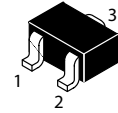
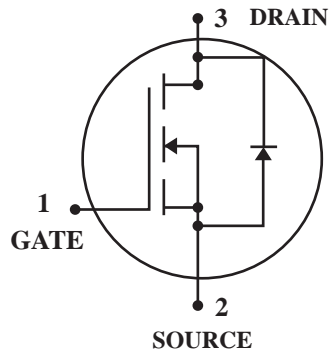


### N-Channel MOSFET

**(Pb)** Lead(Pb)-Free

#### Features:

- \*Low On-Resistance : 7.5 Ω
- \*Low Input Capacitance: 22PF
- \*Low Output Capacitance : 11PF
- \*Low Threshold Voltage :1 .5V(TYE)
- \*Fast Switching Speed : 7ns



**SOT-323(SC-70)**

### Maximum Ratings (TA=25°C Unless Otherwise Specified)

Rating	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current (TA=25°C)	$I_D$	115	mA
Power Dissipation (TA=25°C)	$P_D$	200	mW
Maximax Junction-to-Ambient	$R_{\theta JA}$	625	°C/W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	°C

### Device Marking

2N7002W=K72

## Electrical Characteristics (T<sub>A</sub>=25°C Unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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### Static<sup>(1)</sup>

Drain-Source Breakdown Voltage V <sub>GS</sub> =0V, I <sub>D</sub> =10 μA	V <sub>(BR)DSS</sub>	60	70	-	V
Gate-Threshold Voltage V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	V <sub>GS(th)</sub>	1.0	1.5	2.0	V
Gate-body Leakage V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	I <sub>GSS</sub>	-	-	±10	nA
Zero Gate Voltage Drain Current V <sub>DS</sub> =60V, V <sub>GS</sub> =0V @ T <sub>c</sub> =25°C V <sub>DS</sub> =60V, V <sub>GS</sub> =0V @ T <sub>c</sub> =125°C	I <sub>DSS</sub>	-	-	1.0 500	μA
On-State Drain Current V <sub>GS</sub> =10V, V <sub>DS</sub> =7.5V	I <sub>D(on)</sub>	0.5	1.0	-	A
Drain-Source On-Resistance V <sub>GS</sub> =5V, I <sub>D</sub> =0.05A @ T <sub>j</sub> =25°C V <sub>GS</sub> =10V, I <sub>D</sub> =0.5A @ T <sub>j</sub> =125°C	R <sub>DS(on)</sub>	-	3.2 4.4	7.5 13.5	Ω
Forward Transconductance V <sub>DS</sub> =10V, I <sub>D</sub> =0.2A	g <sub>fs</sub>	80	-	-	mS

### Dynamic

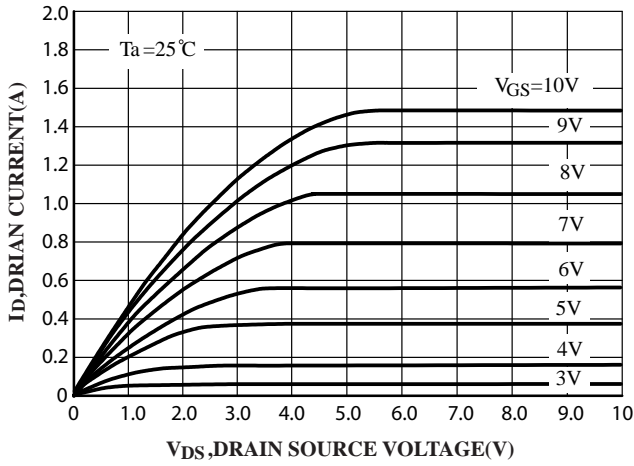
Input Capacitance V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz	C <sub>iss</sub>	-	22	50	pF
Output Capacitance V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz	C <sub>oss</sub>	-	11	25	
Reverse Transfer Capacitance V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz	C <sub>rss</sub>	-	2.0	5.0	

### Switching

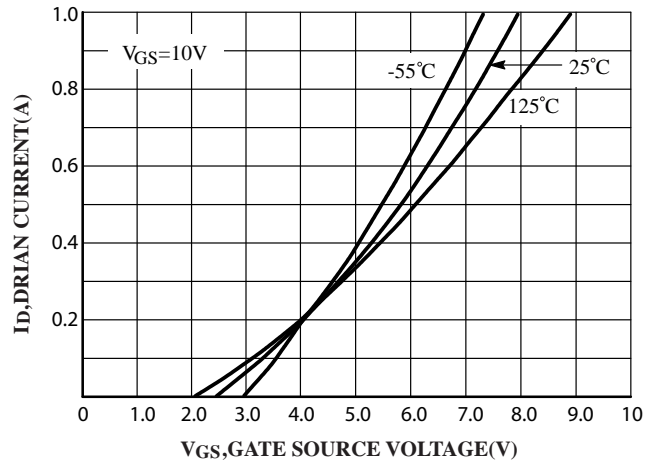
Turn-On Time V <sub>DD</sub> =30V, R <sub>L</sub> =150Ω, I <sub>D</sub> =0.2A V <sub>GEN</sub> =10V, R <sub>GEN</sub> =25Ω	t <sub>d(on)</sub>	-	7.0	20	ns
Turn-Off Time V <sub>DD</sub> =30V, R <sub>L</sub> =150Ω, I <sub>D</sub> =0.2A V <sub>GEN</sub> =10V, R <sub>GEN</sub> =25Ω	t <sub>d(off)</sub>	-	11	20	ns

Note:

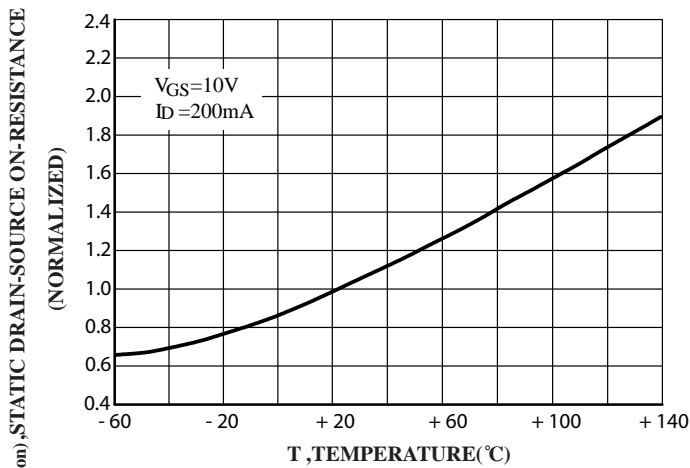
1. Pulse Test: pulse width ≤300us, duty cycle ≤2%



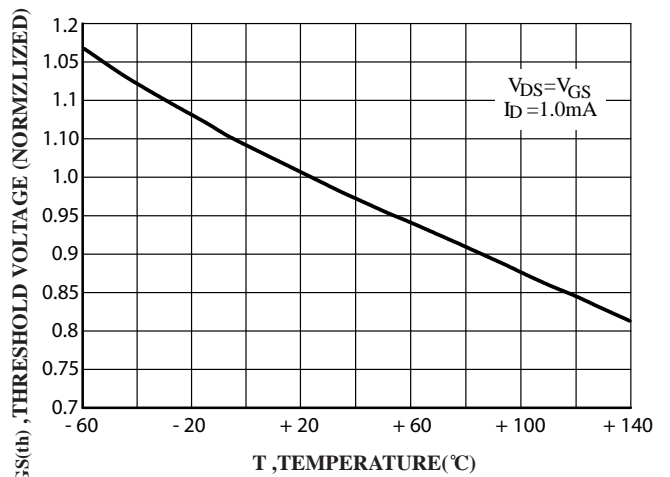
**FIG.1 Ohmic Region**



**FIG.2 Transfer Characteristics**



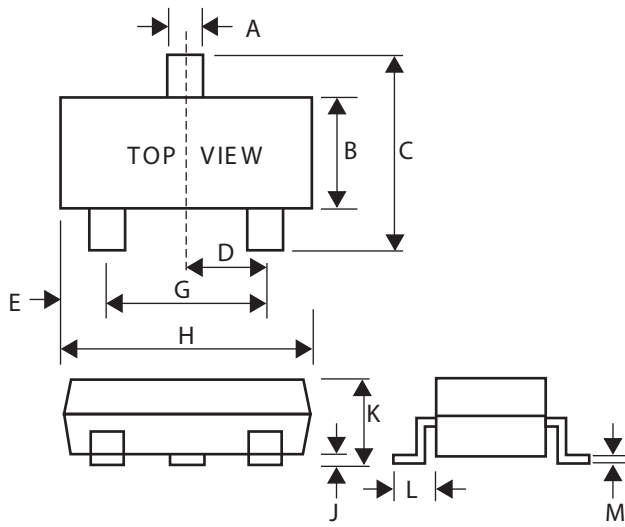
**FIG.3 Temperature Versus Static Drain-Source On-Resistance**



**FIG.4 Temperature Versus Gate Threshold Voltage**

**SOT-323 Outline Demensions**

Unit:mm



<b>SOT-323</b>		
<b>Dim</b>	<b>Min</b>	<b>Max</b>
<b>A</b>	0.30	0.40
<b>B</b>	1.15	1.35
<b>C</b>	2.00	2.40
<b>D</b>	-	0.65
<b>E</b>	0.30	0.40
<b>G</b>	1.20	1.40
<b>H</b>	1.80	2.20
<b>J</b>	0.00	0.10
<b>K</b>	0.80	1.00
<b>L</b>	0.42	0.53
<b>M</b>	0.10	0.25