

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	60mΩ@4.5V	2.1A
	80mΩ@2.5V	

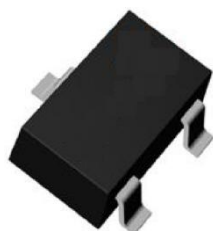
Feature

- High power and current handing capability
- Surface mount package

Application

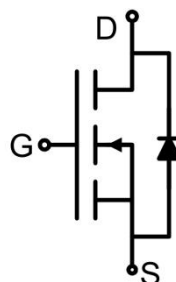
- Battery switch
- DC/DC converter

Package

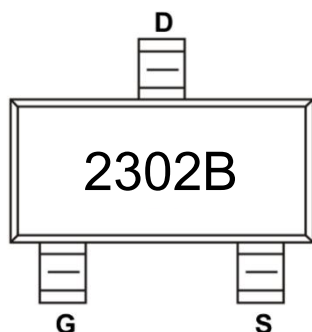


SOT-23

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Continuous Drain Current	I_D	2.1	A
Pulsed Drain Current Tested	I_{DM}	8.4	A
Power Dissipation	P_D	0.5	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	250	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

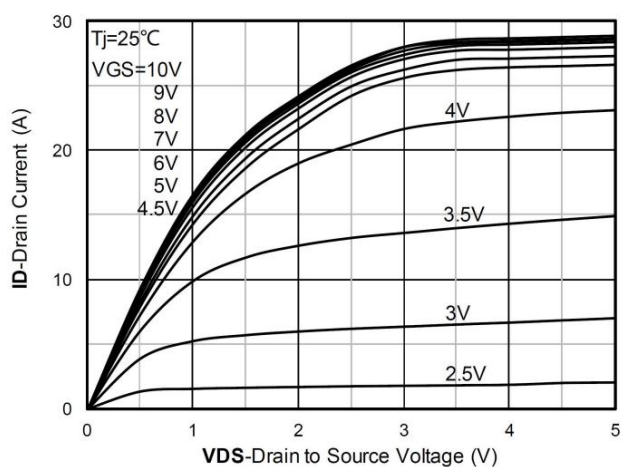
Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=16V, V_{GS}=0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 1	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.6	0.8	1.1	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=3A$		45	60	m Ω
		$V_{GS}=2.5V, I_D=2A$		60	80	
Dynamic characteristics ¹⁾						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		227		pF
Output Capacitance	C_{oss}			65		
Reverse Transfer Capacitance	C_{rss}			35		
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=2.5A$		2.8		nC
Gate-Source Charge	Q_{gs}			0.61		
Gate-Drain Charge	Q_{gd}			0.63		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=10V, V_{GS}=4.5V, I_D=1A$ $R_G=6\Omega$		2.65		nS
Turn-on rise time	t_r			4.2		
Turn-off delay time	$t_{d(off)}$			9.9		
Turn-off fall time	t_f			5.1		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				2.1	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^{\circ}C$			1.2	V

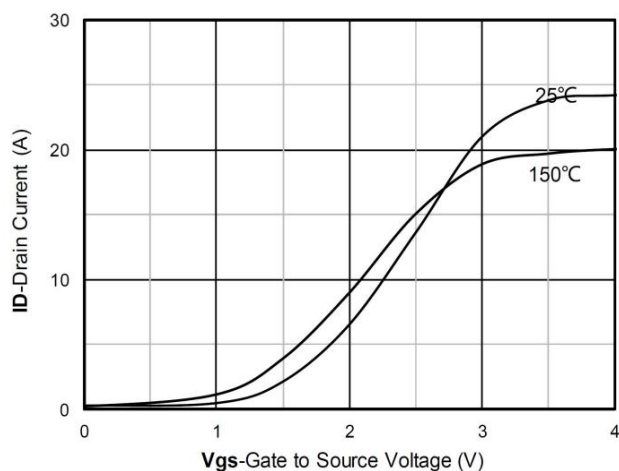
Notes:

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

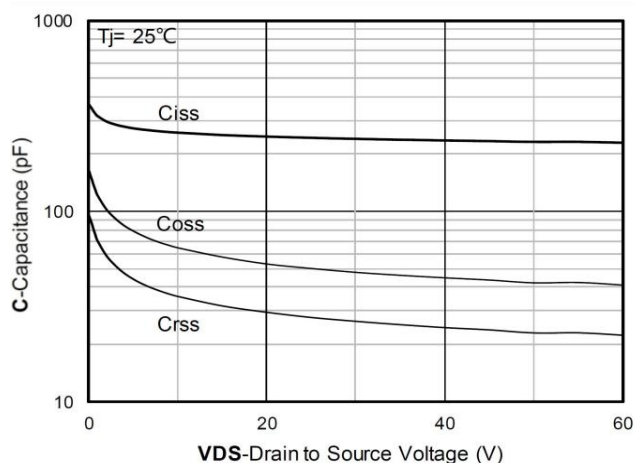
Typical Characteristics



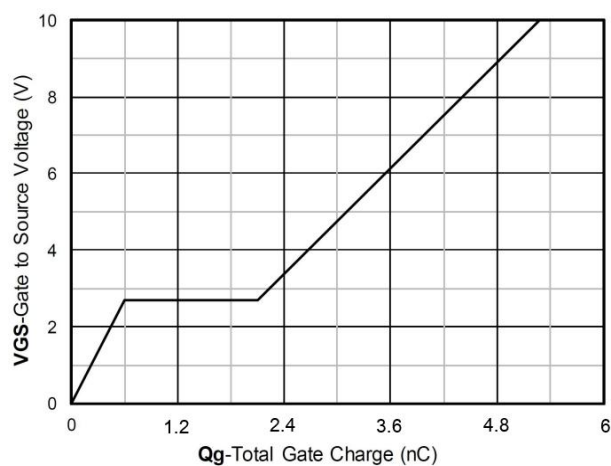
Output Characteristics



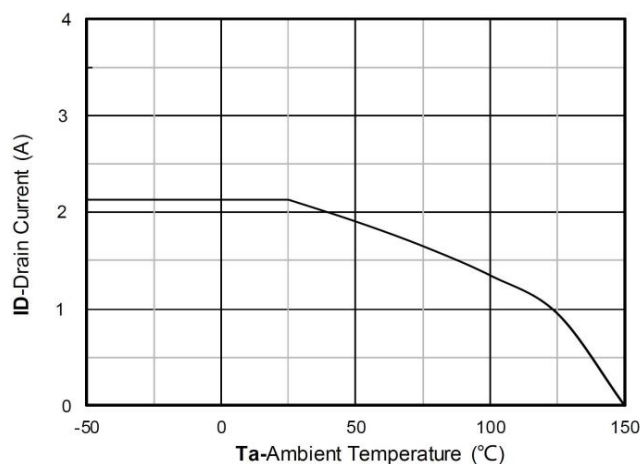
Transfer Characteristics



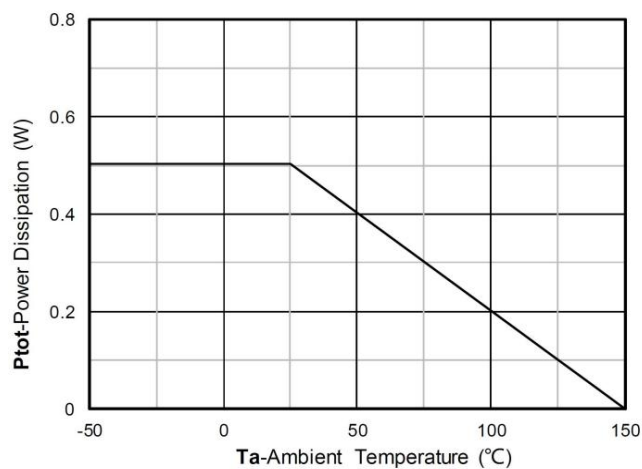
Capacitance Characteristics



Gate Charge

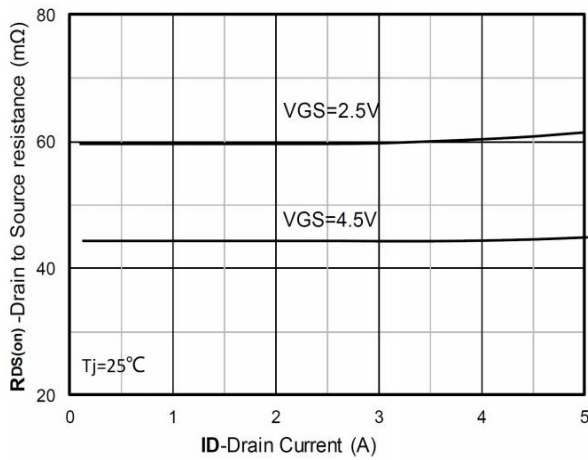


Current dissipation

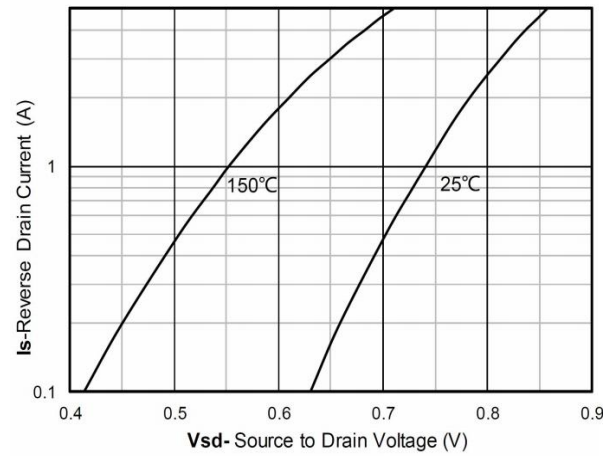


Power dissipation

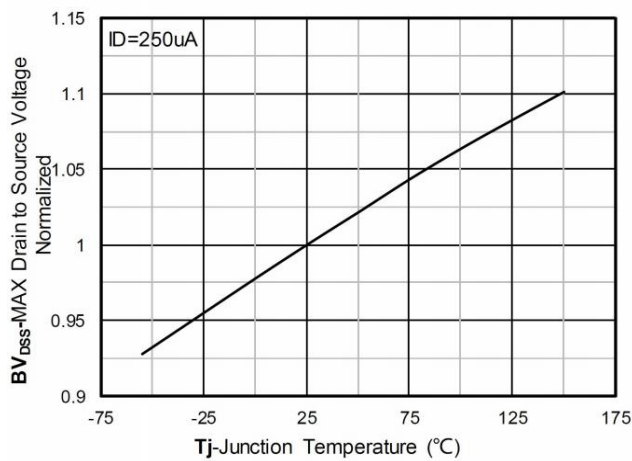
Typical Characteristics



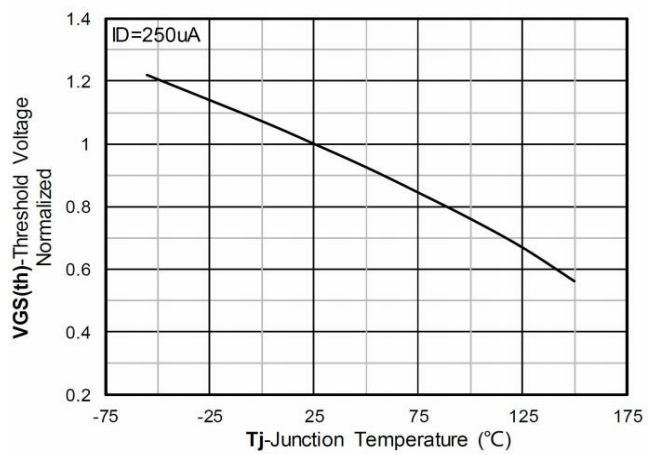
$R_{DS(on)}$ VS Drain Current



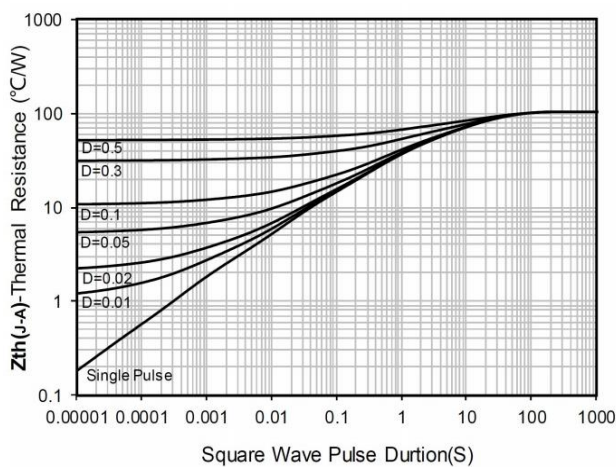
Forward characteristics of reverse diode



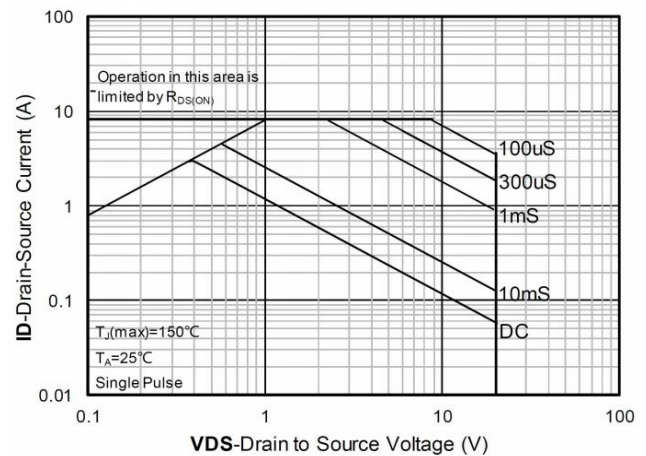
Normalized breakdown voltage



Normalized Threshold voltage

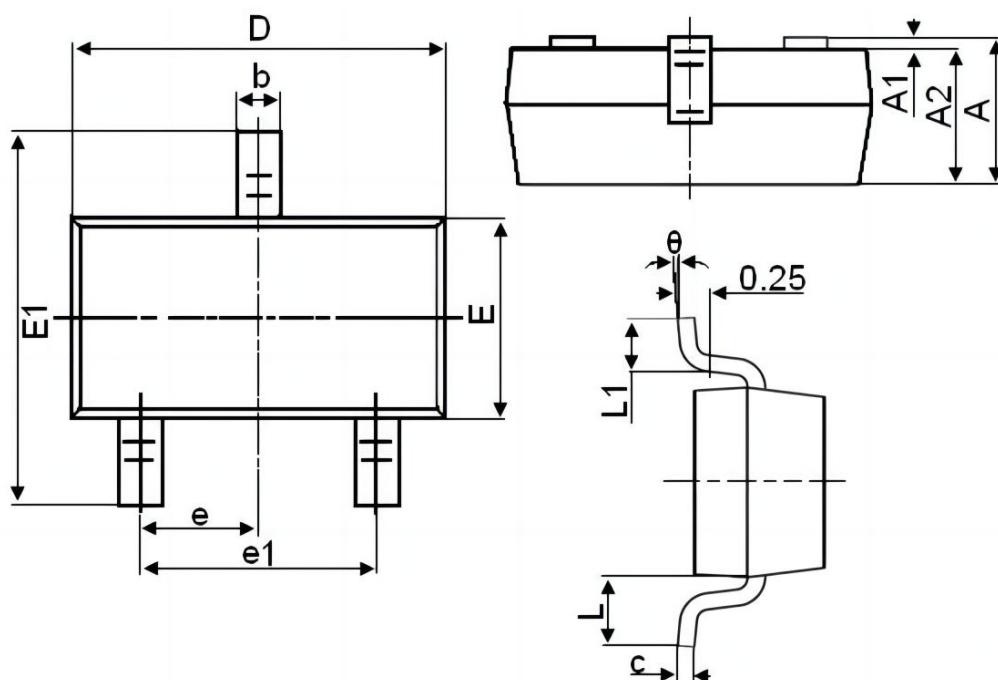


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
C	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 REF.		0.037 REF.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°