	$t_{d(off)}$			8.5		
Turn-off fall time	t_f			83		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				0.19	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =0.4A			1.3	V

Notes:

1) Pulse width ≤100 us, duty cycle ≤ 2 %, Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$= 150℃.

2) Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

3) Guaranteed by design, not subject to production testing.

Typical Characteristics

Fig. 1 Typical Output Characteristics

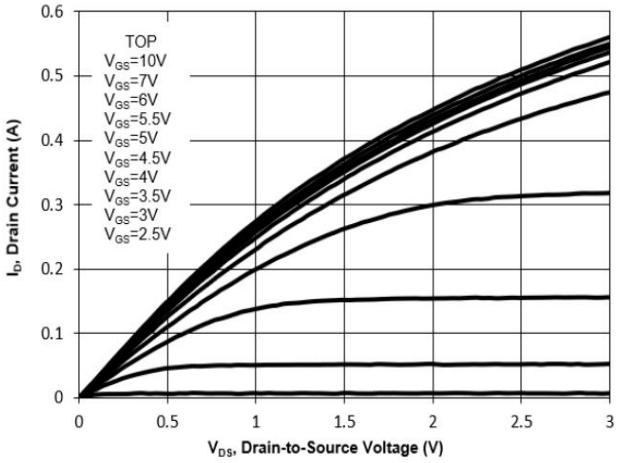


Fig. 2 Typical Transfer Characteristics

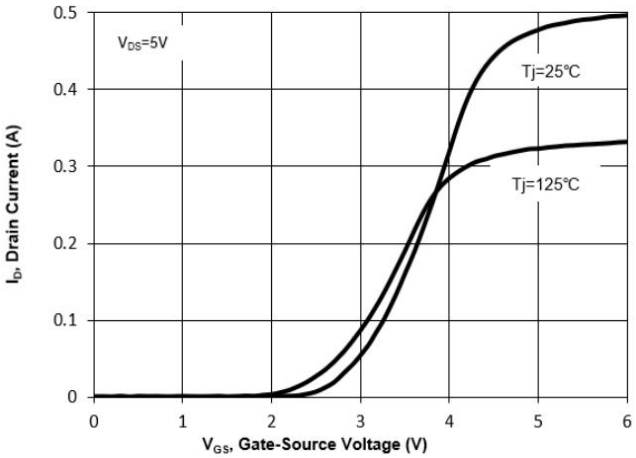


Fig. 3 On-Resistance vs. Drain Current

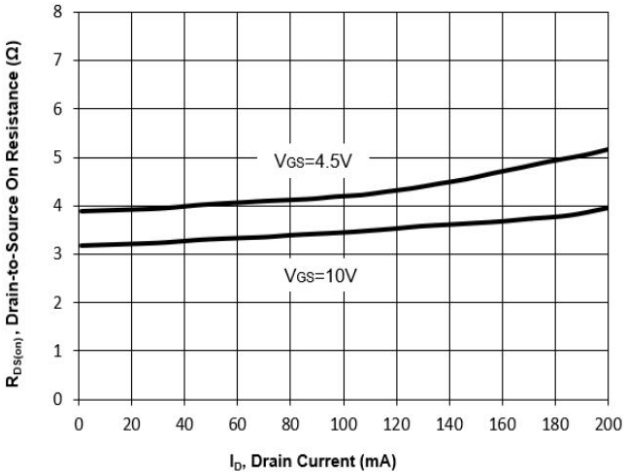


Fig. 4 On-Resistance vs. Gate Voltage

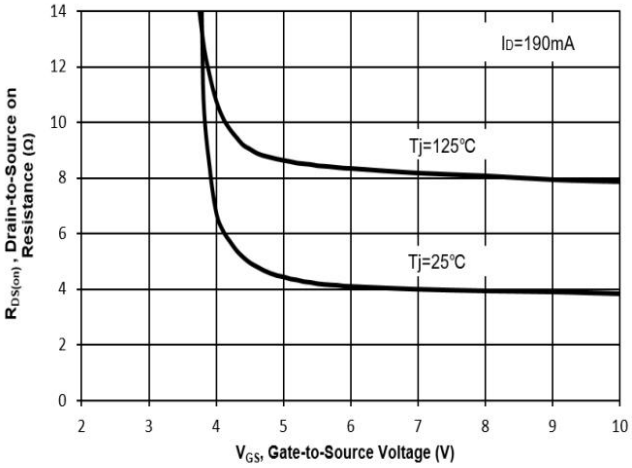


Fig. 5 On-Resistance vs.Tj

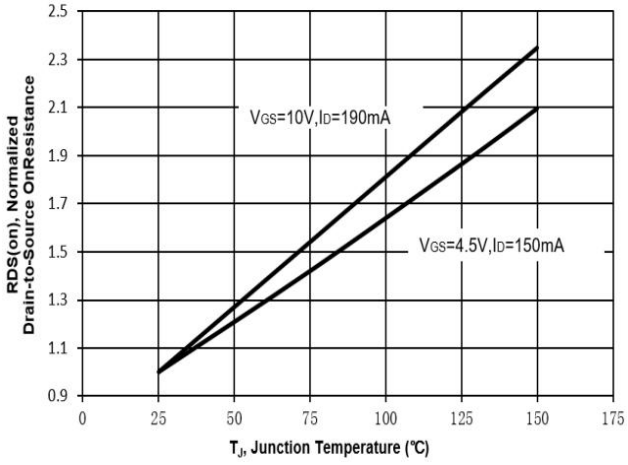
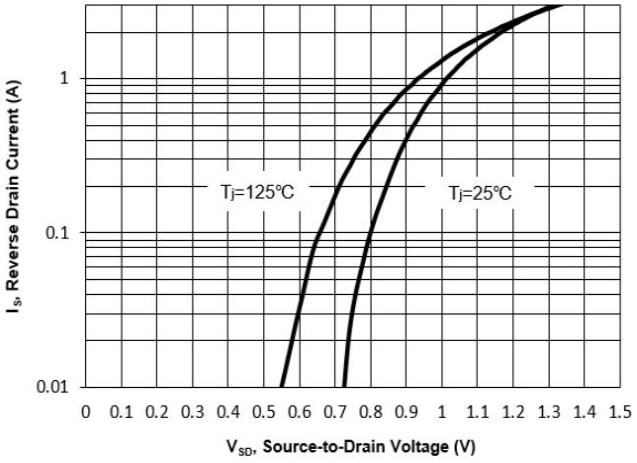


Fig. 6 Typical Forward Characteristics



Typical Characteristics

Fig. 7 Typical Junction Capacitance

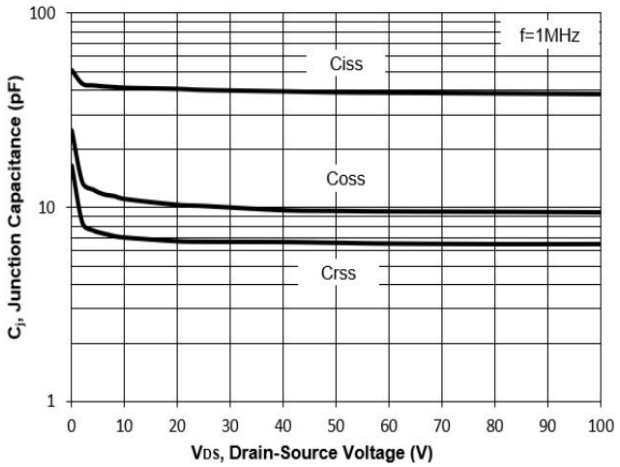


Fig. 8 Drain-Source Leakage Current vs. T_j

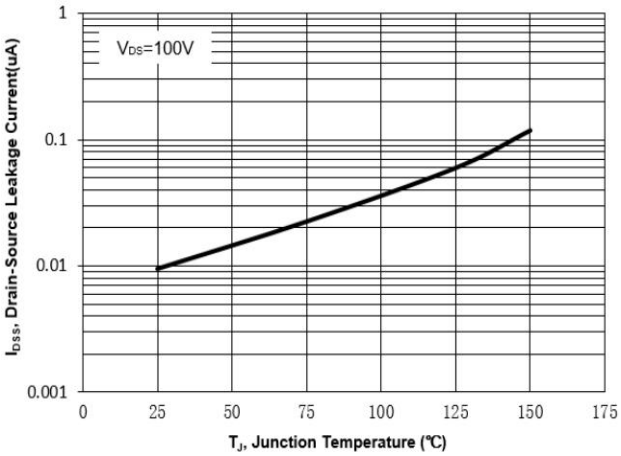


Fig. 9 $V_{(BR)DSS}$ vs. Junction Temperature

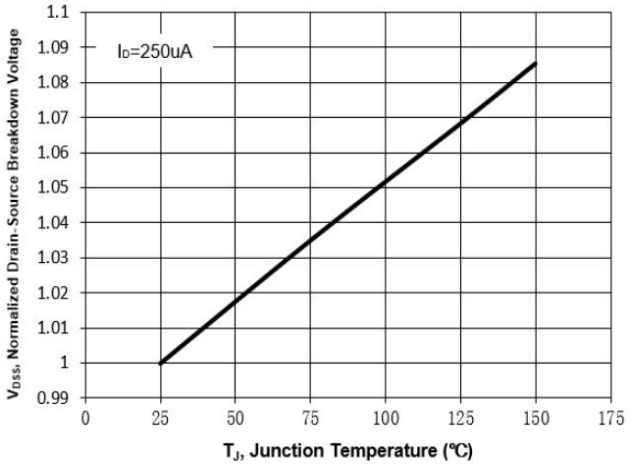
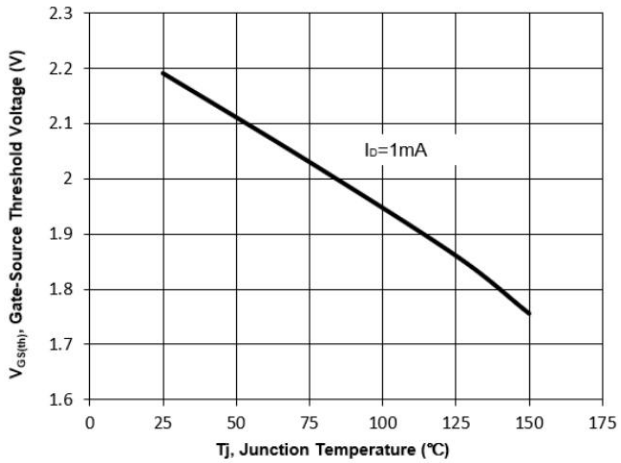
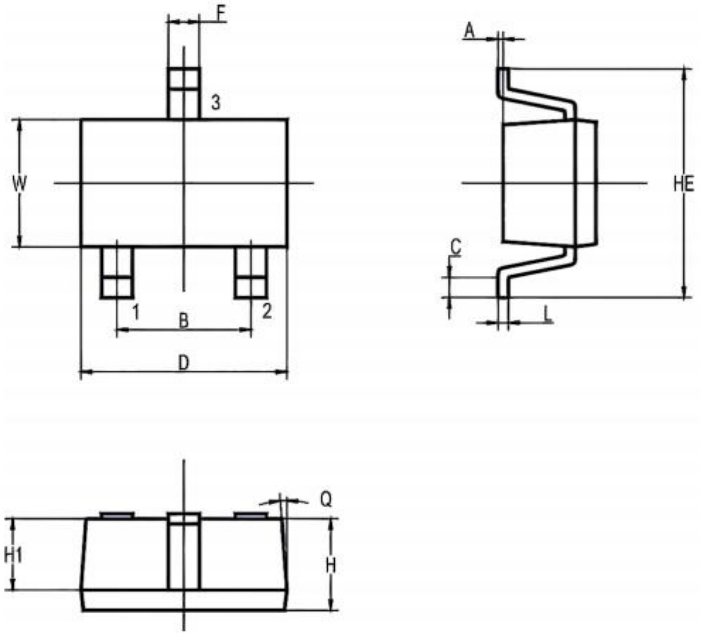


Fig. 10 Gate Threshold Variation vs. T_j



SOT-323 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	-	0.100	-	0.004
B	1.200	1.400	0.047	0.055
C	0.200	-	0.008	-
D	1.900	2.100	0.075	0.083
H	0.800	1.000	0.031	0.039
H1	0.700 TYP.		0.028 TYP.	
HE	2.000	2.400	0.079	0.094
F	0.250	0.350	0.010	0.014
L	0.050	0.150	0.002	0.006
W	1.150	1.350	0.045	0.053
Q	-	5°	-	5°