Micro Commercial Components

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2N7002W

N-Channel Enhancement Mode Field Effect Transistor

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

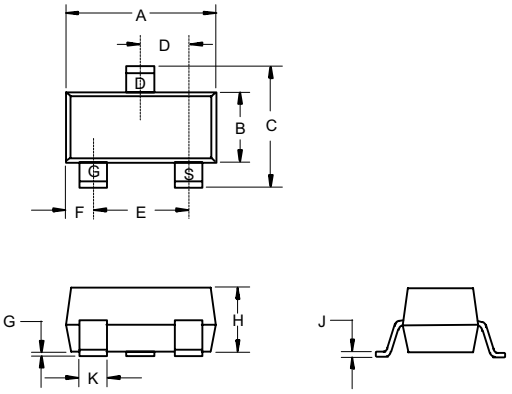
Maximum Ratings

- 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 $R_{GS} \leqq 1.0M\Omega$	V_{DGR}	60	V
Gate-Source-Voltage Continuous Pulsed	V_{GSS}	±20 ±40	V
Drain Current (Note 1) Continuous Continuous @ 100℃ Pulsed	I_D	115 73 800	mA
Total Power Dissipation (Note 1) Derating above T_A = 25℃	P_D	200 1.60	mW mW/℃

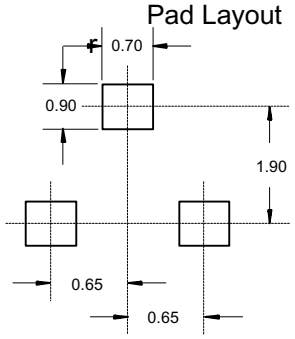
Note: 1. Valid provided that terminals are kept at specified ambient temperature.
2. Pulse width ≦300μs, duty cycle ≦2%

SOT-323



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.079	.087	2.00	2.20	
D	.026 Nominal		0.65Nominal		
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



Electrical Characteristics

@ T_A = 25 C unless otherwise specified

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)							
Drain-Source Breakdown Voltage		BV_{DSS}	60	70		V	V_{GS} = 0V, I_D = 10 A
Zero Gate Voltage Drain Current	@ T_C = 25°C @ T_C = 125°C	I_{DSS}			1.0 500	μA	V_{DS} = 60V, V_{GS} = 0V
Gate-Body Leakage		I_{GSS}			±10	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 2)							
Gate Threshold Voltage		$V_{GS(th)}$	1.0		2.0	V	V_{DS} = V_{GS}, I_D =-250 A
Static Drain-Source On-Resistance	@ T_j = 25°C @ T_j = 125°C	$R_{DS\ (ON)}$		3.2 4.4	7.5 13.5	Ω	V_{GS} = 5.0V, I_D = 0.05A V_{GS} = 10V, I_D = 0.5A
On-State Drain Current		$I_{D(ON)}$	0.5	1.0		A	V_{GS} = 10V, V_{DS} = 7.5V
Forward Transconductance		g_{FS}	80			mS	V_{DS} =10V, I_D = 0.2A
DYNAMIC CHARACTERISTICS							
Input Capacitance		C_{iss}		22	50	pF	V_{DS} = 25V, V_{GS} = 0V f = 1.0MHz
Output Capacitance		C_{oss}		11	25	pF	
Reverse Transfer Capacitance		C_{rss}		2.0	5.0	pF	
SWITCHING CHARACTERISTICS							
Turn-On Delay Time		$t_{D(ON)}$		7.0	20	ns	V_{DD} = 30V, I_D = 0.2A, R_L = 150 , V_{GEN} = 10V, R_{GEN} = 25
Turn-Off Delay Time		$t_{D(OFF)}$		11	20	ns	

Note: 1. Valid provided that terminals are kept at specified ambient temperature.
2. Pulse width ≤ 300μs, duty cycle ≤ 2%.

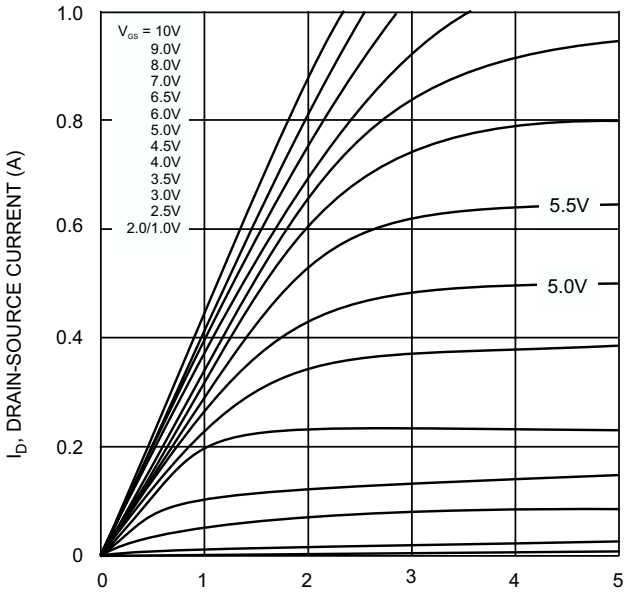


Fig. 1 On-Region Characteristics

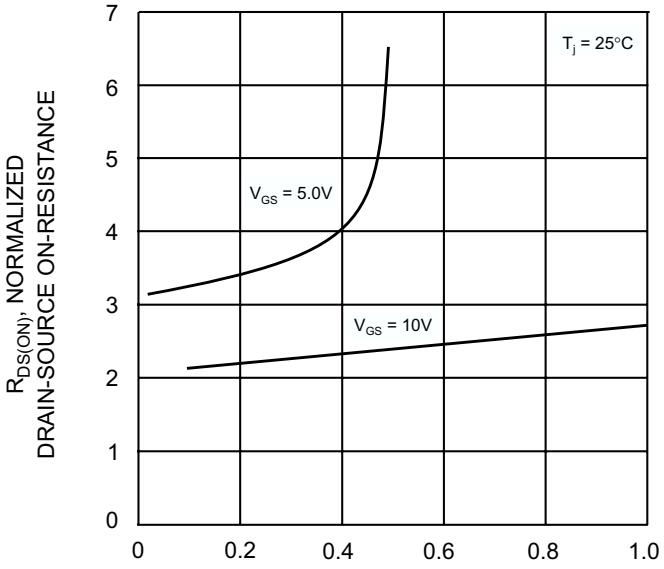


Fig. 2 On-Resistance vs Drain Current

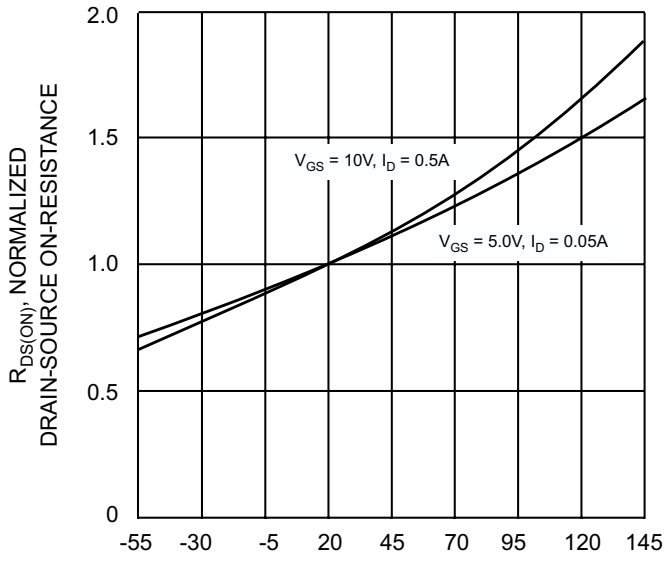


Fig. 3 On-Resistance vs Junction Temperature

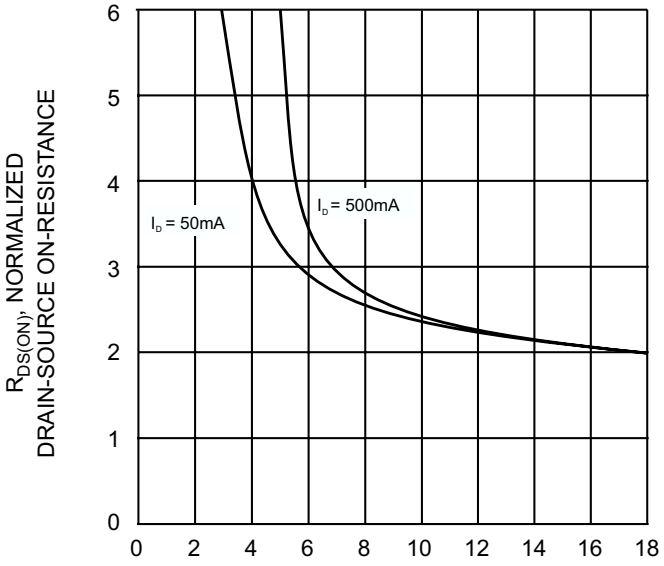


Fig. 4 On-Resistance vs. Gate-Source Voltage

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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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