MMBT7002

N-Channel Enhancement Mode Field Effect Transistor

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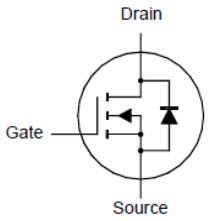
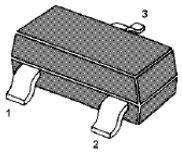
FEATURES

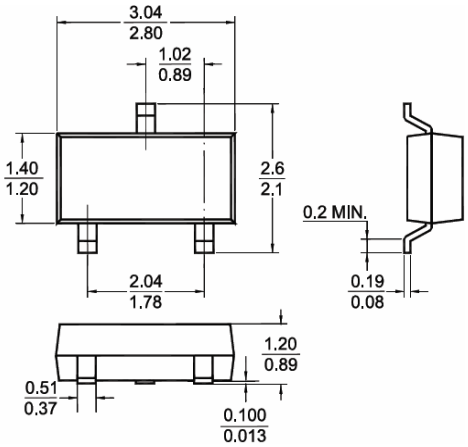
· High density cell design for low $R_{DS(ON)}$
· Voltage controlled small signal switching
· High saturation current capability
· High speed switching
· Suffix "H" indicates Halogen-free parts, ex. MMBT7002H





1.Gate 2.Source 3.Drain

SOT-23



Dimensions in millimeter

Maximum Ratings(T_A =25 ℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	60	V
Drain-Gate Voltage (R_{GS} ≦ 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_{stg}	- 55 to + 150	℃

Electrical Characteristics(T_A =25 ℃ unless otherwise specified)

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

RATINGS AND CHARACTERISTIC CURVES

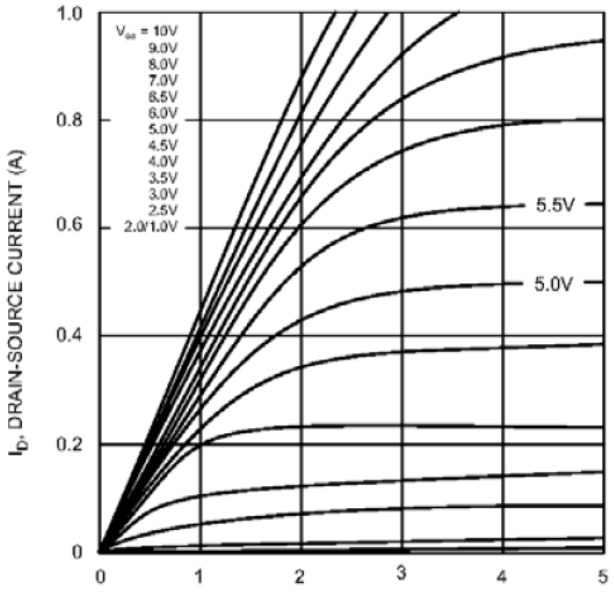


Fig. 1 On-Region Characteristics

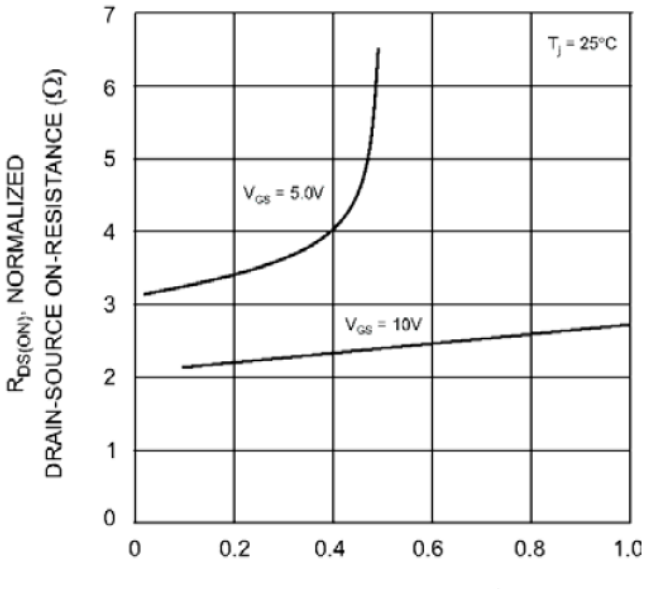


Fig. 2 On-Resistance vs Drain Current

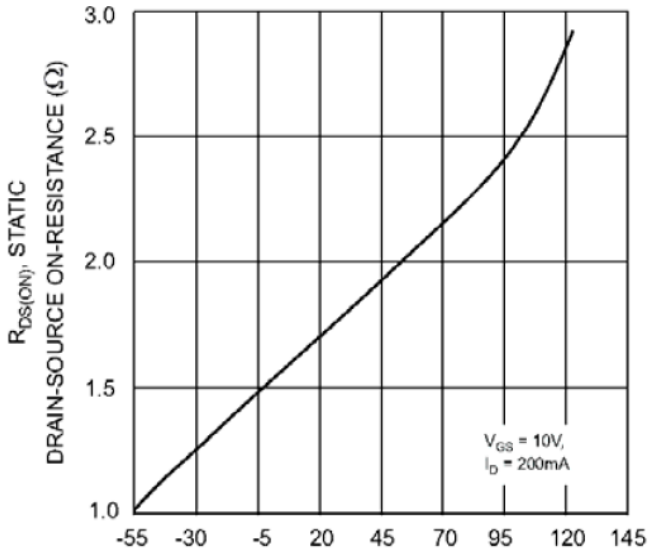


Fig. 3 On-Resistance vs Junction Temperature

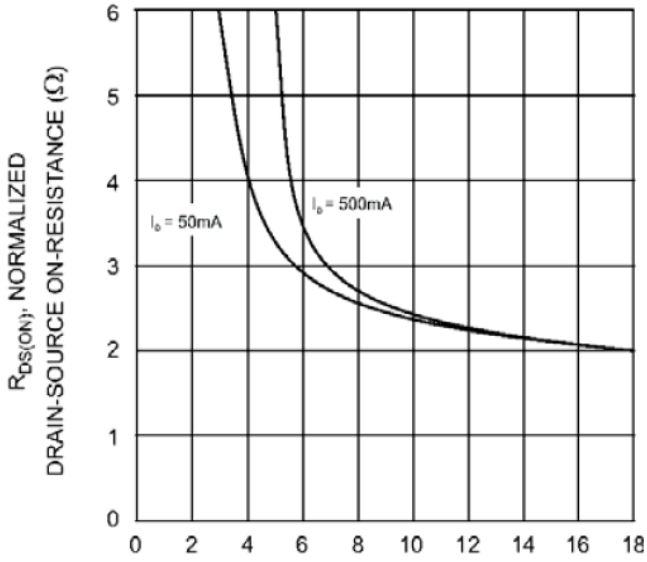


Fig. 4 On-Resistance vs. Gate-Source Voltage