

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	380mΩ@4.5V	0.75A
	450mΩ@2.5V	

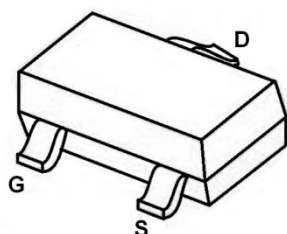
Feature

- High power and current handing capability
- Surface mount package
- ESD protected

Application

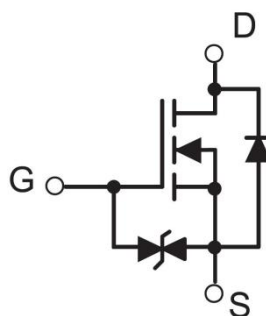
- Battery Switch
- DC/DC Converter

Package

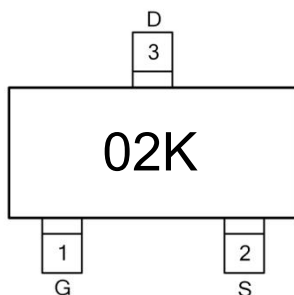


SOT-523

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}	± 12	V
Continuous Drain Current	I_D	0.75	A
Pulsed Drain Current	I_{DM}	3	A
Power Dissipation	P_D	0.15	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

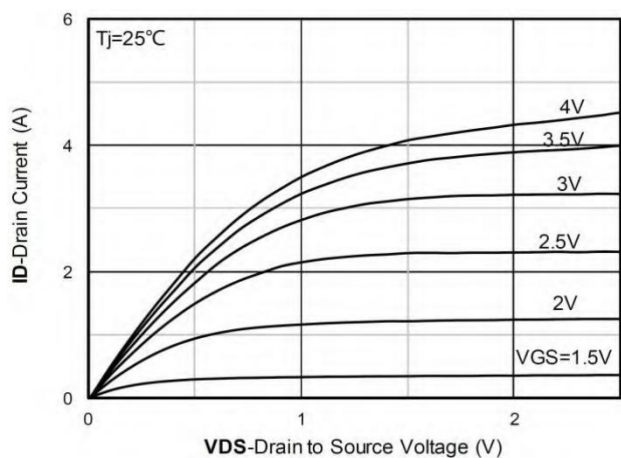
Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	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} =±12V			±10	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.3	0.65	1	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =0.5A		250	380	mΩ
		V _{GS} =2.5V, I _D =0.2A		350	450	
Dynamic characteristics ¹⁾						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f =1MHz		35		pF
Output Capacitance	C _{oss}			19		
Reverse Transfer Capacitance	C _{rss}			9		
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =0.5A		0.8		nC
Gate Source Charge	Q _{gs}			0.3		
Gate Drain Charge	Q _{gd}			0.16		
Turn-on delay time	t _{d(on)}	V _{DS} =10V, V _{GS} =4.5V, I _D =0.5A R _G =10Ω		4		nS
Turn-on Rise Time	t _r			19		
Turn-off delay time	t _{d(off)}			10		
Turn-off Fall Time	t _f			21		
Source-Drain Diode characteristics						
Body-Diode Continuous Current	I _S				0.75	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =1A, T _J =25℃			1.2	V

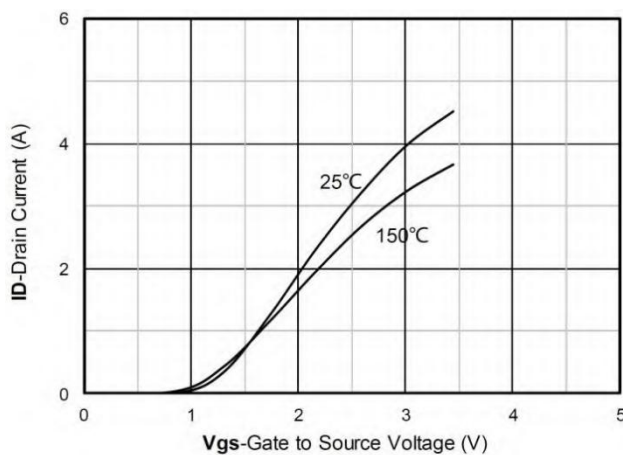
Notes:

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

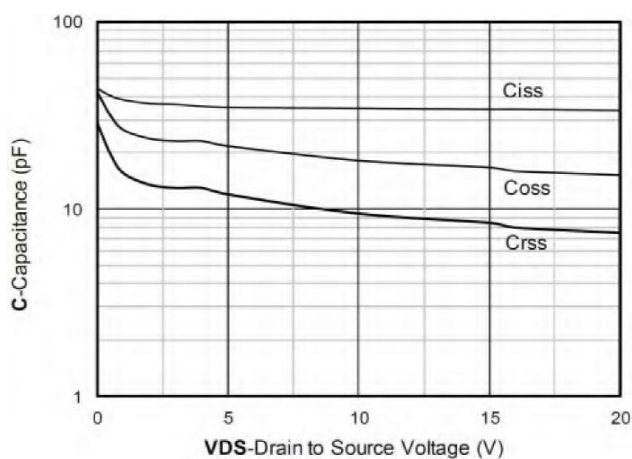
Typical Characteristics



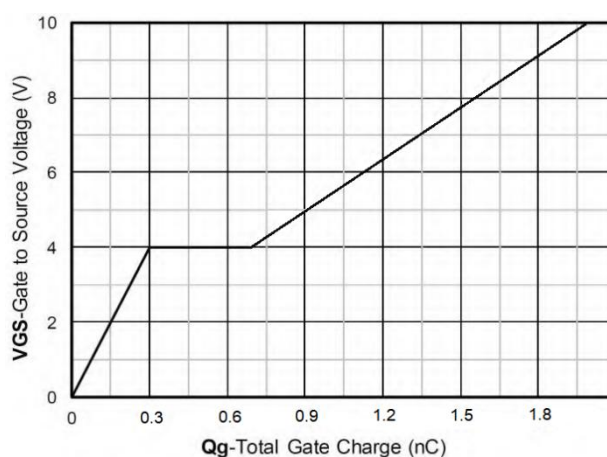
Output Characteristics



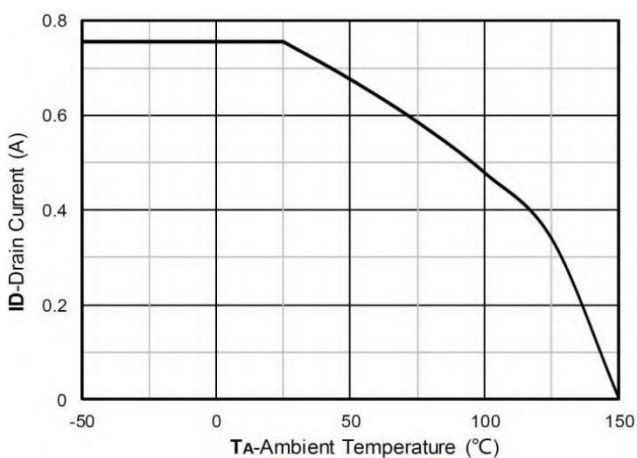
Transfer Characteristics



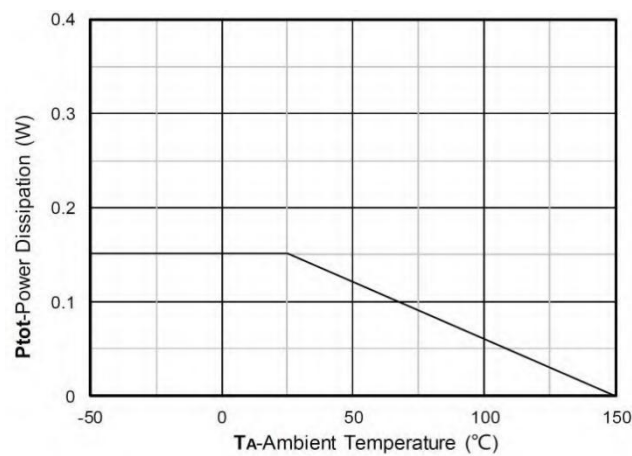
Capacitance Characteristics



Gate Charge

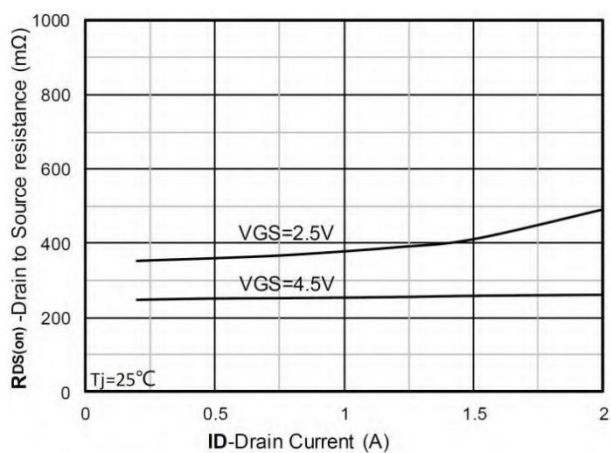


Current dissipation

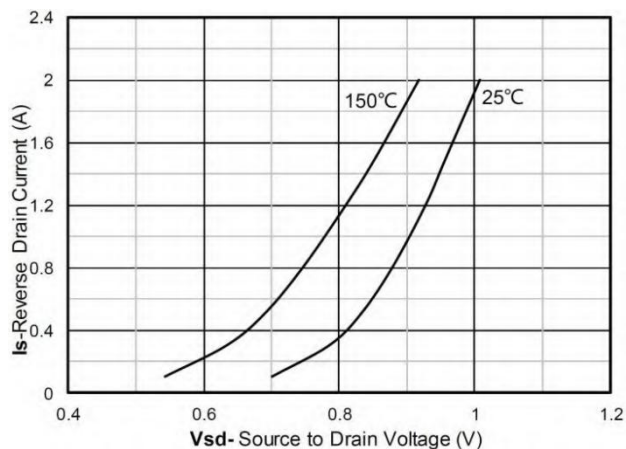


Power dissipation

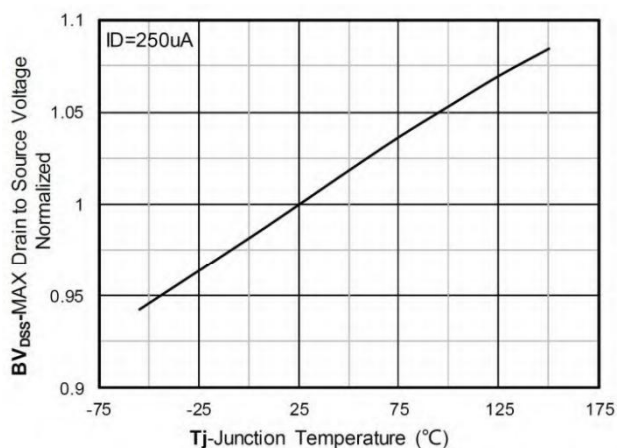
Typical Characteristics



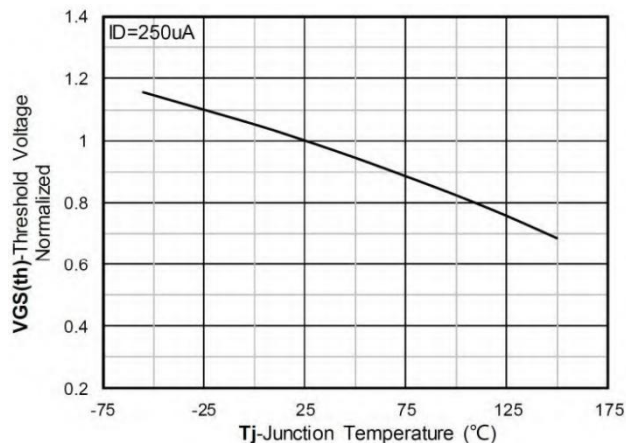
$R_{DS(on)}$ VS Drain Current



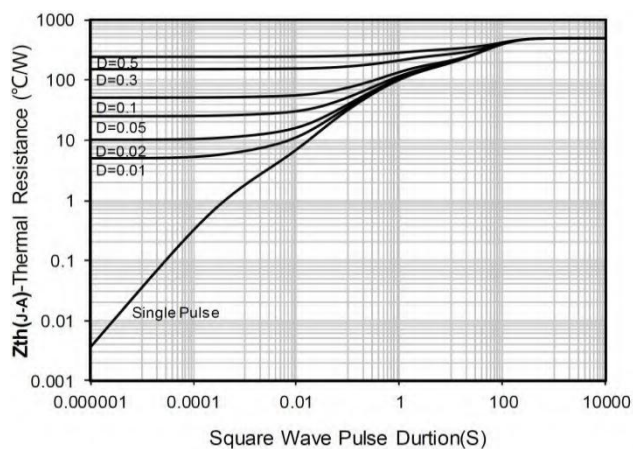
Forward characteristics of reverse diode



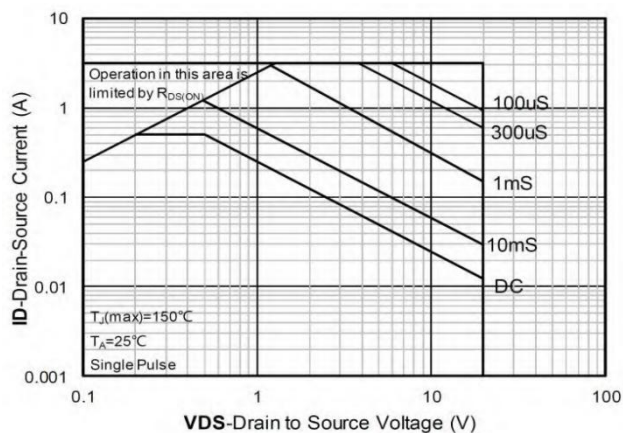
Normalized breakdown voltage



Normalized Threshold voltage

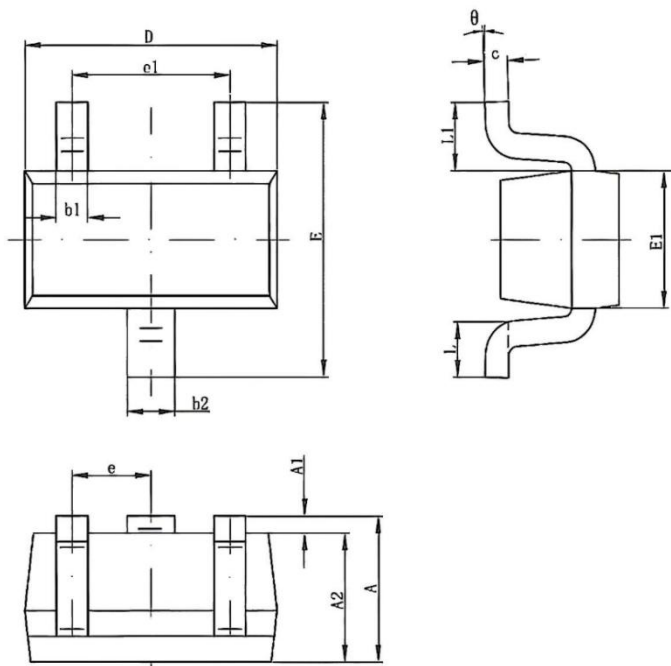


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-523 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
C	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	1.450	1.750	0.057	0.069
E1	0.700	0.900	0.028	0.035
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
theta	0°	8°	0°	8°