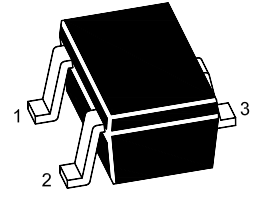
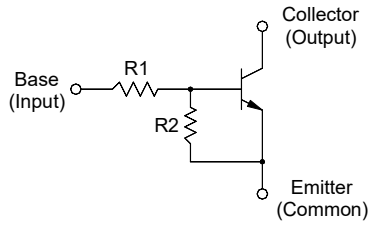


# MMDTC115W

## NPN Silicon Epitaxial Planar Digital Transistor



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

### Resistance Values

R1 (KΩ)	R2 (KΩ)
100	100

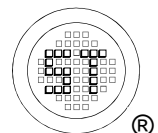
### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	50	V
Collector Emitter Voltage	$V_{CEO}$	50	V
Input Voltage	$V_{IN}$	- 10 to + 40	V
Collector Current	$I_C$	100	mA
Total 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	$^\circ\text{C/W}$

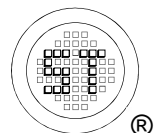
<sup>1)</sup> Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.



# MMDTC115W

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 10\text{ V}$ , $I_C = 5\text{ mA}$	$h_{FE}$	80	-	-	-
Collector Emitter Cutoff Current at $V_{CE} = 50\text{ V}$	$I_{CEO}$	-	-	500	nA
Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$	$I_{EBO}$	-	-	0.15	mA
Collector Emitter Saturation Voltage at $I_C = 5\text{ mA}$ , $I_B = 0.5\text{ mA}$	$V_{CEsat}$	-	-	0.1	V
Input Off Voltage at $V_{CE} = 5\text{ V}$ , $I_C = 100\text{ }\mu\text{A}$	$V_{I(off)}$	0.8	-	-	V
Input On Voltage at $V_{CE} = 0.3\text{ V}$ , $I_C = 1\text{ mA}$	$V_{I(on)}$	-	-	2.6	V
Transition Frequency at $V_{CE} = 10\text{ V}$ , $I_C = 5\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	-	250	-	MHz
Input Resistance	$R_1$	70	100	130	K $\Omega$
Resistance Ratio	$R_2/R_1$	0.8	1	1.2	-



## Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

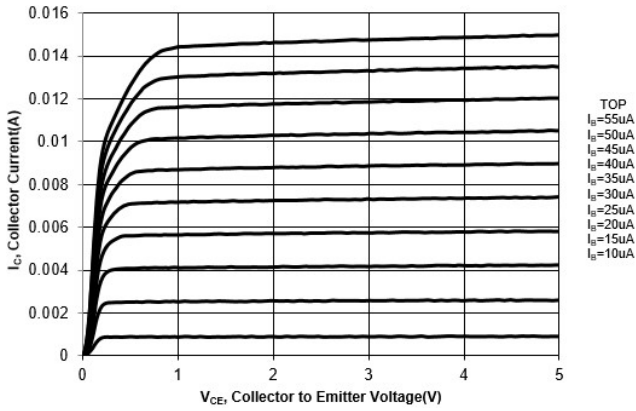


Fig. 2  $V_{I(ON)}$  vs. Collector Current

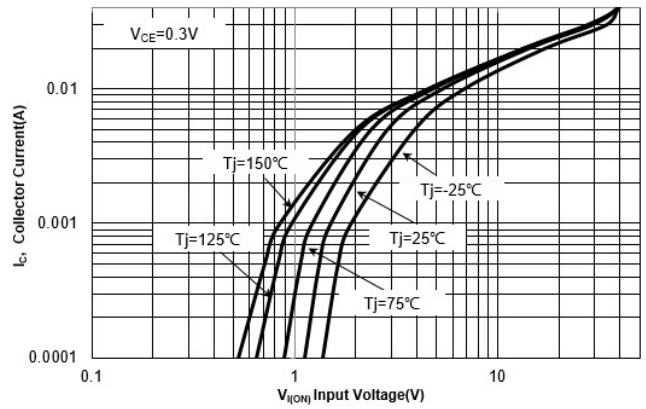


Fig. 3  $V_{I(off)}$  vs. Collector Current

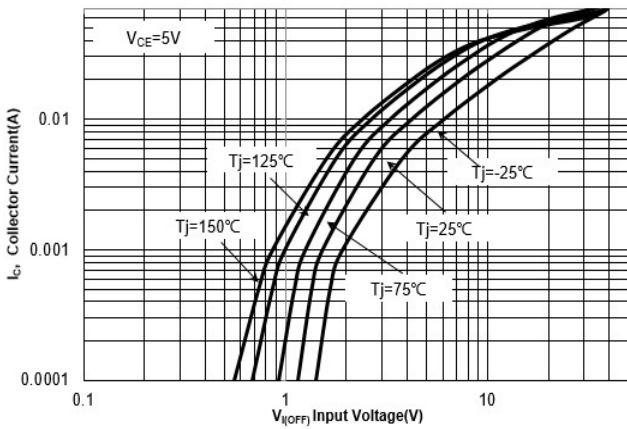


Fig. 4 DC Current Gain vs. Collector Current

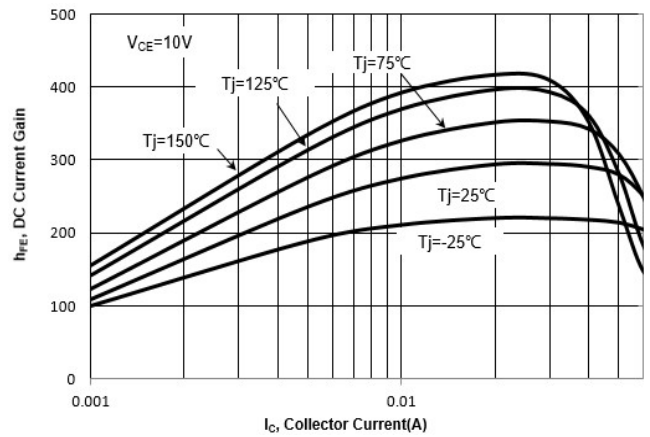


Fig. 5  $V_{CESAT}$  vs. Collector Current

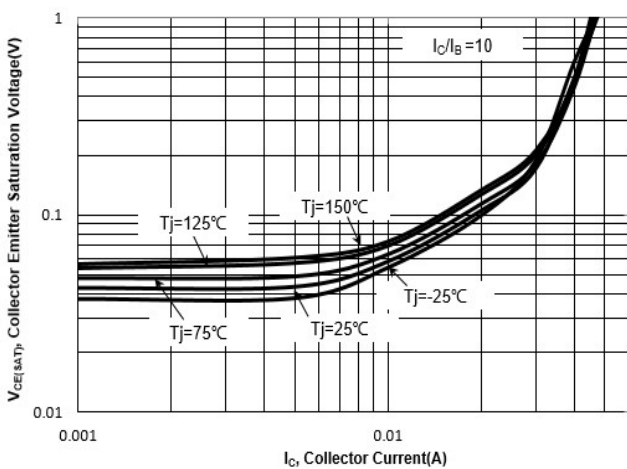
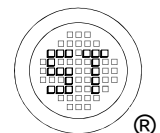
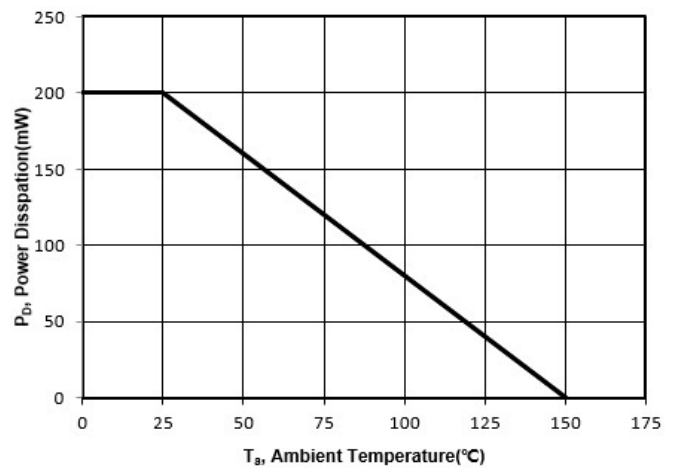


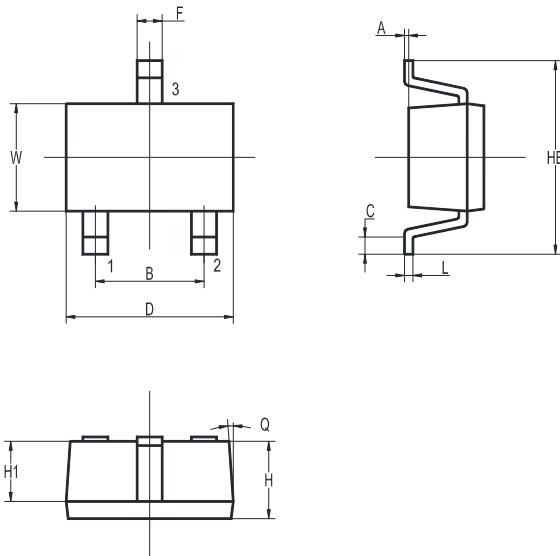
Fig. 6 Power Derating Curve



# MMDTC115W

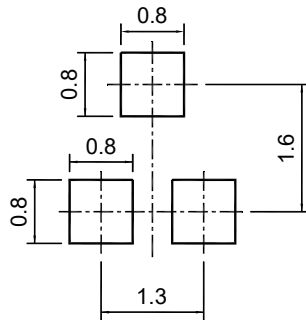
Package Outline Dimensions (Units: mm)

SOT-323



UNIT	A	B	C	D	H	H1	HE	F	L	W	Q
mm	0.1 MAX.	1.4 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

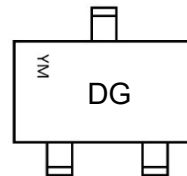


## Packing information

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

- " DG " = Part No.
  - " YM " = Date Code Marking
  - " Y " = Year
  - " M " = Month
- Font type: Arial



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