



Micro Commercial Components



Micro Commercial Components  
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**2N7002W**

## Features

- Low ON-Resistance
- Low Input Capacitance
- Low Gate Threshold Voltage
- Fast Switching Speed
- Low Input/Output Leakage
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

## Mechanical Data

- Halogen free available upon request by adding suffix "-HF"
- Case: SOT-323, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking: K72

## Maximum Ratings

- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Maximum Thermal Resistance; 625K/W Junction To Ambient

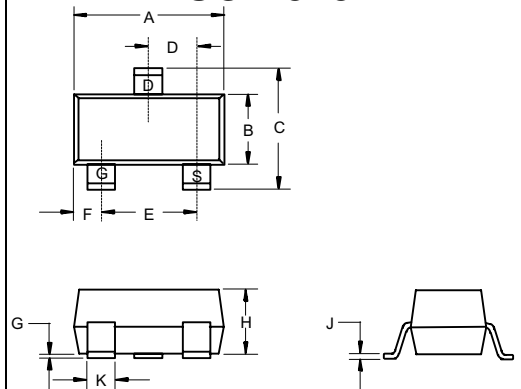
Parameter	Symbol	Value	Unit
Drain-Source-Voltage	$V_{DSS}$	60	V
Drain-Gate Voltage $R_{GS} \leq 1.0M\Omega$	$V_{DGR}$	60	V
Gate-Source-Voltage Continuous Pulsed	$V_{GSS}$	$\pm 20$ $\pm 40$	V
Drain Current (Note 1) Continuous Continuous @ 100°C Pulsed	$I_D$	115 73 800	mA
Total Power Dissipation (Note 1) Derating above $T_A = 25^\circ C$	$P_D$	200 1.60	mW mW/°C

**Note:** 1. Valid provided that terminals are kept at specified ambient temperature.

2. Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$

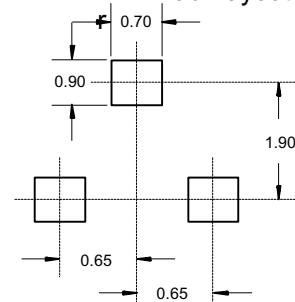
## N-Channel Enhancement Mode Field Effect Transistor

### SOT-323



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.079	.087	2.00	2.20	
D	.026 Nominal		0.65 Nominal		
E	.047	.055	1.20	1.40	
F	.012	.016	.30	.40	
G	.000	.004	.000	.100	
H	.035	.039	.90	1.00	
J	.004	.010	.100	.250	
K	.012	.016	.30	.40	

### Suggested Solder Pad Layout



# 2N7002W



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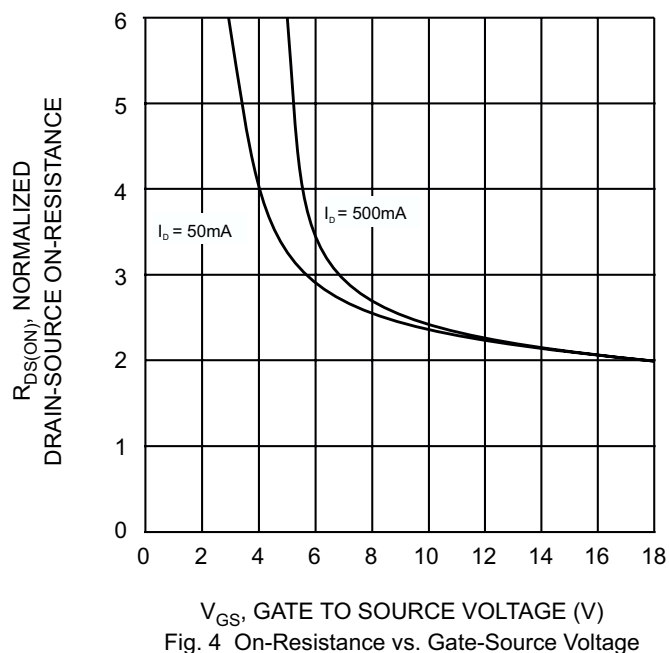
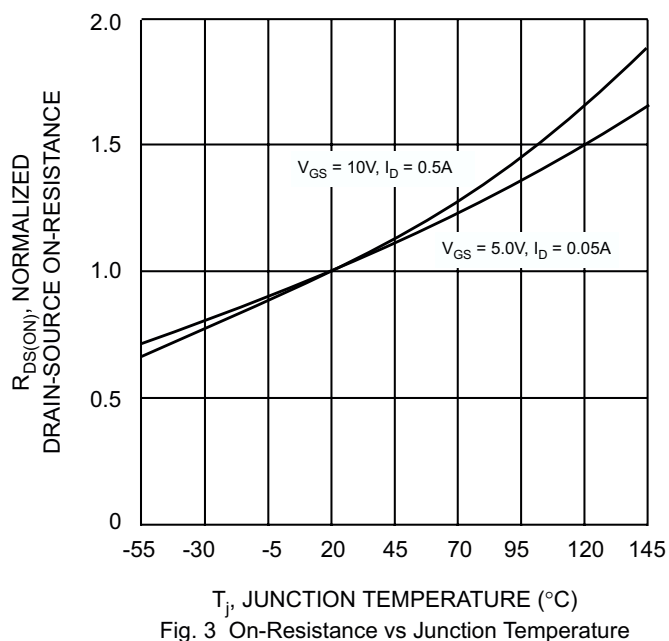
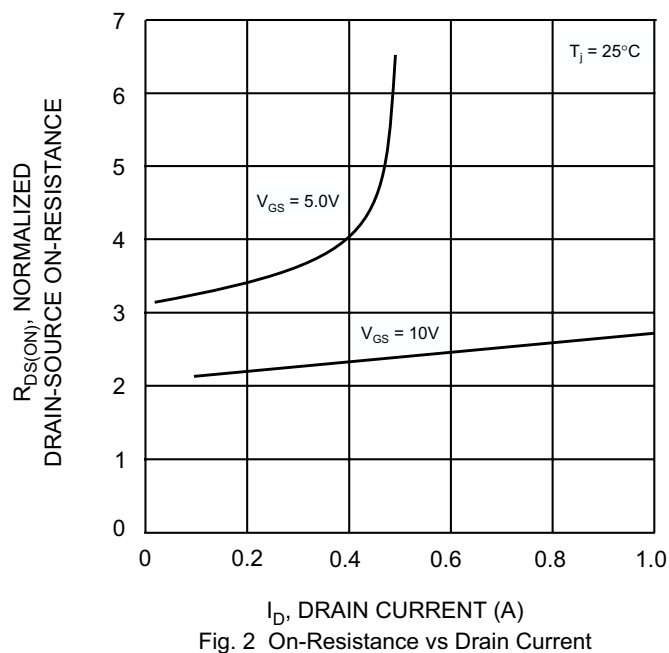
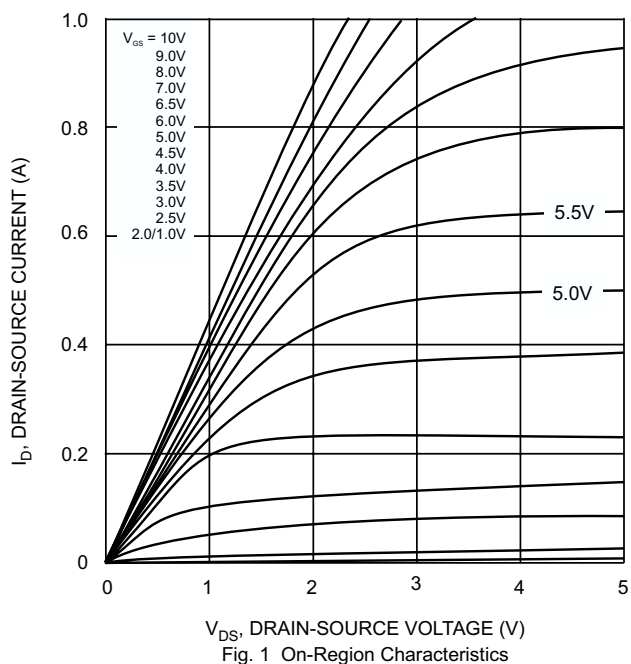
## Electrical Characteristics @ T<sub>A</sub> = 25 °C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 2)							
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	60	70		V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 10 A	
Zero Gate Voltage Drain Current	@ T <sub>C</sub> = 25°C @ T <sub>C</sub> = 125°C	I <sub>DSS</sub>		1.0 500	μA	V <sub>DS</sub> = 60V, V <sub>GS</sub> = 0V	
Gate-Body Leakage		I <sub>GSS</sub>		±10	nA	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V	
ON CHARACTERISTICS (Note 2)							
Gate Threshold Voltage		V <sub>GS(th)</sub>	1.0		2.0	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250 A
Static Drain-Source On-Resistance	@ T <sub>J</sub> = 25°C @ T <sub>J</sub> = 125°C	R <sub>DS (ON)</sub>		3.2 4.4	7.5 13.5	Ω	V <sub>GS</sub> = 5.0V, I <sub>D</sub> = 0.05A V <sub>GS</sub> = 10V, I <sub>D</sub> = 0.5A
On-State Drain Current		I <sub>D(ON)</sub>	0.5	1.0		A	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 7.5V
Forward Transconductance		g <sub>FS</sub>	80			mS	V <sub>DS</sub> = 10V, I <sub>D</sub> = 0.2A
DYNAMIC CHARACTERISTICS							
Input Capacitance		C <sub>iss</sub>		22	50	pF	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance		C <sub>oss</sub>		11	25	pF	
Reverse Transfer Capacitance		C <sub>rss</sub>		2.0	5.0	pF	
SWITCHING CHARACTERISTICS							
Turn-On Delay Time		t <sub>D(ON)</sub>		7.0	20	ns	V <sub>DD</sub> = 30V, I <sub>D</sub> = 0.2A, R <sub>L</sub> = 150 Ω, V <sub>GEN</sub> = 10V, R <sub>GEN</sub> = 25 Ω
Turn-Off Delay Time		t <sub>D(OFF)</sub>		11	20	ns	

Note: 1. Valid provided that terminals are kept at specified ambient temperature.

2. Pulse width ≤ 300μs, duty cycle ≤ 2%.

# 2N7002W



## Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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