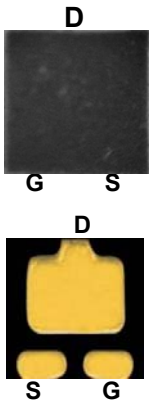
# WBFBP-03A Plastic-Encapsulate MOSFETS

## M7002TTD03 MOSFET( N-Channel )

**WBFBP-03A**
(1.6×1.6×0.5)
unit: mm




1. GATE
2. SOURCE
3. DRAIN

### DESCRIPTION

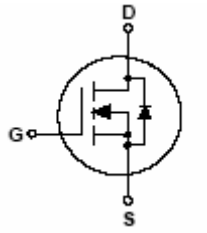
High cell density, DMOS technology. These products have been designed to minimize on-state resistance while provide rugged, reliable, and fast switching performance. They can be used in most applications requiring up to 400mA DC and can deliver pulsed currents up to 2A. These products are particularly suited for low voltage, low current applications such as small servo motor control, power MOSFET gate drivers, and other switching applications.

### FEATURES

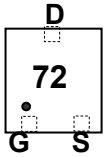
High density cell design for low $R_{DS(ON)}$
Voltage controlled small signal switch
Rugged and reliable
High saturation current capability

### APPLICATION

N-Channel Enhancement Mode Field Effect Transistor
For portable equipment:(i.e. Mobile phone,MP3, MD,CD-ROM, DVD-ROM, Note book PC, etc.)




### MARKING: 72




### MAXIMUM RATINGS($T_a$=25℃ unless otherwise noted)

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{DS}$ | Drain-Source Voltage | 60 | V |
| $V_{GSS}$ | Gate-Source Voltage - Continuous | ±20 | V |
| $I_D$ | Maximum Drain Current - Pulsed | 115 | mA |
| $P_D$ | Power Dissipation | 150 | mW |
| $R_{\theta JA}$ | Thermal Resistance from Junction to Ambient | 833 | ℃/W |
| $T_J$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | -55-150 | ℃ |

## ELECTRICAL CHARACTERISTICS ($T_a$=25℃ unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Drain-Source Breakdown Voltage** | $V_{(BR)DSS}$ | $V_{GS}$=0V,$I_D$=10μA | 60 | | | V |
| | | $V_{GS}$=0V,$I_D$=3mA | 60 | | | |
| **Gate-Threshold Voltage*** | $V_{(GS)th}$ | $V_{DS}$=$V_{GS}$, $I_D$=250μA | 1 | | | |
| **Gate-Body Leakage** | $I_{GSS}$ | $V_{DS}$=0V, $V_{GS}$=±25V | | | ±100 | nA |
| **Zero Gate Voltage Drain Current** | $I_{DSS}$ | $V_{DS}$=60V, $V_{GS}$=0V | | | 1 | μA |
| | | $V_{DS}$=60V,$V_{GS}$=0V,$T_j$=125℃ | | | 500 | |
| **On-state Drain Current*** | $I_{D(ON)}$ | $V_{GS}$=10V, $V_{DS}$=7V | 500 | | | mA |
| **Drain-Source On-Resistance*** | $R_{DS(on)}$ | $V_{GS}$=10V, $I_D$=500mA | 1 | | 7.2 | Ω |
| | | $V_{GS}$=5V, $I_D$=50mA | 1 | | 7.2 | |
| **Drain-Source On- Voltage *** | $V_{DS(on)}$ | $V_{GS}$=10V, $I_D$=500mA | | | 3.75 | V |
| | | $V_{GS}$=5V, $I_D$=50mA | | | 0.375 | |
| **Forward Tranconductance*** | $g_{fs}$ | $V_{DS}$=10V, $I_D$=200mA | 80 | | | ms |
| **Diode Forward Voltage** | $V_{SD}$ | $I_S$=115mA, $V_{GS}$=0V | | | 1.2 | V |
| **Input Capacitance** | $C_{iss}$ | $V_{DS}$=25V, $V_{GS}$=0V,f=1MHz | | | 50 | pF |
| **Output Capacitance** | $C_{oss}$ | | | | 25 | |
| **Reverse Transfer Capacitance** | $C_{rss}$ | | | | 5 | |
| **Total Gate Charge** | $Q_g$ | $V_{DS}$ =30V, $V_{GS}$ =10V, $I_D$=250mA | | | 1 | nC |
| **Gate-Source Charge** | $Q_{gs}$ | | | | 25 | |
| **Gate-Drain Charge** | $Q_d$ | | | | 5 | |

*Pulse test , pulse width≤300μs, duty cycle≤2% .

## SWITCHING TIME

| | | | | | | |
|---|---|---|---|---|---|---|
| **Turn-on Time** | $t_{d(on)}$ | $V_{DD}$=25V,$R_G$=25Ω $I_D$=500mA,$V_{GEN}$=10V $R_L$=50Ω | | | 20 | ns |
| **Turn-off Time** | $t_{d(off)}$ | | | | 40 | |