

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
60V	3Ω@10V	0.3A
	4Ω@4.5V	

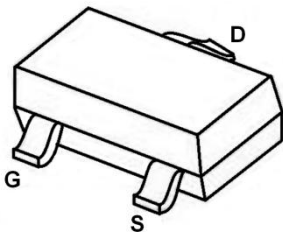
### Feature

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

### Application

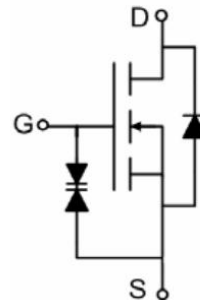
- Battery Switch
- DC/DC Converter

### Package

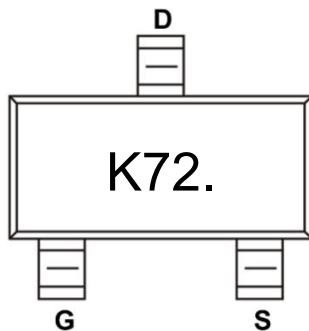


SOT-523

### Circuit diagram



### Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	0.3	A
Pulsed Drain Current	$I_{DM}$	1.2	A
Power Dissipation	$P_D$	150	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	$^\circ\text{C}/\text{W}$
Operating Junction Temperature	$T_J$	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

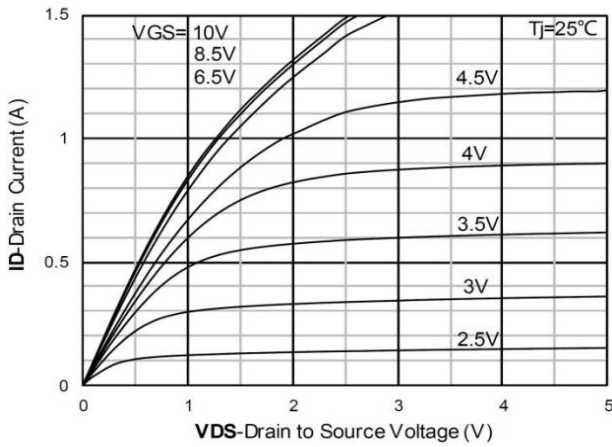
### Electrical characteristics ( $T_A=25^\circ\text{C}$ , unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	60			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 48\text{V}, V_{GS} = 0\text{V}$			1	$\mu\text{A}$
Gate-body leakage current	$I_{GSS}$	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$			$\pm 10$	$\mu\text{A}$
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	1	1.5	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 0.2\text{A}$		1.7	3	$\Omega$
		$V_{GS} = 4.5\text{V}, I_D = 0.2\text{A}$		1.8	4	
<b>Dynamic characteristics<sup>1)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 25\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$		28		pF
Output Capacitance	$C_{oss}$			10		
Reverse Transfer Capacitance	$C_{rss}$			5		
Total Gate Charge	$Q_g$	$V_{DS} = 10\text{V}, V_{GS} = 4.5\text{V}, I_D = 0.3\text{A}$		1.7		nC
Gate Source Charge	$Q_{gs}$			0.35		
Gate Drain Charge	$Q_{gd}$			0.5		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = 30\text{V}, V_{GS} = 10\text{V}, I_D = 0.3\text{A}$ $R_G = 25\Omega$		3		nS
Turn-on Rise Time	$t_r$			17		
Turn-off delay time	$t_{d(off)}$			10		
Turn-off Fall Time	$t_f$			21		
<b>Source-Drain Diode characteristics</b>						
Body-Diode Continuous Current	$I_S$				0.3	A
Diode Forward voltage	$V_{SD}$	$V_{GS} = 0\text{V}, I_S = 1\text{A}, T_J = 25^\circ\text{C}$			1.2	V

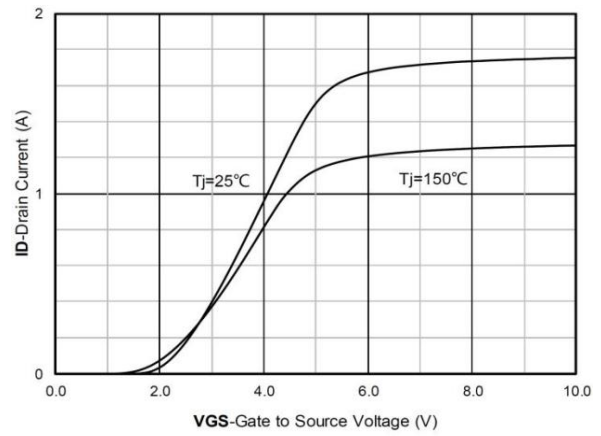
Notes:

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

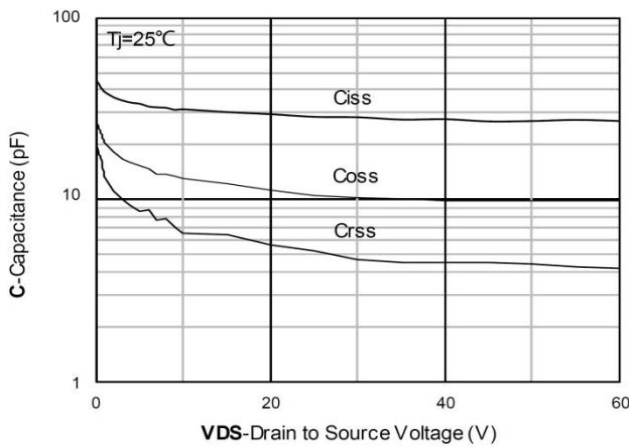
## Typical Characteristics



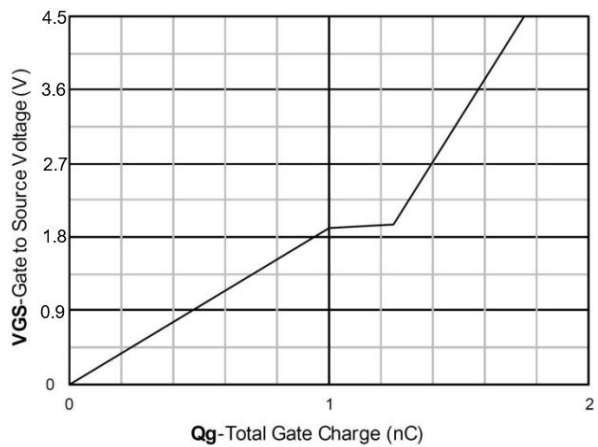
Output Characteristics



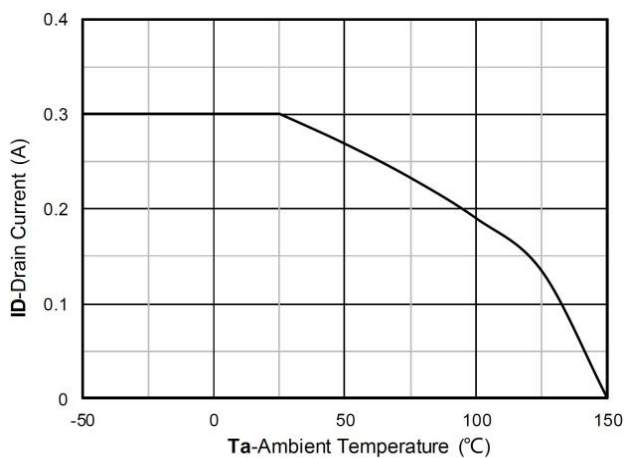
Transfer Characteristics



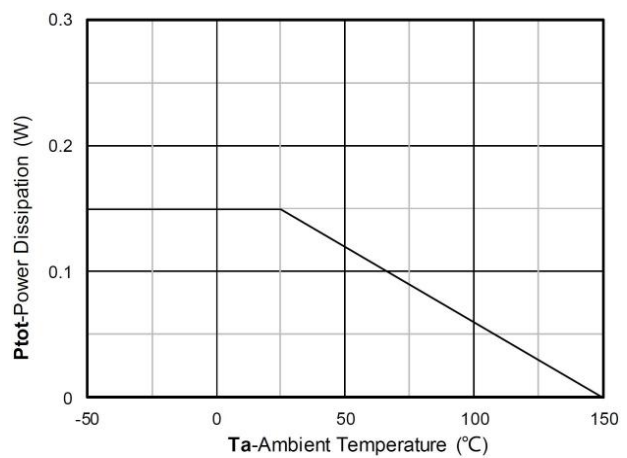
Capacitance Characteristics



Gate Charge

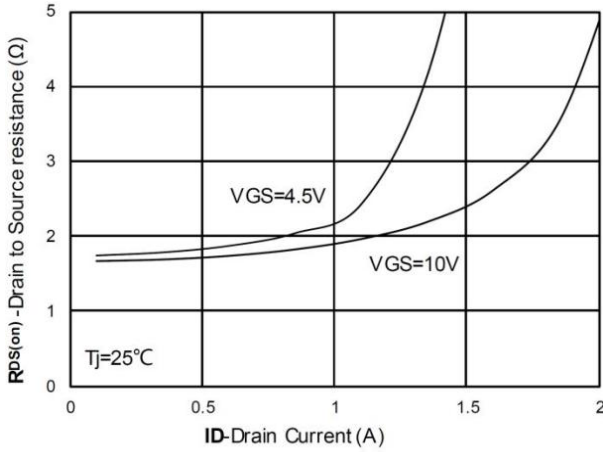


Current dissipation

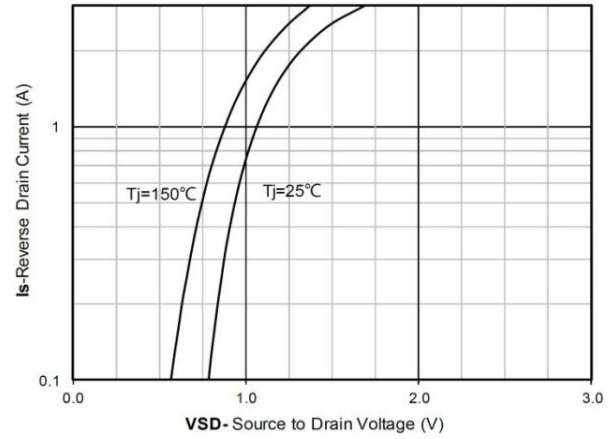


Power dissipation

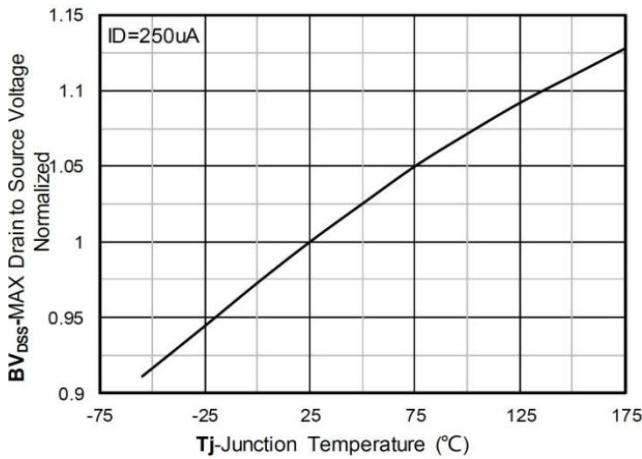
## Typical Characteristics



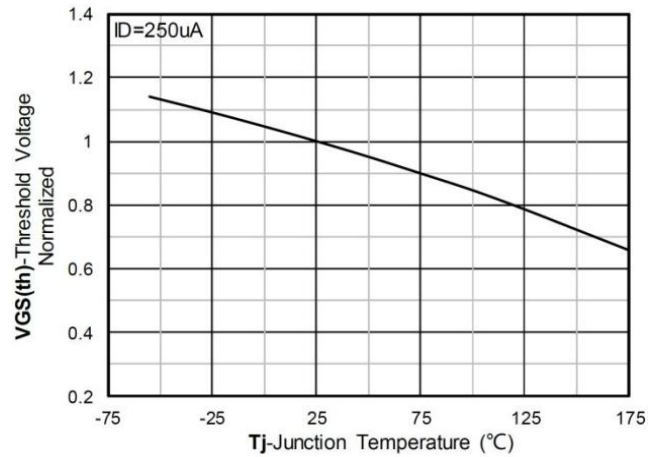
R<sub>DS(on)</sub> VS Drain Current



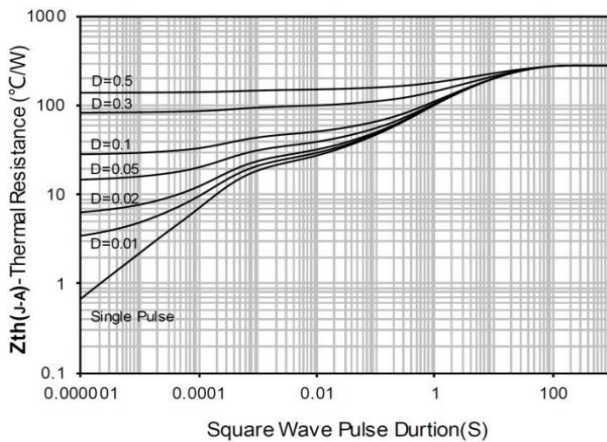
Forward characteristics of reverse diode



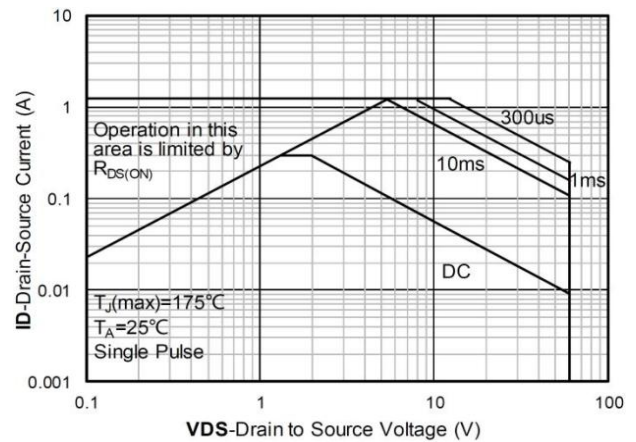
Normalized breakdown voltage



Normalized Threshold voltage

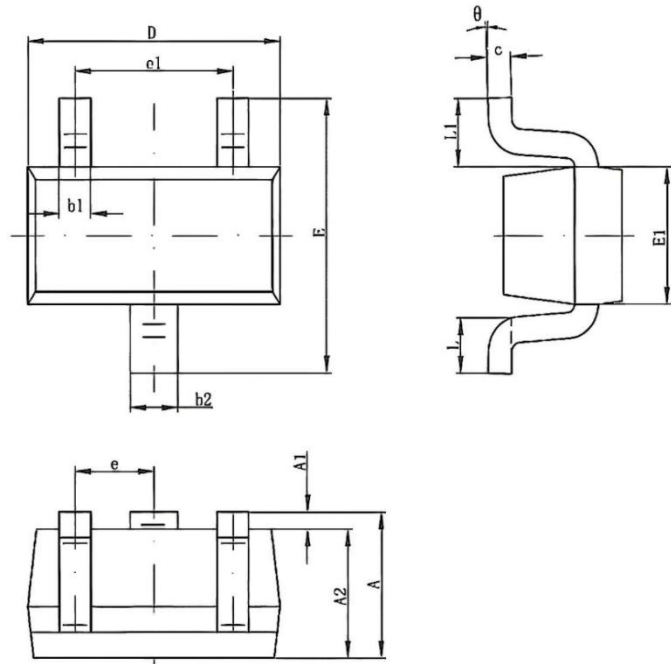


Maximum Transient Thermal Impedance



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
θ	0°	8°	0°	8°