



**WBFBP-03B Plastic-Encapsulate MOSFET**

**2N7002M** 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.

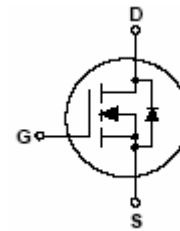
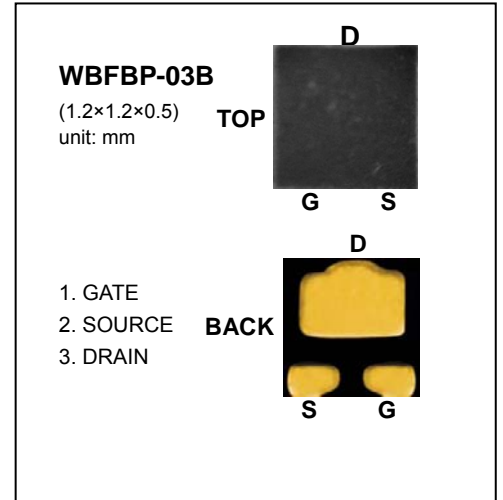
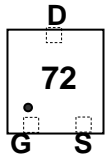
**FEATURES**

- High density cell design for low RDS(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<sub>A</sub>=25°C unless otherwise noted**

Symbol	Parameter	Value	Units
V <sub>DS</sub>	Drain-Source voltage	60	V
I <sub>D</sub>	Drain Current	115	mA
P <sub>D</sub>	Power Dissipation	150	mW
R <sub>θJA</sub>	Thermal Resistance. Junction to Ambient Air	625	°C/W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55-150	°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*	$V_{th(GS)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1		2.5	
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*	$R_{DS(ON)}$	$V_{GS}=10V, I_D=500mA$		1.2	7.5	$\Omega$
		$V_{GS}=5V, I_D=50mA$		1.7	7.5	
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 Transconductance*	$g_{fs}$	$V_{DS}=10V, I_D=200mA$	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	

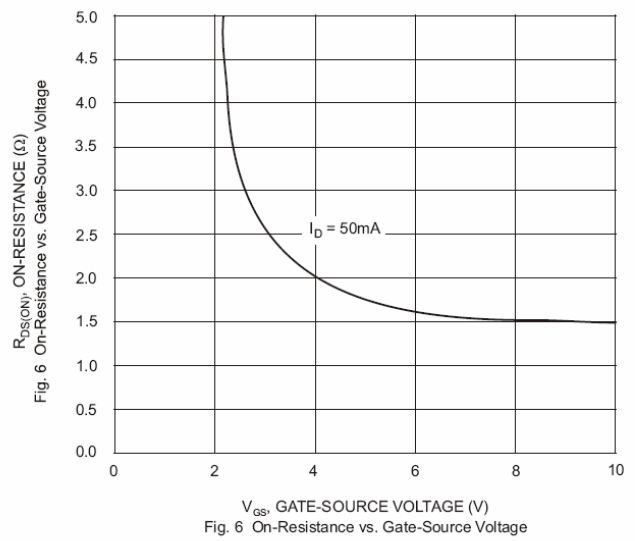
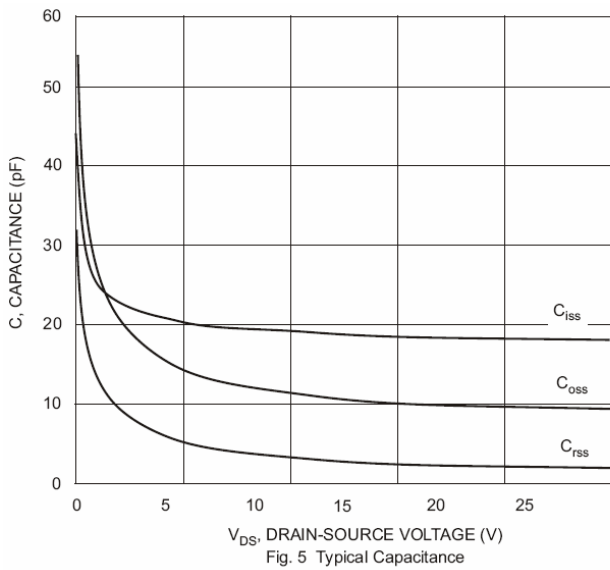
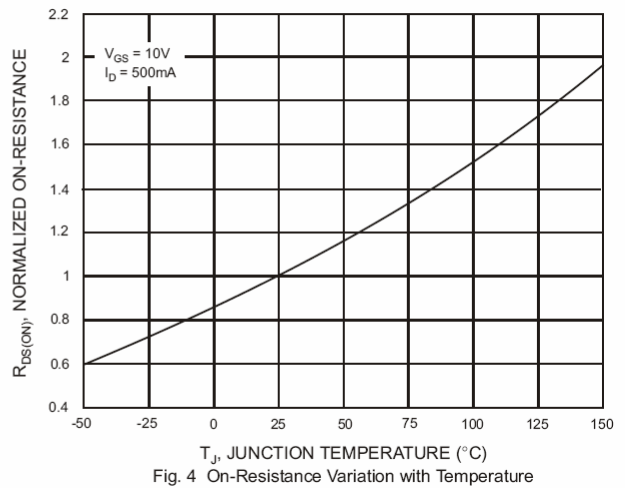
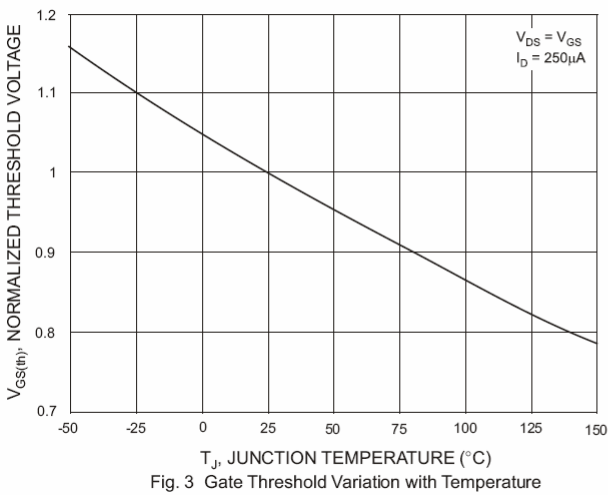
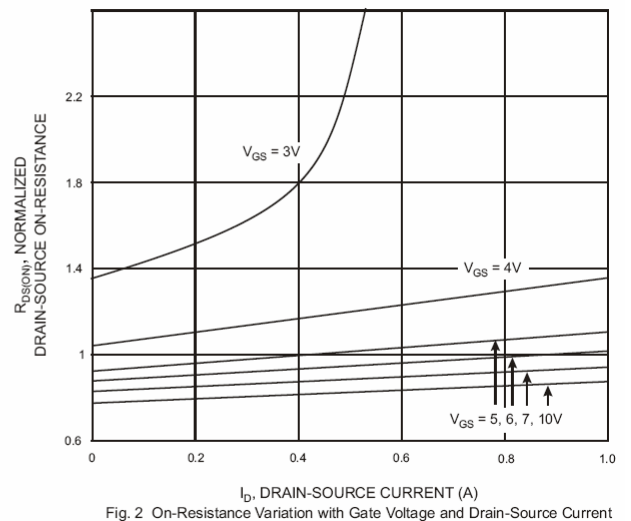
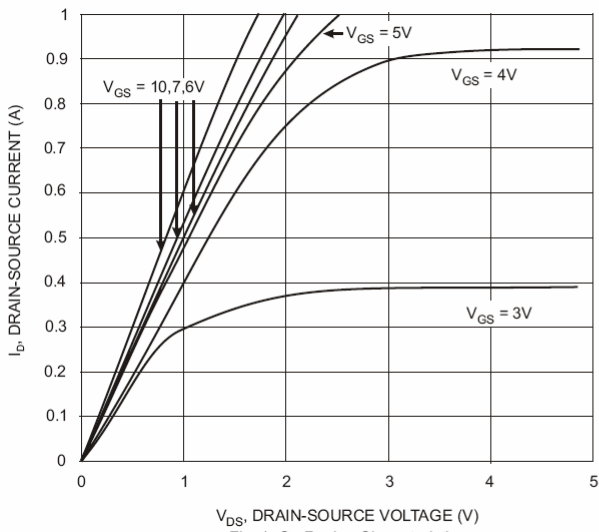
\* Pulse test , pulse width $\leq 300\mu s$ , duty cycle $\leq 2\%$  .

**SWITCHING TIME**

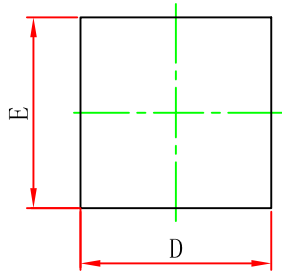
Turn-on Time	$t_{d(ON)}$	$V_{DD}=25V, R_G=25\Omega$			20	ns
Turn-off Time	$t_{d(OFF)}$	$I_D=500mA, V_{GEN}=10V$ $R_L=50\Omega$			40	

# Typical Characteristics

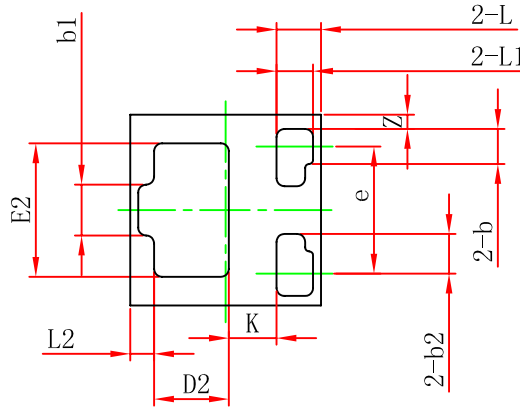
# 2N7002M



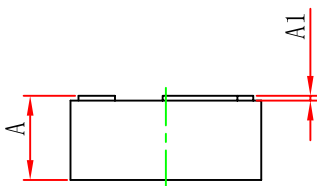
# WBFBP-03B(1.2×1.2×0.5) PACKAGE OUTLINE DIMENSIONS



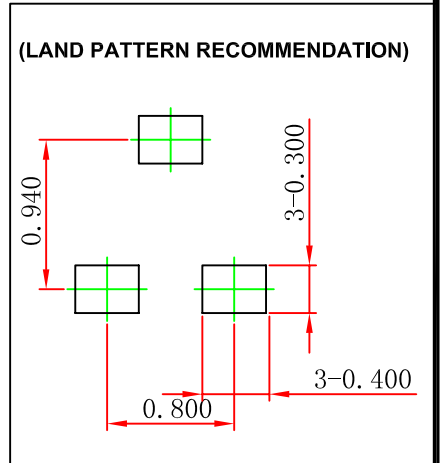
TOP VIEW



BOTTOM VIEW



SIDE VIEW



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.450	0.550	0.018	0.022
A1	0.010	0.090	0.000	0.004
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
b2	0.250 REF.		0.010 REF.	
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
D2	0.470 REF.		0.002 REF.	
E2	0.810 REF.		0.032 REF.	
e	0.800 TYP.		0.032 TYP.	
L	0.280 REF.		0.011 REF.	
L1	0.230 REF.		0.009 REF.	
L2	0.150 REF.		0.006 REF.	
k	0.300 REF.		0.012 REF.	
z	0.090 REF.		0.004 REF.	