



Micro Commercial Components



Micro Commercial Components  
20736 Marilla Street Chatsworth  
CA 91311

Phone: (818) 701-4933

Fax: (818) 701-4939

# 2N7002DW

## N-Channel MOSFET

### SOT-363

## Features

- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Power Dissipation: 0.2W(Tamb=25°C)
- Drain Current: 115mA
- Drain-source Voltage: 60V
- Operating Junction Temperature: -55 to +150°C
- Storage Temperature: -55 to +150°C
- Marking: K72

## Electrical Characteristics @ 25°C Unless Otherwise Specified

| Symbol        | Parameter                                                                                                               | Min | Typ        | Max         | Units      |
|---------------|-------------------------------------------------------------------------------------------------------------------------|-----|------------|-------------|------------|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage*<br>( $V_{GS}=0Vdc, I_D=10\mu A$ )                                                       | 60  | 70         | ---         | Vdc        |
| $V_{th(GS)}$  | Gate-Threshold Voltage*<br>( $V_{DS}=V_{GS}, I_D=250\mu A$ )                                                            | 1.0 | 1.5        | 2.0         | Vdc        |
| $I_{GSS}$     | Gate-body Leakage*<br>( $V_{DS}=0Vdc, V_{GS}=\pm 20Vdc$ )                                                               | --- | ---        | $\pm 10$    | nAdc       |
| $I_{DSS}$     | Zero Gate Voltage Drain Current*<br>( $V_{DS}=60Vdc, V_{GS}=0Vdc$ )<br>( $V_{DS}=60Vdc, V_{GS}=0Vdc, T_J=125^\circ C$ ) | --- | ---        | 1<br>500    | $\mu A$ dc |
| $I_{D(ON)}$   | On-state Drain Current*<br>( $V_{DS}=7.5Vdc, V_{GS}=10Vdc$ )                                                            | 0.5 | 1.0        | ---         | Adc        |
| $r_{DS(on)}$  | Drain-Source On-Resistance*<br>( $V_{GS}=5Vdc, I_D=50mA$ )<br>( $V_{GS}=10Vdc, I_D=500mA$ )                             | --- | 3.2<br>4.4 | 7.5<br>13.5 | $\Omega$   |
| $g_{FS}$      | Forward Transconductance*<br>( $V_{DS}=10Vdc, I_D=200mA$ )                                                              | 80  | ---        | ---         | ms         |
| $C_{iss}$     | Input Capacitance                                                                                                       | --- | 22         | 50          | pF         |
| $C_{oss}$     | Output Capacitance                                                                                                      | --- | 11         | 25          |            |
| $C_{rss}$     | Reverse Transfer Capacitance                                                                                            | --- | 2          | 5           |            |

## Switching

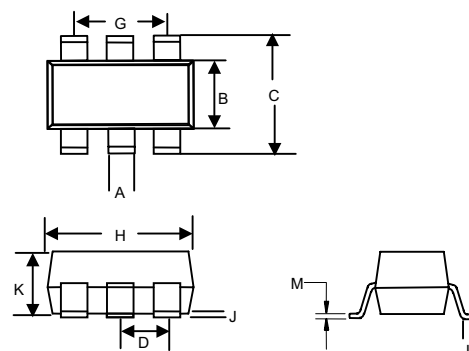
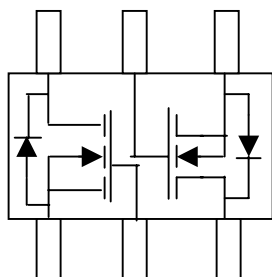
|              |               |                                               |     |    |    |    |
|--------------|---------------|-----------------------------------------------|-----|----|----|----|
| $t_{d(on)}$  | Turn-on Time  | $V_{DD}=30Vdc,$<br>$V_{GEN}=10Vdc$            | --- | 7  | 20 | ns |
| $t_{d(off)}$ | Turn-off Time | $R_L=150\Omega, I_D=200mA,$<br>$R_G=25\Omega$ | --- | 11 | 20 |    |

## Thermal

|            |                                            |     |               |
|------------|--------------------------------------------|-----|---------------|
| $R_{thJA}$ | Thermal Resistance, Junction to Ambient ** | 625 | $^{\circ}C/W$ |
|------------|--------------------------------------------|-----|---------------|

NOTE: \*. Pulse test, pulse width  $\leq 300 \mu s$ , duty cycle  $\leq 20\%$

\*\*\*. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch,  
Minimum land pad size.



| DIM | INCHES |      | MM          |      | NOTE |
|-----|--------|------|-------------|------|------|
|     | MIN    | MAX  | MIN         | MAX  |      |
| A   | .006   | .014 | 0.15        | 0.35 |      |
| B   | .045   | .053 | 1.15        | 1.35 |      |
| C   | .085   | .096 | 2.15        | 2.45 |      |
| D   | .026   |      | 0.65Nominal |      |      |
| G   | .047   | .055 | 1.20        | 1.40 |      |
| H   | .071   | .087 | 1.80        | 2.20 |      |
| J   | ---    | .004 | ---         | 0.10 |      |
| K   | .035   | .043 | 0.90        | 1.10 |      |
| L   | .010   | .018 | 0.26        | 0.46 |      |
| M   | .003   | .006 | 0.08        | 0.15 |      |

## Ordering Information :

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

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

### \*\*\*IMPORTANT NOTICE\*\*\*

**Micro Commercial Components Corp.** reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . **Micro Commercial Components Corp .** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp .** and all the companies whose products are represented on our website, harmless against all damages.

### \*\*\*LIFE SUPPORT\*\*\*

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

### \*\*\*CUSTOMER AWARENESS\*\*\*

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.