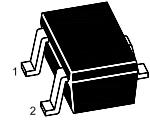


MMBTSC4097W-HAF

NPN Silicon Epitaxial Planar Transistor

Features

- Halogen and Antimony Free(HAF), RoHS compliant



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

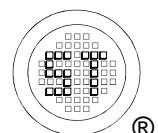
Absolute Maximum Ratings ($T_a = 25\text{ }^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	40	V
Collector Emitter Voltage	V_{CEO}	32	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	0.5	A
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 - Junction to Ambient ¹⁾	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$

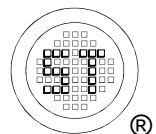
¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.



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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 3\text{ V}$, $I_C = 10\text{ mA}$	h _{FE} h _{FE}	120	-	270	-
Current Gain Group		180	-	390	-
Collector Base Cutoff Current at $V_{CB} = 20\text{ V}$	I _{CBO}	-	-	1	μA
Emitter Base Cutoff Current at $V_{EB} = 4\text{ V}$	I _{EBO}	-	-	1	μA
Collector Base Breakdown Voltage at $I_C = 100\text{ μA}$	V _{(BR)CBO}	40	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	V _{(BR)CEO}	32	-	-	V
Emitter Base Breakdown Voltage at $I_E = 100\text{ μA}$	V _{(BR)EBO}	5	-	-	V
Collector Emitter Saturation Voltage at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	V _{CE(sat)}	-	-	0.6	V
Transition Frequency at $V_{CE} = 5\text{ V}$, $-I_E = 20\text{ mA}$, $f = 100\text{ MHz}$	f _T	-	250	-	MHz
Output Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C _{ob}	-	6.5	-	pF



Electrical Characteristics Curves

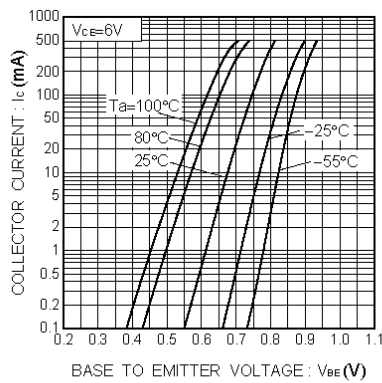


Fig.1 Grounded emitter propagation characteristics

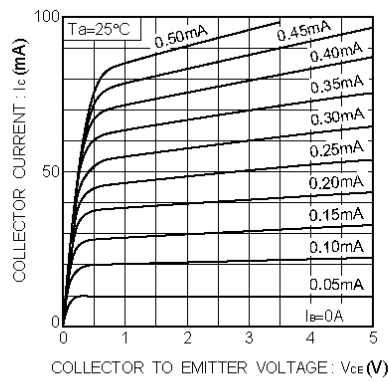


Fig.2 Grounded emitter output characteristics (I)

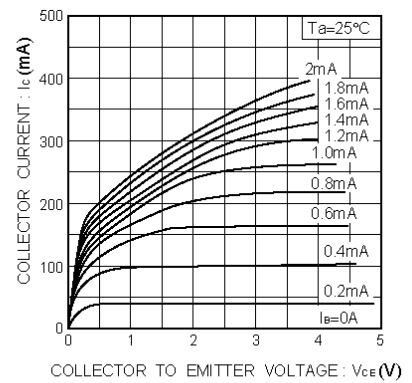


Fig.3 Grounded emitter output characteristics(II)

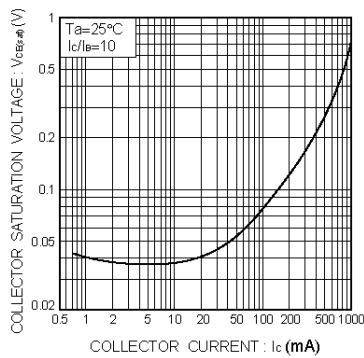


Fig.4 Collector-emitter saturation voltage vs. collector current

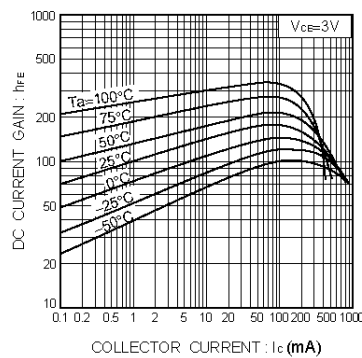


Fig.5 DC current gain vs. collector current

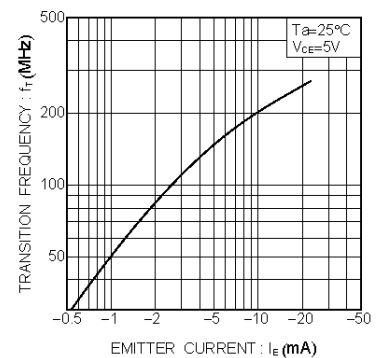


Fig.6 Gain bandwidth product vs. emitter current

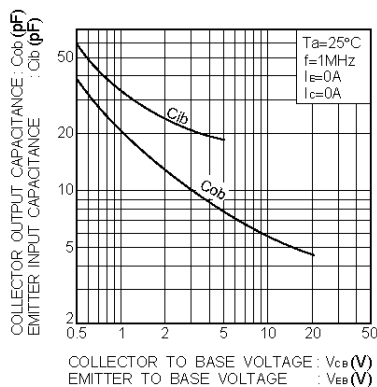
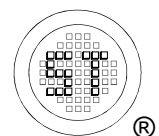


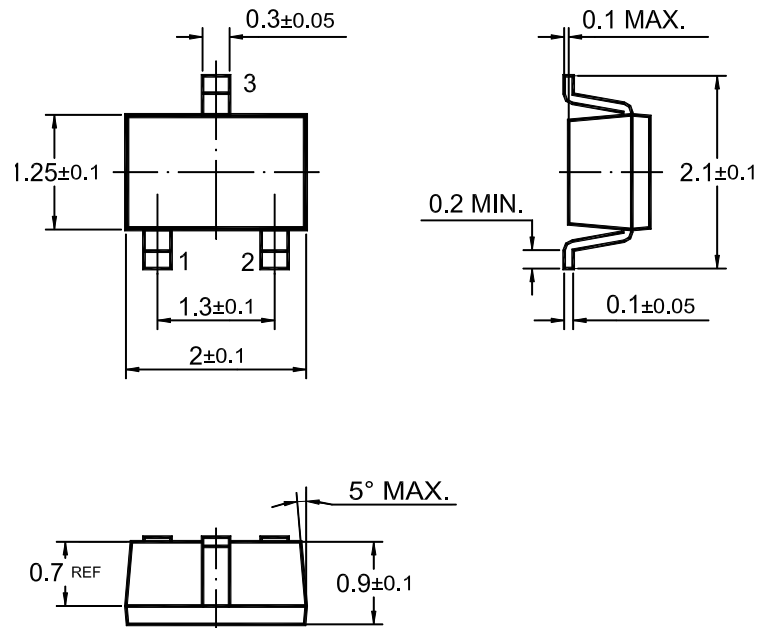
Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage



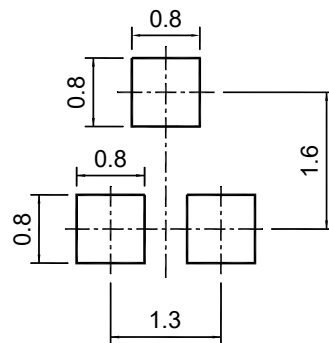
MMBTSC4097W-HAF

PACKAGE OUTLINE(Dimensions in mm)

SOT-323



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

" *** " = Part No.

" • " = HAF (Halogen and Antimony Free(HAF).

MMBTSC4097QW:D9C

MMBTSC4097RW:D9D

" YM " = Date Code Marking

" Y " = Year

" M " = Month

Font type: Arial

