

Product Summary

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

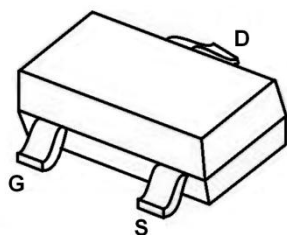
Feature

- ESD protection
- High speed switch
- Suffix "-Q1" for AEC-Q101

Application

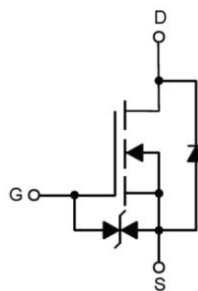
- Portable appliances
- Battery management

Package

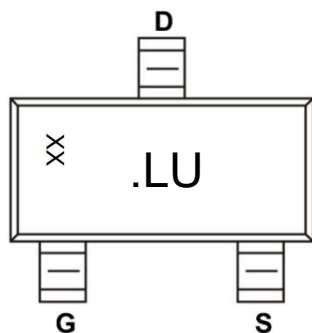


SOT-323

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ 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	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

Electrical characteristics ($T_A=25^{\circ}\text{C}$, 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 $\leq 100 \mu\text{s}$, duty cycle $\leq 2\%$, Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^{\circ}\text{C}$.
- 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

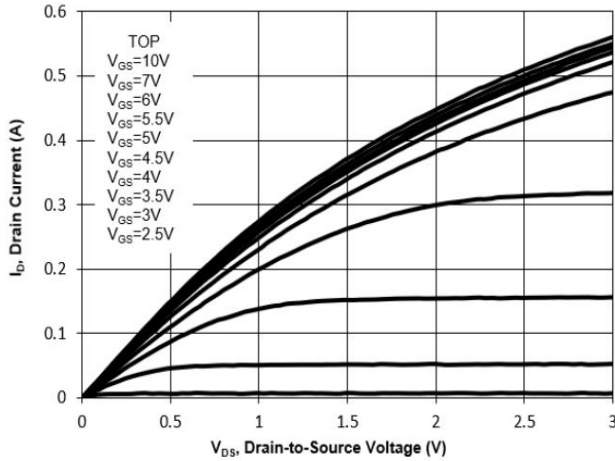


Fig. 2 Typical Transfer Characteristics

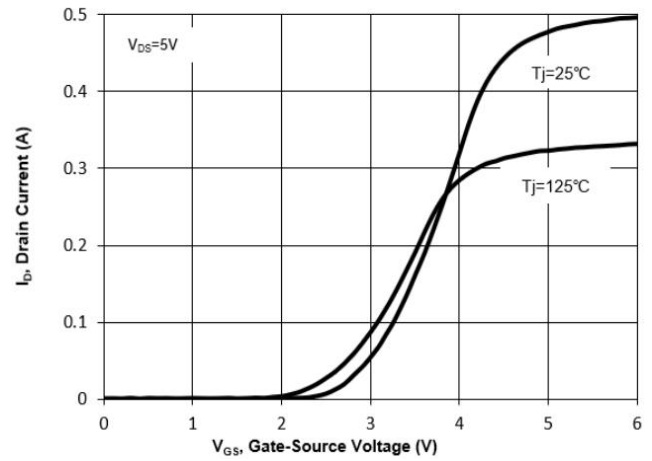


Fig. 3 On-Resistance vs. Drain Current

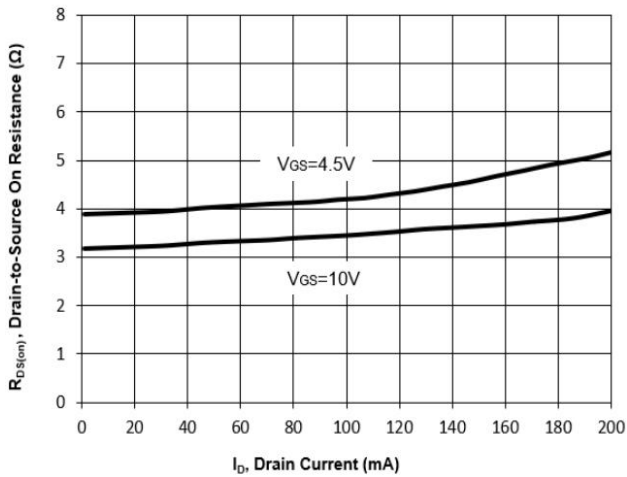


Fig. 4 On-Resistance vs. Gate Voltage

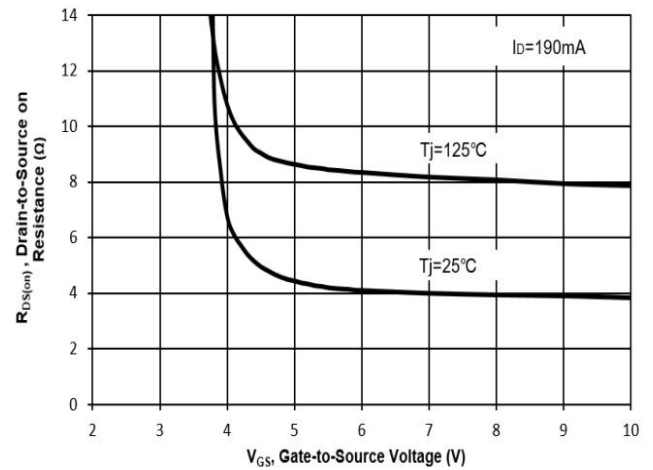


Fig. 5 On-Resistance vs. TJ

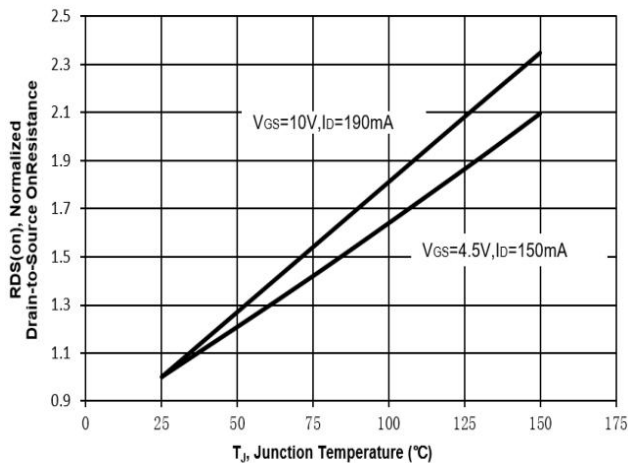
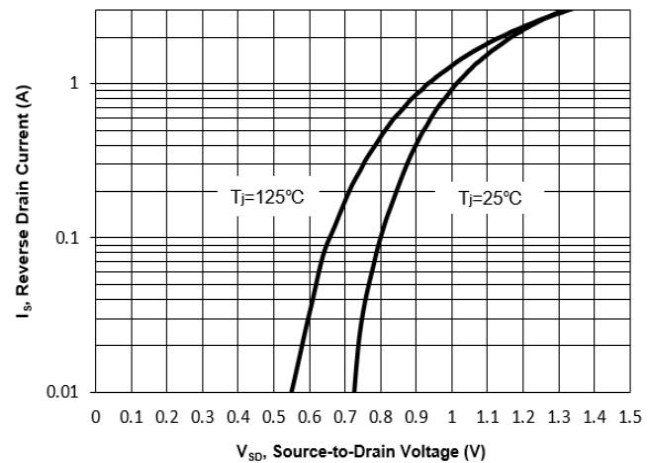


Fig. 6 Typical Forward Characteristics



Typical Characteristics

Fig. 7 Typical Junction Capacitance

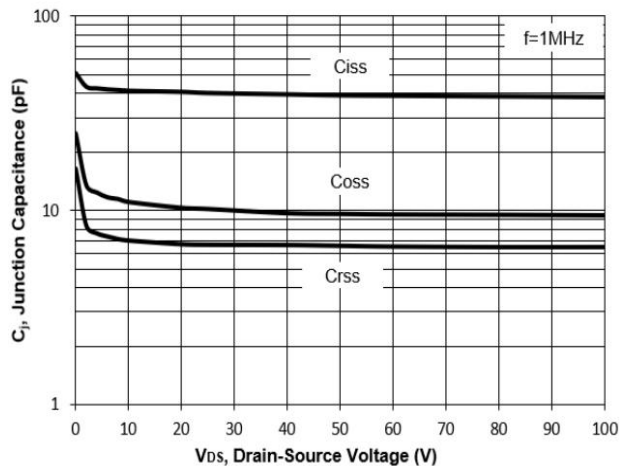


Fig. 8 Drain-Source Leakage Current vs. T_j

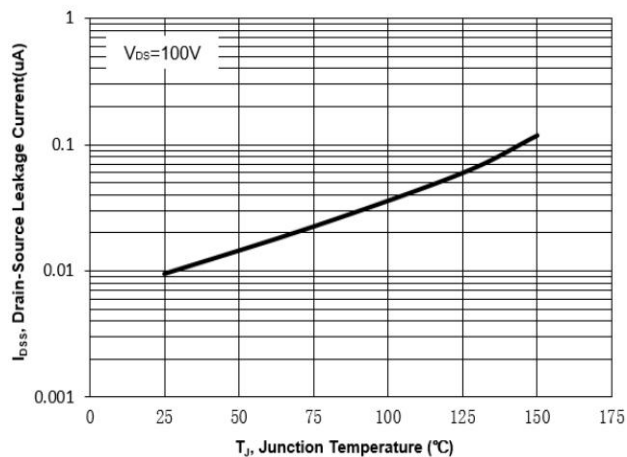


Fig. 9 $V_{(BR)DSS}$ vs. Junction Temperature

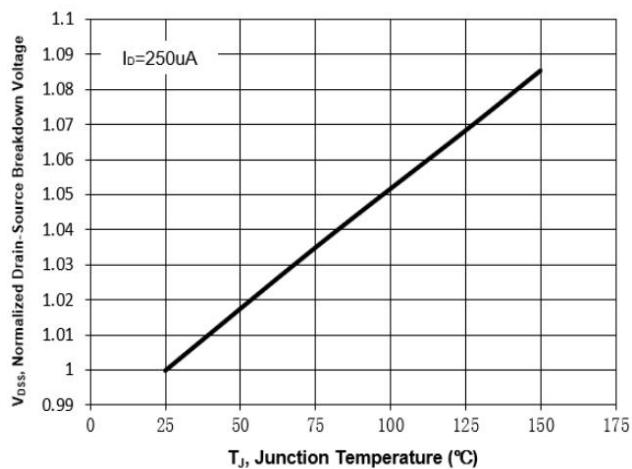
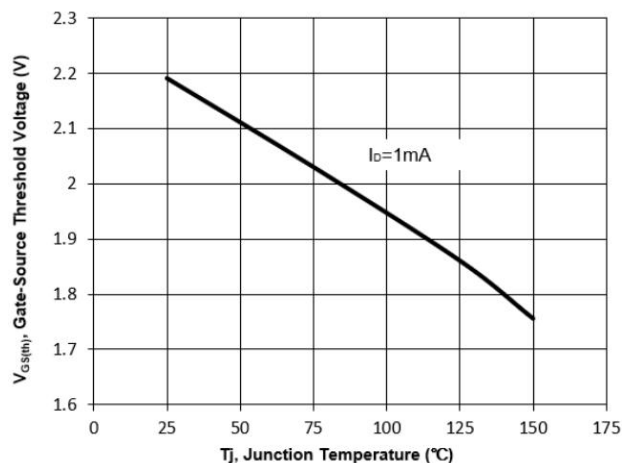
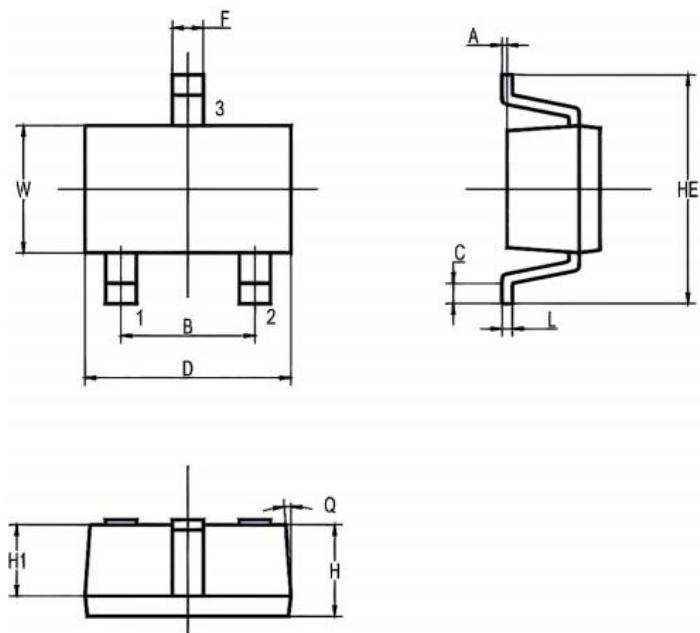


Fig. 10 Gate Threshold Variation vs. T_j



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°