

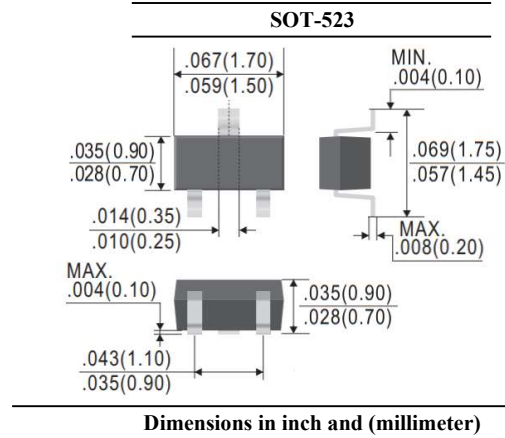


MMBT7002KWT

N-Channel Enhancement Mode Field Effect Transistor

FEATURES

- Low on resistance $R_{DS(ON)}$
- Low gate threshold voltage
- Low input capacitance
- ESD protected up to 2kV
- Suffix "H" indicates Halogen-free parts, ex. MMBT7002KWT



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current (Continuous)	I_D	300	mA
Drain Current (Pulse Width $\leq 10 \mu\text{s}$)	I_{DM}	800	mA
Total Power Dissipation	P_{tot}	150	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.	Typ.	Max.	Unit
Drain Source Breakdown Voltage	$I_D = 10 \mu\text{A}$	BV_{DSS}	60	-	-	V
Zero Gate Voltage Drain Current	$V_{DS} = 60\text{V}$	I_{DSS}	-	-	1	μA
Gate Source Leakage Current	$V_{GS} = \pm 20\text{V}$	I_{GSS}	-	-	± 10	μA
Gate Threshold Voltage	$V_{DS} = 10\text{V}, I_D = 250 \mu\text{A}$	$V_{GS(th)}$	1	-	2.5	V
Static Drain Source On-Resistance	$V_{GS} = 10\text{V}, I_D = 500\text{mA}$	$R_{DS(ON)}$	-	-	3	Ω
	$V_{GS} = 4.5\text{V}, I_D = 200\text{mA}$		-	-	4	
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		C_{oss}	-	-	25	pF
Reverse Transfer Capacitance		C_{rss}	-	-	5	pF
Turn-On Delay Time	$V_{DS} = 30\text{V}, V_{GEN} = 10\text{V},$ $R_L = 60\Omega, R_G = 25\Omega,$ $I_{DS} = 0.5\text{A}$	$t_{d(on)}$	-	2.7	-	ns
Turn-On Rise Time		t_r	-	2.5	-	ns
Turn-Off Delay Time		$t_{d(off)}$	-	13	-	ns
Turn-Off Fall Time		t_f	-	8	-	ns

RATINGS AND CHARACTERISTIC CURVES

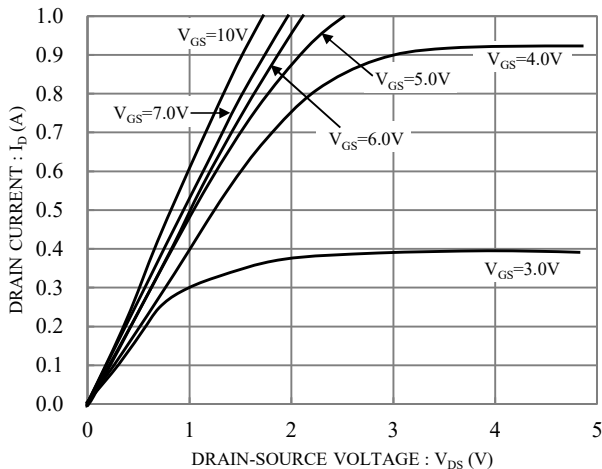


Fig.1 Typical output characteristics

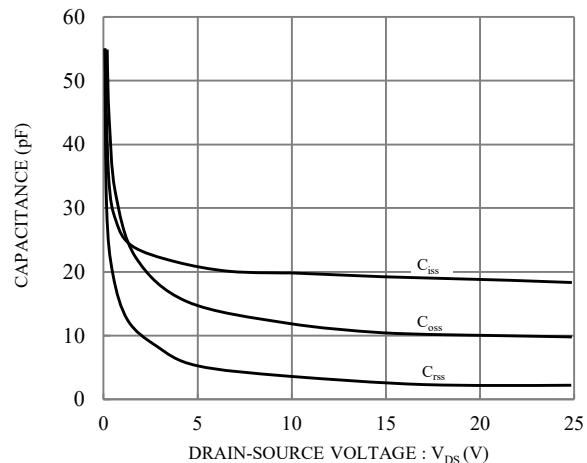


Fig.2 Capacitance vs Drain-to-source voltage

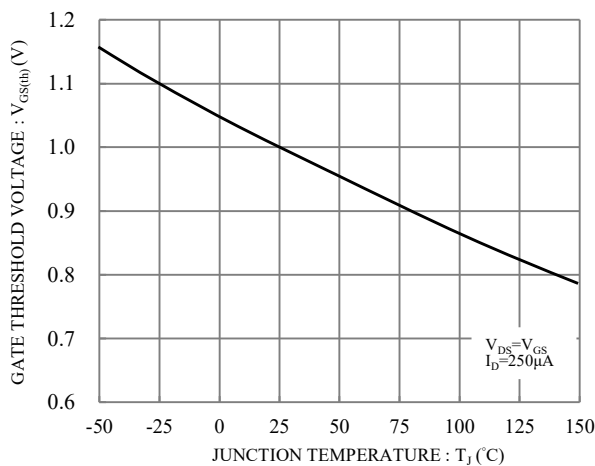


Fig.3 Gate threshold voltage vs. Junction temperature

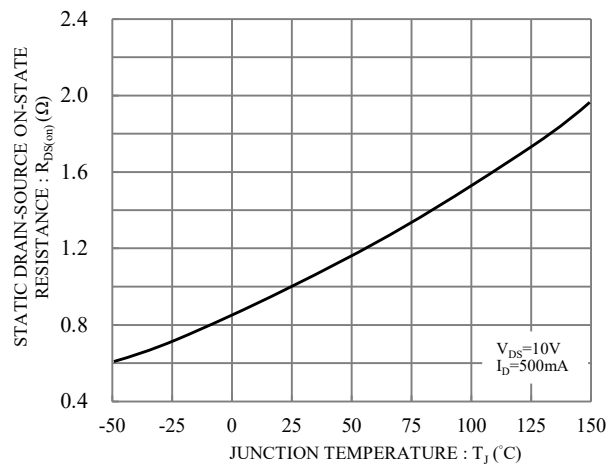


Fig.4 On-State Resistance vs. Junction temperature

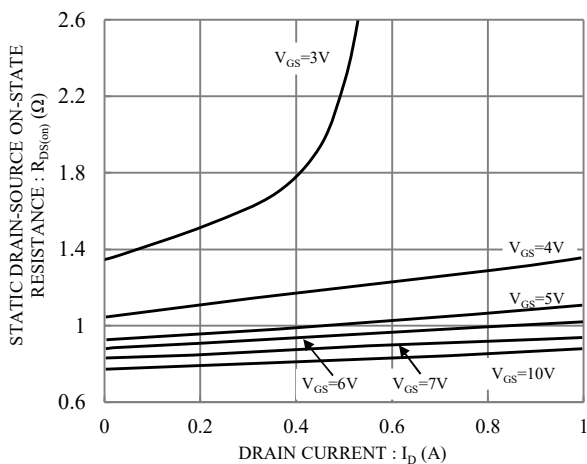


Fig.5 Static drain-source on-state resistance vs. Drain current

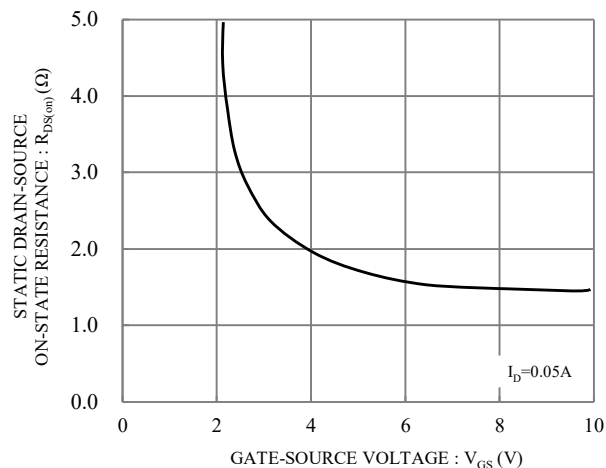


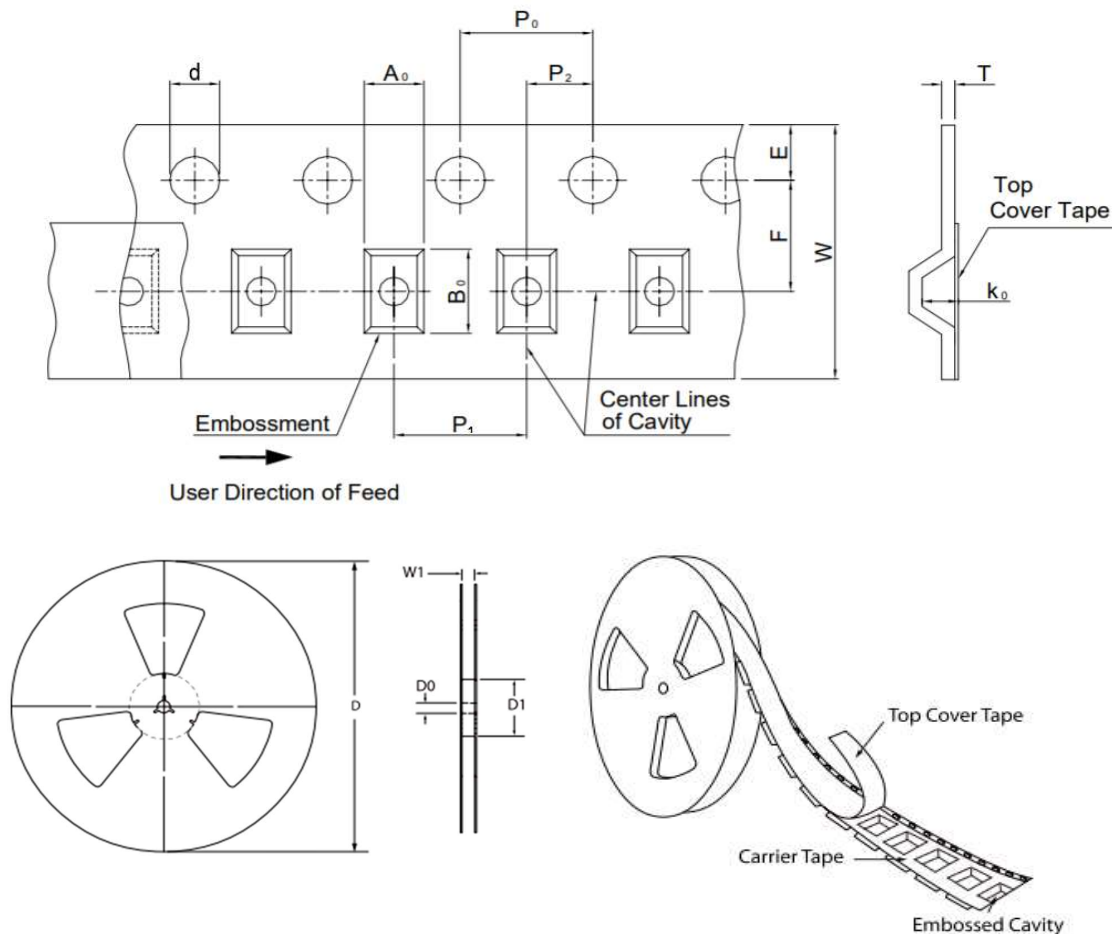
Fig.6 Static drain-source on-state resistance vs. Gate-source voltage



MMBT7002KWTH

N-Channel Enhancement Mode Field Effect Transistor

TAPE & REEL SPECIFICATION



Item	Symbol	SOT-523
Carrier width	A ₀	1.90 ± 0.10
Carrier length	B ₀	1.95 ± 0.10
Carrier depth	K ₀	1.10 ± 0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D ₀	13.00 ± 0.50
Reel inner diameter	D ₁	MIN. 50.00
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocket hole pitch	P ₀	4.00 ± 0.10
Punch hole pitch	P ₁	4.00 ± 0.10
Embossment center	P ₂	2.00 ± 0.10
Overall tape thickness	T	MAX. 0.60
Tape width	W	8.00 ± 0.30
Reel width	W ₁	MAX. 10.00

ORDER INFORMATION

Package	Reel Size	Quantity
SOT-523	7"	4,000

MARKING CODE

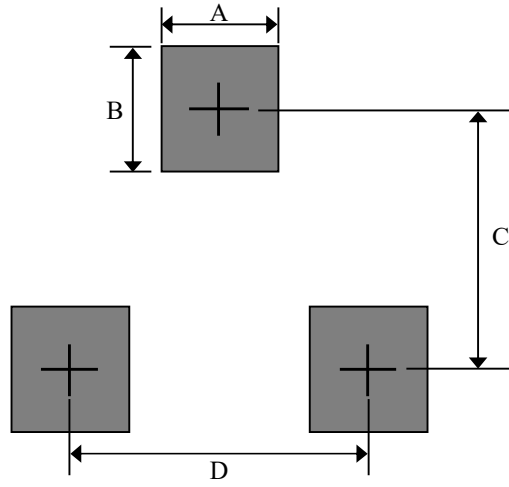
Part Number	Marking Code
MMBT7002KWTH	MP



MMBT7002KWT

N-Channel Enhancement Mode Field Effect Transistor

SUGGESTED SOLDER PAD LAYOUT



Unit : mm

PACKAGE	A	B	C	D
SOT-523	0.70	0.70	1.30	1.00