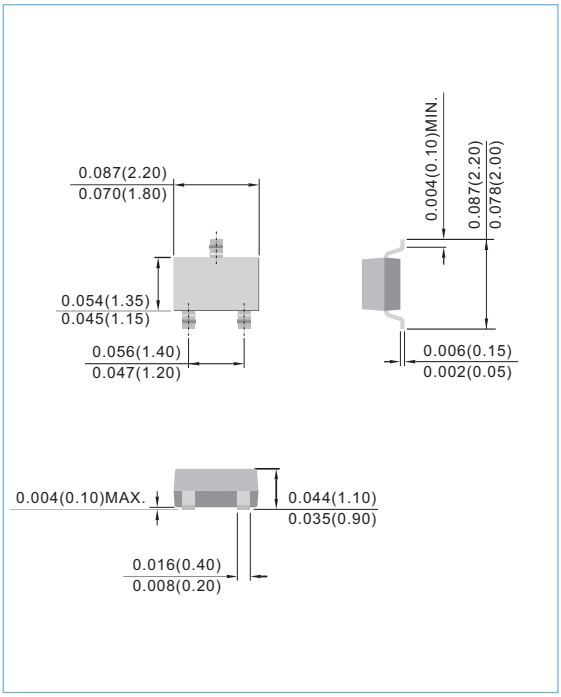
DATA SHEET

MMBT4401W

NPN GENERAL PURPOSE SWITCHING TRANSISTOR

VOLTAGE	40 Volts	POWER	225mW

SOT-323 Unit : inch(mm)



FEATURES

NPN epitaxial silicon, planar design

Collector-emitter voltage VCE = 40V

Collector current IC = 600mA

Lead free in comply with EU RoHS 2011/65/EU directives

Green molding compound as per IEC61249 Std. . (Halogen Free)

MECHANICAL DATA

Case: SOT-323

Terminals: Solderable per MIL-STD-750, Method 2026

Approx Weight: 0.0048 gram

Marking: M4A

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	Value	UNIT
Collector - Emitter Voltage	V_{CEO}	40	V
Collector - Base Voltage	V_{CBO}	60	V
Emitter – Base Voltage	V_{EBO}	6.0	V
Collector Current - Continuous	I_C	600	mA

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	Value	UNIT
Max Power Dissipation (Note 1)	P_{TOT}	225	mW
Storage Temperature	T_{STG}	-55 to 150	℃
Junction Temperature	T_J	-55 to 150	℃
Thermal Resistance , Junction to Ambient	$R_{\theta JA}$	556	℃/W

Note 1: Transistor mounted on FR-4 board 70 x 60 x 1mm.

ELECTRICAL CHARACTERISTICS (T_J = 25℃, unless otherwise noted)

PARAMETER	SYMBOL	Test Condition	MIN.	TYP.	MAX.	UNIT
Collector - Emitter Breakdown Voltage	$V_{(BR)}CEO$	I_C=1.0mA, I_B=0	40	-	-	V
Collector - Base Breakdown Voltage	$V_{(BR)}CBO$	I_C=100uA, I_E=0	60	-	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)}EBO$	I_E=100uA, I_C=0	6.0	-	-	V
Base Cutoff Current	I_{BL}	V_{CE}=35V, V_{EB}=0.4V	-	-	100	nA
Collector Cutoff Current	I_{CEX}	V_{CE}=35V, V_{EB}=0.4V	-	-	100	nA
DC Current Gain	h_{FE}	I_C=0.1mA, V_{CE}=1.0V I_C=1.0mA, V_{CE}=1.0V I_C=10mA, V_{CE}=1.0V I_C=150mA, V_{CE}=1.0V I_C=500mA, V_{CE}=2.0V	20 40 80 100 40	- - - - -	- - - 300 -	
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=150mA, I_B=15 mA I_C=500mA, I_B=50mA	- -	- -	0.4 0.75	V
Base - Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=150mA, I_B=15mA I_C=500mA, I_B=50mA	0.75 -	- -	0.95 1.2	V
Collector - Base Capacitance	C_{CBO}	V_{CB}=5V, I_E=0, f=1MHz	-	-	6.5	pF
Emitter - Base Capacitance	C_{EBO}	V_{CB}=0.5V, I_C=0, f=1MHz	-	-	30	pF
Current Gain – Bandwidth Product	F_T	I_C=20mA, V_{CE}=10V, f=100MHz	250	-	-	MHz
Delay Time	t_d	V_{CC}=30V, V_{BE}=2.0V, I_C=150mA, I_B=15mA	-	-	15	ns
Rise Time	t_r	V_{CC}=30V, V_{BE}=2.0V, I_C=150mA, I_{B1}=15mA	-	-	20	ns
Storage Time	t_s	V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA	-	-	225	ns
Fall Time	t_f	V_{CC}=3V, I_C=10mA, I_{B1}=I_{B2}=15mA	-	-	30	ns

ELECTRICAL CHARACTERISTICS CURVES

All Curves TBD

MOUNTING PAD LAYOUT

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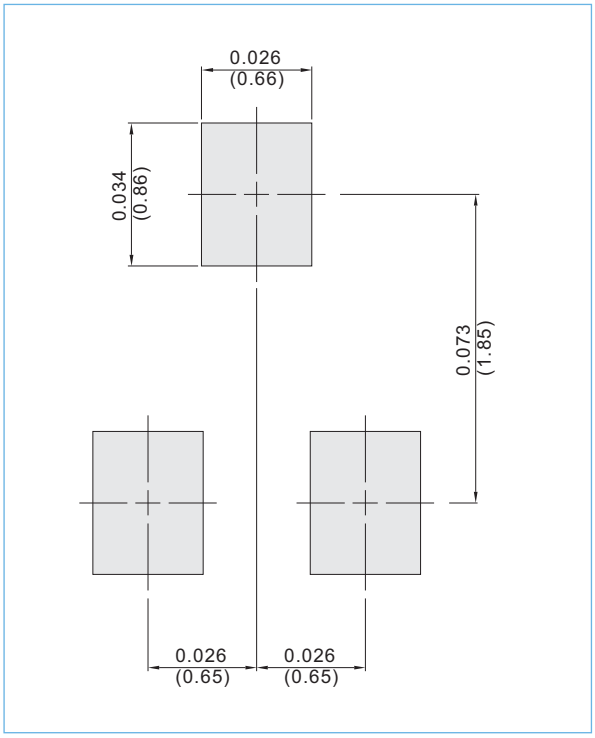

ORDER INFORMATION

- Packing information

  T/R - 12K per 13" plastic Reel

  T/R - 3K per 7” plastic Reel

Part No_packing code_Version

MMBT4401W_R1_00001

MMBT4401W_R2_00001

For example :

RB500V-40_R2_00001

Part No.

Serial number

Version code means HF

Packing size code means 13"

Packing type means T/R

Packing Code XX				Version Code XXXXX		
Packing type	1st Code	Packing size code	2nd Code	HF or RoHS	1st Code	2nd~5th Code
Tape and Ammunition Box (T/B)	A	N/A	0	HF	0	serial number
Tape and Reel (T/R)	R	7"	1	RoHS	1	serial number
Bulk Packing (B/P)	B	13"	2			
Tube Packing (T/P)	T	26mm	X			
Tape and Reel (Right Oriented) (TRR)	S	52mm	Y			
Tape and Reel (Left Oriented) (TRL)	L	PANASERT T/B CATHODE UP (PBCU)	U			
FORMING	F	PANASERT T/B CATHODE DOWN (PBCD)	D			

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