



Micro Commercial Components



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2N7002T

N-Channel
Plastic-Encapsulate
Transistor

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
Low ON-Resistance and low Input Capacitance
Low Gate Threshold Voltage
Fast Switching Speed
Low Input/Output Leakage
Ultra-Small Surface Mount Package
Available in Lead Free/RoHS Compliant Version
Case Material:Molded Plastic. UL Flammability Classification Rating 94V-0 and MSL Rating 1
Marking:K72
Halogen free available upon request by adding suffix "-HF"

Mechanical Data

- Case: SOT-523, Molded Plastic
Terminal Connections: See Diagram

Maximum Ratings

- Operating Temperature: -55°C to +150°C
Storage Temperature: -55°C to +150°C

Table with 4 columns: Parameter, Symbol, Value, Unit. Rows include Drain-Source-Voltage, Drain-Gate Voltage, Gate-Source-Voltage, Drain Current, and Total Power Dissipation.

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

SOT-523

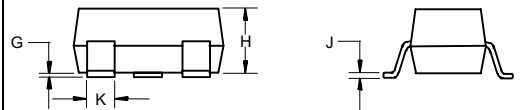
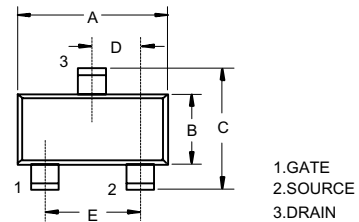


Table titled DIMENSIONS with columns for DIM, INCHES (MIN, MAX), MM (MIN, MAX), and NOTE. Rows A through K provide specific dimension values.

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

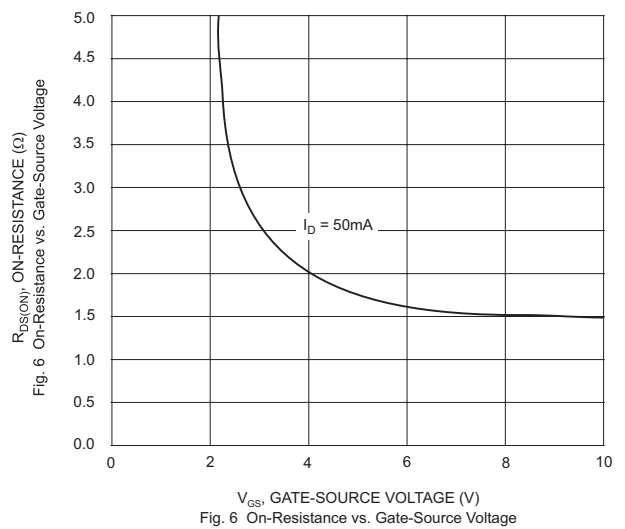
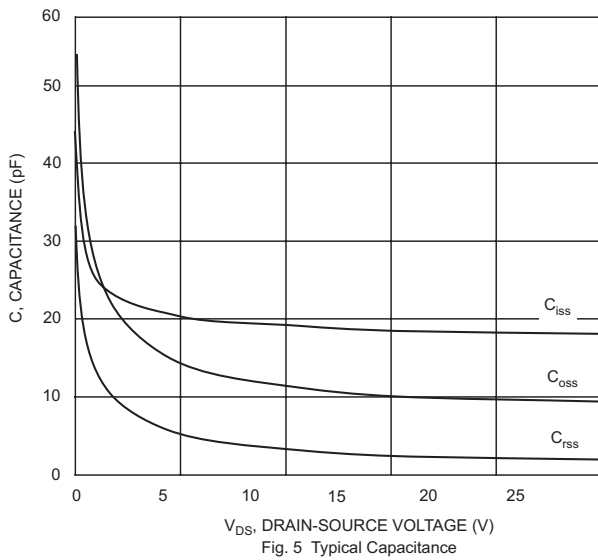
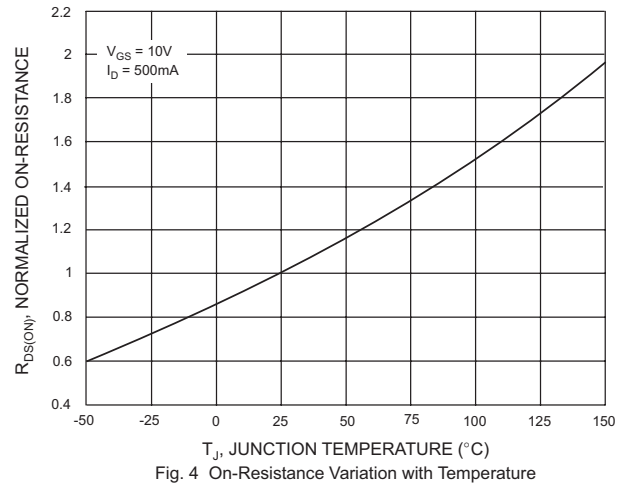
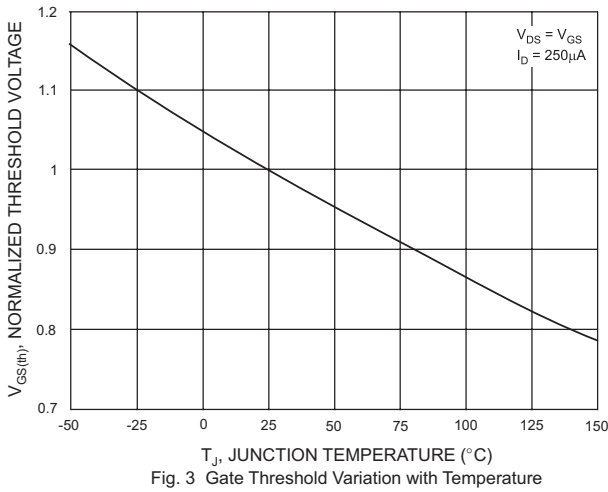
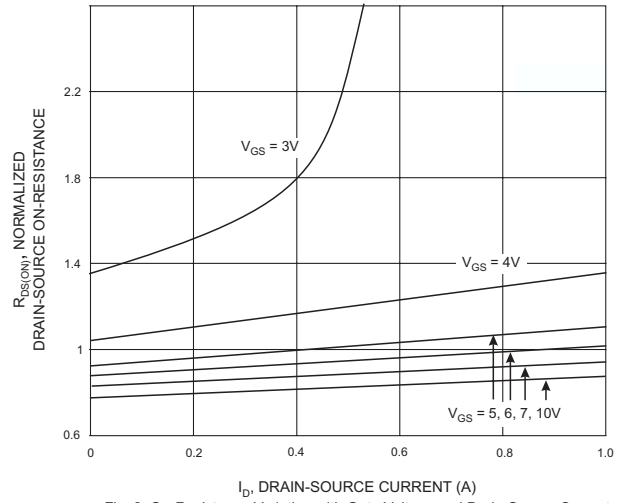
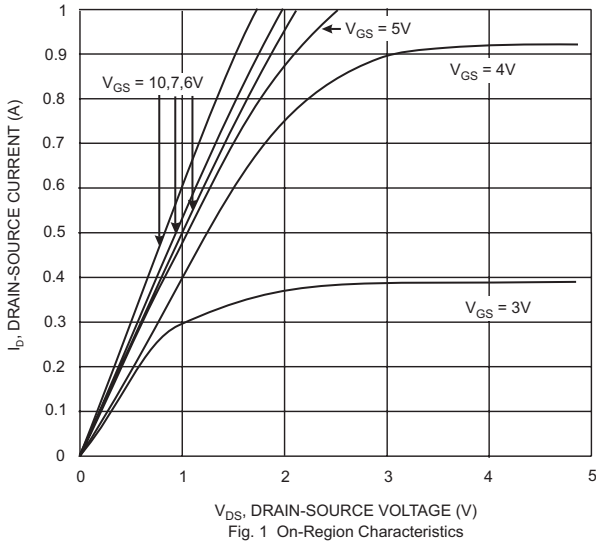
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 2)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	60			V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 10μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>			1.0 500	μA	V <sub>DS</sub> = 60V, V <sub>GS</sub> = 0V
Gate-Body Leakage	I <sub>GSS</sub>			±10	nA	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 2)</b>						
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> = 250μA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>		2.0 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
<b>DYNAMIC CHARACTERISTICS</b>						
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	
<b>SWITCHING CHARACTERISTICS</b>						
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 ohm, V <sub>GEN</sub> = 10V, R <sub>GEN</sub> = 25 ohm
Turn-Off Delay Time	t <sub>D(OFF)</sub>		11	20	ns	

Note: 2. Short duration test pulse used to minimize self-heating effect.

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### 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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