

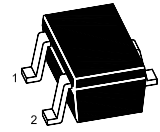
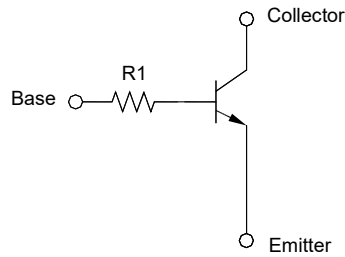
# MMDTC323W

## NPN Silicon Epitaxial Planar Transistor

For switching and interface circuit and drive circuit applications

### Features

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process



1.Base 2.Emitter 3.Collector  
SOT-323 Plastic Package

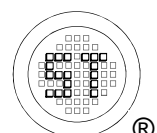
### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	30	V
Collector Emitter Voltage	$V_{CEO}$	15	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	600	mA
Power Dissipation	$P_{tot}$	200	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient <sup>1)</sup>	$R_{\theta JA}$	625	$^\circ\text{C/W}$

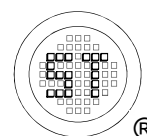
<sup>1)</sup> Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.



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## Characteristics at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 5\text{ V}$ , $I_C = 50\text{ mA}$	$h_{FE}$	100	-	600	-
Collector Base Cutoff Current at $V_{CB} = 20\text{ V}$	$I_{CBO}$	-	-	0.5	$\mu\text{A}$
Emitter Base Cutoff Current at $V_{EB} = 4\text{ V}$	$I_{EBO}$	-	-	0.5	$\mu\text{A}$
Collector Base Breakdown Voltage at $I_C = 50\text{ }\mu\text{A}$	$V_{(BR)CBO}$	30	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	15	-	-	V
Emitter Base Breakdown Voltage at $I_E = 50\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $I_C = 50\text{ mA}$ , $I_B = 2.5\text{ mA}$	$V_{CE(sat)}$	-	-	0.3	V
Input Resistor	$R_1$	1.64	2.2	2.86	$\text{K}\Omega$
Transition Frequency at $V_{CE} = 10\text{ V}$ , $-I_E = 50\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	-	200	-	MHz



## Electrical Characteristics Curves

Fig. 1  $h_{FE}$ , DC Current Gain vs. Collector Current

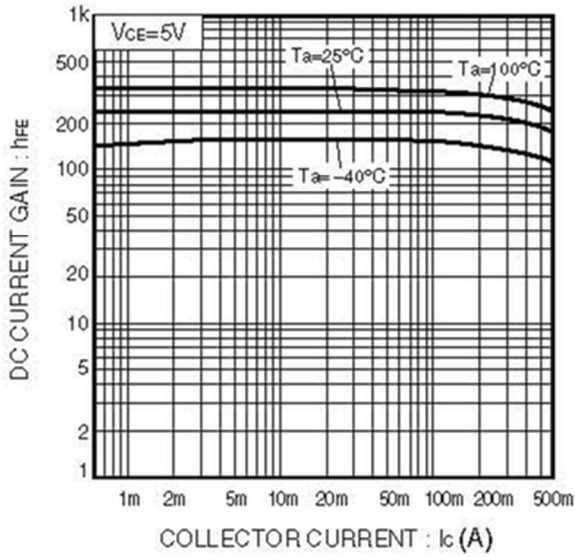


Fig. 2 Collector Current vs. Base to Emitter Voltage

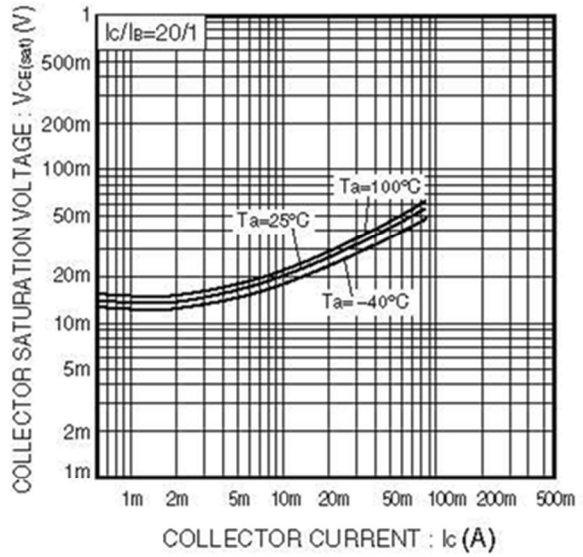
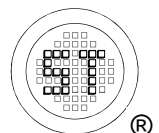
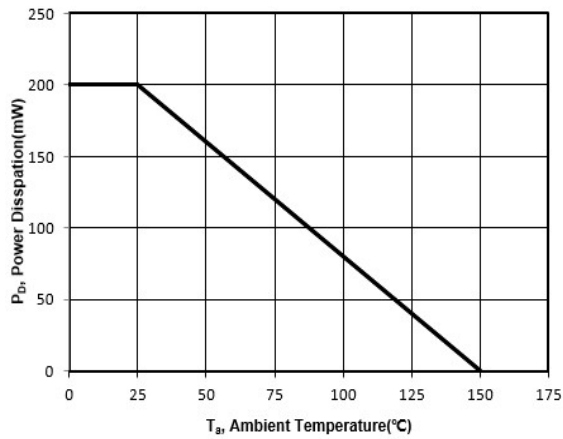


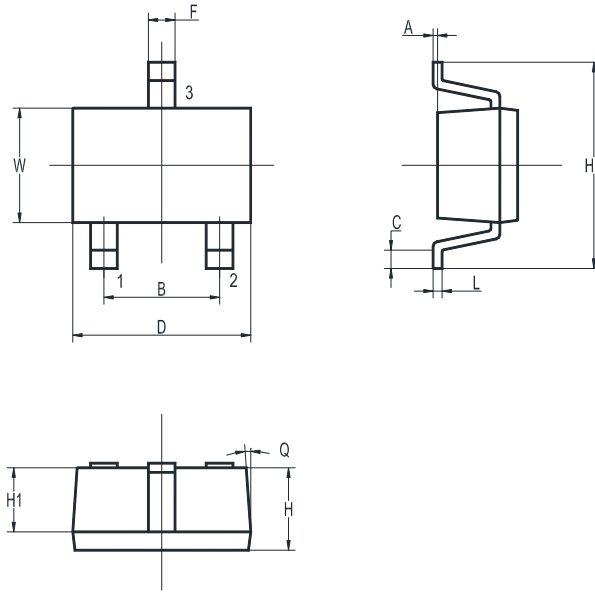
Fig. 3 Power Derating Curve



# MMDTC323W

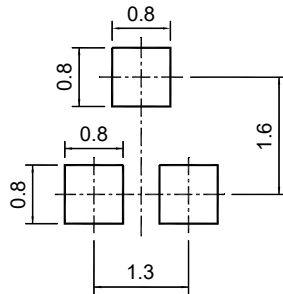
## PACKAGE OUTLINE(Dimensions in mm)

## SOT-323



UNIT	A	B	C	D	H	H1	HE	F	L	W	Q
mm	0.1 MAX.	1.3 1.2	0.2 MIN.	2.1 1.9	1.0 0.8	0.7 TYP.	2.4 2.0	0.35 0.25	0.15 0.05	1.35 1.15	5° MAX.

## Recommended Soldering Footprint



## Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-323	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000

## Marking information

" ZB " = Part No.

"YM" = Date Code Marking

"Y" = Year

"M" = Month

Font type: Arial

