

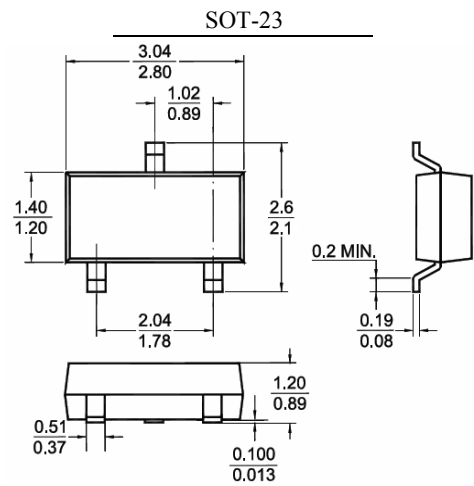
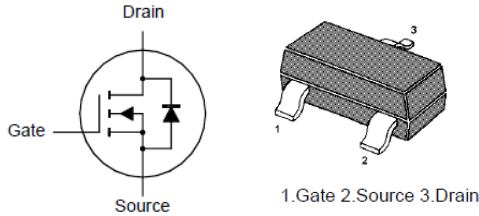


# MMBT7002

## 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
- Suffix "H" indicates Halogen-free parts, ex. MMBT7002H



Dimensions in millimeter

### Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit	
Drain-Source Voltage	$V_{DSS}$	60	V	
Drain-Gate Voltage ( $R_{GS} \leq 1M\Omega$ )	$V_{DGR}$	60	V	
Gate-Source Voltage	$V_{GSS}$	-Continuous	$\pm 20$	V
		-Non Repetitive ( $t_p < 50 \mu s$ )	$\pm 40$	V
Maximum Drain Current	$I_D$	-Continuous	115	mA
		-Pulsed	800	mA
Total Power Dissipation	$P_{tot}$	200	mW	
Operating and Storage Temperature Range	$T_j, T_{stg}$	- 55 to + 150	$^\circ\text{C}$	

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

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



### RATINGS AND CHARACTERISTIC CURVES

