



**WBFBP-03A Plastic-Encapsulate MOSFETS**

**M7002TTD03** MOSFET( N-Channel )

**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.

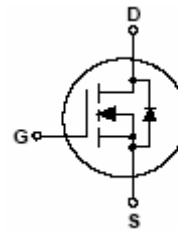
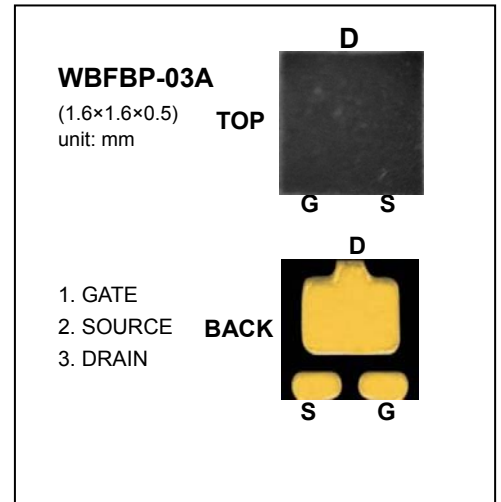
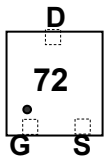
**FEATURES**

- 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( $T_a=25^{\circ}\text{C}$  unless otherwise noted)**

Symbol	Parameter	Value	Units
$V_{DS}$	Drain-Source Voltage	60	V
$V_{GSS}$	Gate-Source Voltage - Continuous	$\pm 20$	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	$^{\circ}\text{C}/\text{W}$
$T_J$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^{\circ}\text{C}$

**ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=10\mu A$	60			V
		$V_{GS}=0V, I_D=3mA$	60			
Gate-Threshold Voltage*	$V_{(GS)th}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1			
Gate-Body Leakage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 25V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
		$V_{DS}=60V, V_{GS}=0V, T_j=125^\circ C$			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	$\Omega$
		$V_{GS}=5V, I_D=50mA$	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	$\mu F$
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 $\leq 300\mu s$ , duty cycle $\leq 2\%$  .

**SWITCHING TIME**

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