

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
30V	420mΩ@4.5V	0.6A
	540mΩ@2.5V	

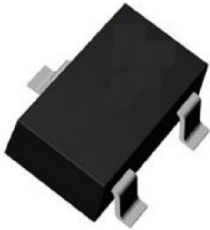
## Feature

- N-Channel switch with low RDS(on)
- Operated at low logic level gate drive

## Application

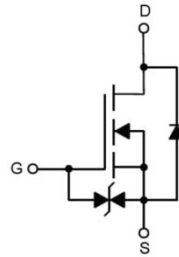
- Switching application

## Package

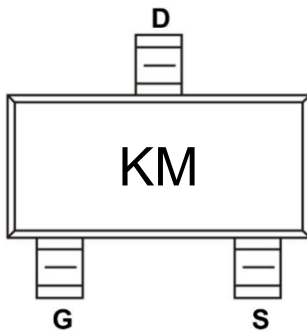


SOT-23

## Circuit diagram



## Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current <sup>1)</sup>	$I_D$	0.6	A
Pulsed Drain Current ( $t_p=10\mu\text{s}$ )	$I_{DM}$	1.8	A
Single Pulse Avalanche Energy <sup>2)</sup>	$E_{AS}$	2	mJ
Power Dissipation <sup>1)</sup>	$P_D$	0.35	W
Thermal Resistance Junction to Ambient <sup>1)</sup>	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Operating Junction Temperature	$T_J$	-55 ~ +150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

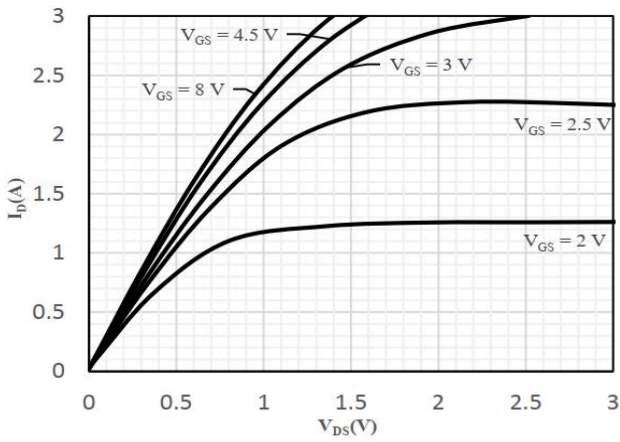
### Electrical characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	30			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-body leakage current	$I_{GSS}$	$V_{DS}=0\text{V}, V_{GS}=\pm 10\text{V}$			$\pm 3$	$\mu\text{A}$
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.5	0.95	1.5	V
Drain-source on-resistance <sup>3)</sup>	$R_{DS(on)}$	$V_{GS}=4.5\text{V}, I_D=0.6\text{A}$		335	420	m $\Omega$
		$V_{GS}=2.5\text{V}, I_D=0.3\text{A}$		404	540	
<b>Dynamic characteristics<sup>4)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=10\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$		73		pF
Output Capacitance	$C_{oss}$			29		
Reverse Transfer Capacitance	$C_{rss}$			16		
Total Gate Charge	$Q_g$	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=0.8\text{A}$		2.23		nC
Gate-Source Charge	$Q_{gs}$			0.63		
Gate-Drain Charge	$Q_{gd}$			0.38		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=0.7\text{A}$ $R_G=51\Omega$		5		nS
Turn-on rise time	$t_r$			8.2		
Turn-off delay time	$t_{d(off)}$			23		
Turn-off fall time	$t_f$			41		
<b>Source-Drain Diode characteristics</b>						
Diode Forward Current	$I_S$				0.6	A
Diode Forward voltage <sup>3)</sup>	$V_{SD}$	$V_{GS}=0\text{V}, I_S=0.6\text{A}$			1.2	V

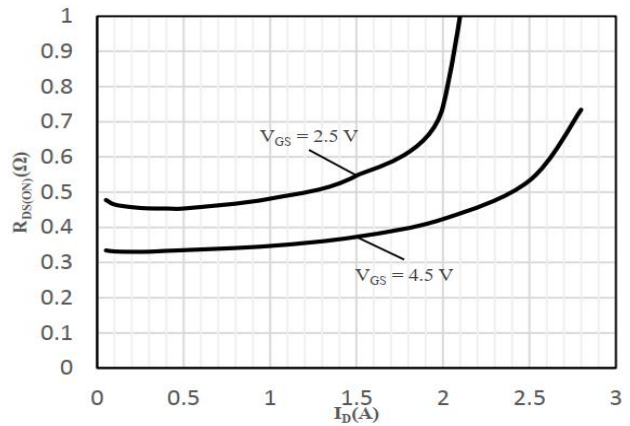
Notes:

- 1) The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 20Z copper.
- 2) The EAS data shows Max. rating. The test condition is  $V_{DD}=15\text{V}, V_{GS}=6\text{V}, L=10\text{mH}$ .
- 3) The data tested by pulsed, pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .
- 4) Guaranteed by design, not subject to production testing.

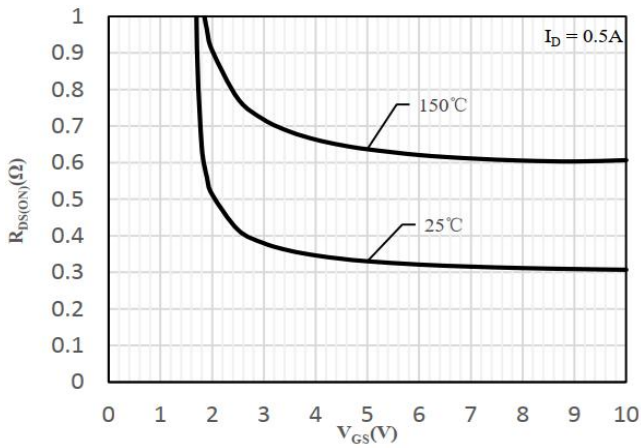
## Typical Characteristics



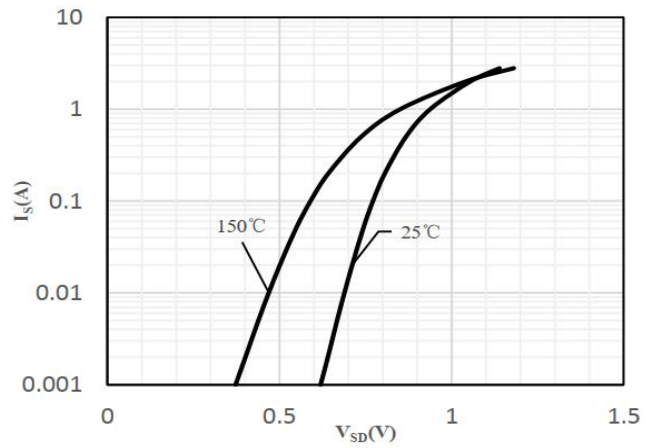
**Fig 1 Output Characteristics**



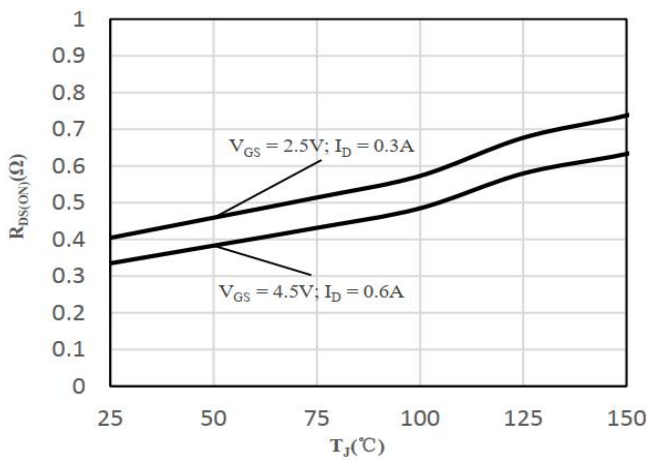
**Fig 2 On-Resistance vs. Drain Current and Gate Voltage**



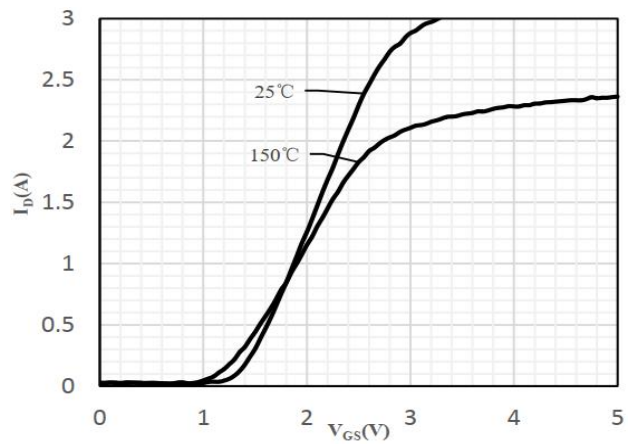
**Fig 3 On-Resistance vs. Gate-Source Voltage**



**Fig 4 Body-Diode Characteristics**

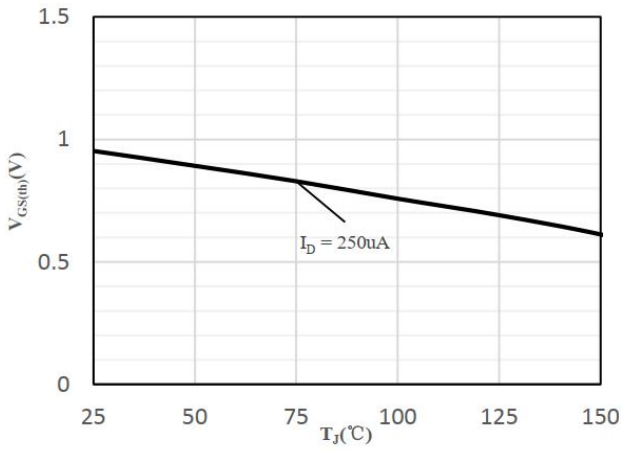


**Fig 5 On-Resistance vs. Junction Temperature**

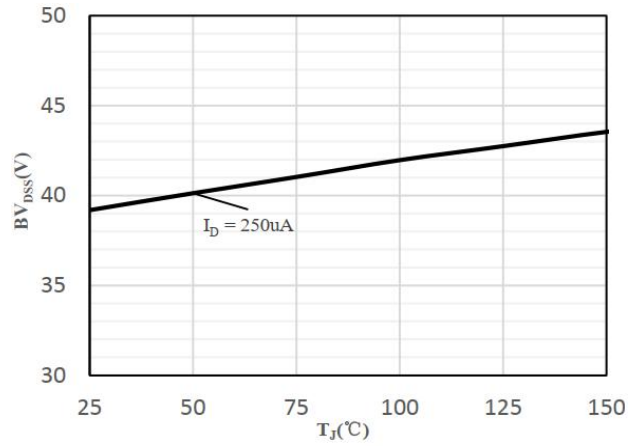


**Fig 6 Transfer Characteristics**

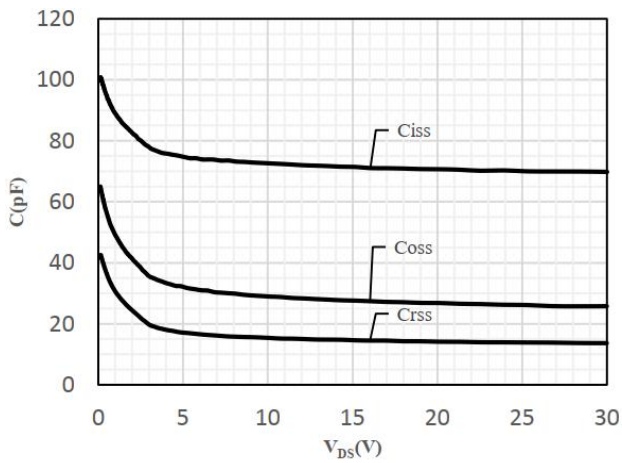
**Typical Characteristics**



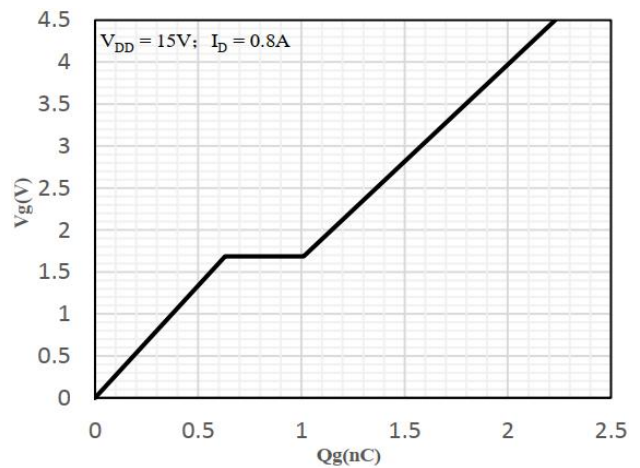
**Fig 7  $V_{GS(th)}$  vs. Junction Temperature**



**Fig 8 Breakdown Voltage vs. Junction Temperature**

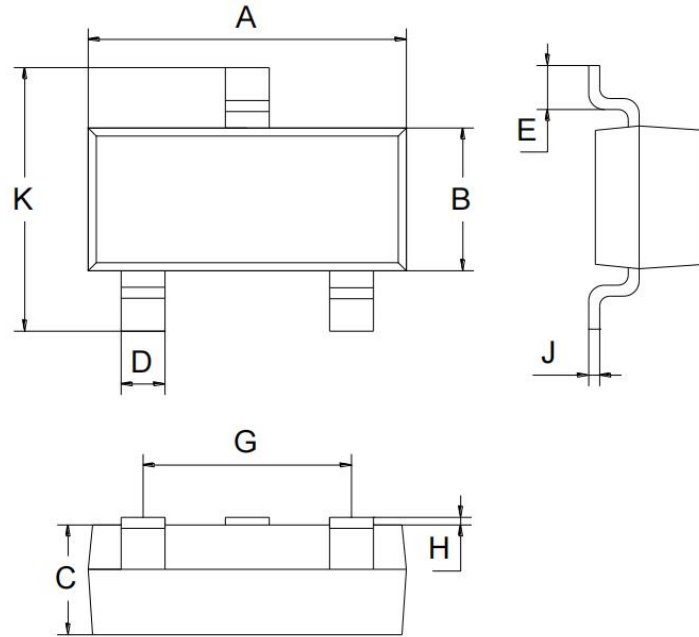


**Fig 9 Capacitance Characteristics**



**Fig 10 Gate-Charge Characteristics**

**SOT-23 Package Information**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.700	3.100	0.106	0.122
B	1.100	1.500	0.043	0.059
C	0.900	1.100	0.035	0.043
D	0.300	0.500	0.012	0.020
E	0.350	0.480	0.014	0.019
G	1.800	2.000	0.071	0.079
H	0.020	0.100	0.001	0.004
J	0.050	0.150	0.002	0.006
K	2.200	2.600	0.087	0.102