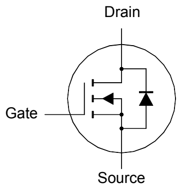
FUKUCOM COMPANY LTD.
福 靈 有 限 公 司
FLAT P, 3/F., EVEREST INDUSTRIAL CENTRE, 396 KWUN TONG ROAD,
KWUN TONG, KOWLOON, HONG KONG.
TEL: 852-2790 0314 FAX: 852-2790 0206

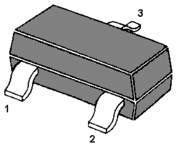
MMBT7002

N-Channel Enhancement Mode Field Effect Transistor

Features

- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switching
- High saturation current capability
- High speed switching





1.Gate 2.Source 3.Drain
SOT-23 Plastic Package

Absolute Maximum Ratings (T_a = 25 °C)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	60	V
Drain-Gate Voltage ($R_{GS} \leq$ 1MΩ)		V_{DGR}	60	V
Gate-Source Voltage	-Continuous -Non Repetitive (tp < 50 µs)	V_{GSS}	± 20 ± 40	V
Maximum Drain Current	-Continuous -Pulsed	I_D	115 800	mA
Total Power Dissipation		P_{tot}	200	mW
Operating and Storage Temperature Range		T_J, T_s	- 55 to + 150	°C

Characteristics at T_a = 25 °C

Parameter	Symbol	Min.	Max.	Unit
Drain Source Breakdown Voltage at I_D = 10 µA	BV_{DSS}	60	-	V
Zero Gate Voltage Drain Current at V_{DS} = 60 V	I_{DSS}	-	1	µA
Gate-Body Leakage Current at V_{GS} = ± 20 V	$\pm I_{GSS}$	-	100	nA
Gate Threshold Voltage at V_{DS} = V_{GS}, I_D = 250 µA	$V_{GS(th)}$	1	2.5	V
On-State Drain Current at V_{GS} = 10 V, V_{DS} = 7.5 V	$I_{D(ON)}$	500	-	mA
Drain-Source On-Voltage at V_{GS} = 10 V, I_D = 500 mA at V_{GS} = 5 V, I_D = 50 mA	$V_{DS(ON)}$	- -	3.75 1.5	V V
Static Drain-Source On-Resistance at V_{GS} = 10 V, I_D = 500 mA	$R_{DS(ON)}$	-	7.5	Ω
Forward Transconductance at V_{DS} = 10 V, I_D = 200 mA	g_{FS}	80	-	mS
Input Capacitance at V_{DS} = 25 V, f = 1 MHz	C_{iss}	-	50	pF
Output Capacitance at V_{DS} = 25 V, f = 1 MHz	C_{oss}	-	25	pF
Reverse Transfer Capacitance at V_{DS} = 25 V, f = 1 MHz	C_{rss}	-	5	pF
Turn-On Time at V_{DD} = 30 V, R_L= 150 Ω, I_D = 0.2 A, V_{GS} = 10V, R_{GEN} = 25Ω	t_{on}	-	20	ns
Turn-Off Time at V_{DD} = 30 V, R_L= 150 Ω, I_D = 0.2 A, V_{GS} = 10V, R_{GEN} = 25Ω	t_{off}	-	20	ns

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Dated: 25/12/2007

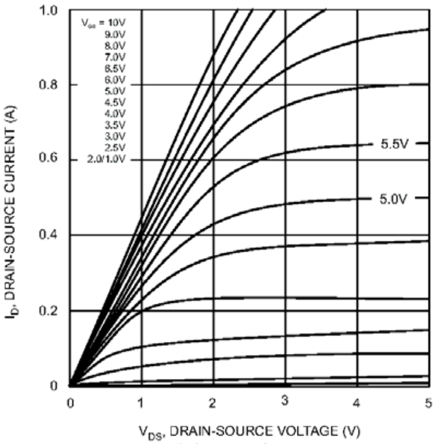

Fig. 1 On-Region Characteristics

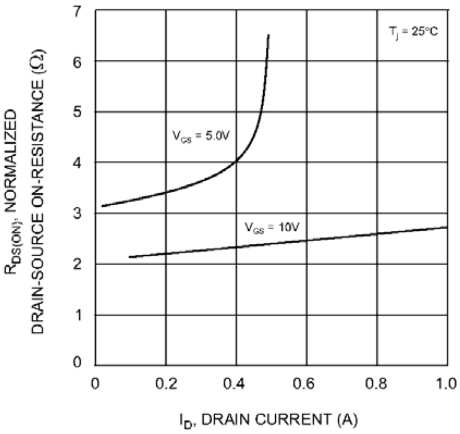

Fig. 2 On-Resistance vs Drain Current

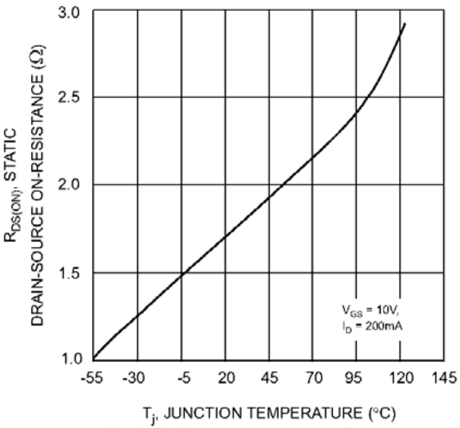

Fig. 3 On-Resistance vs Junction Temperature

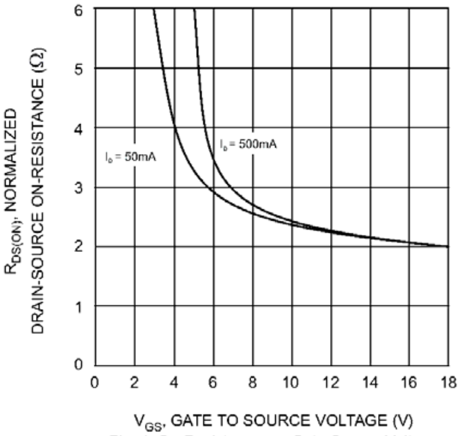

Fig. 4 On-Resistance vs. Gate-Source Voltage