

MMBTSC3875-HAF

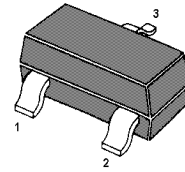
NPN Silicon Epitaxial Planar Transistor

Features

- Low Collector Emitter Saturation Voltage
- Halogen and Antimony Free(HAF), RoHS compliant

Applications

- Switching
- AF Amplifier



1. Base 2. Emitter 3. Collector
TO-236 Plastic Package

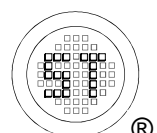
Absolute Maximum Ratings ($T_a = 25\text{ }^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CB0}	60	V
Collector Emitter Voltage	V_{CEO}	50	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	150	mA
Base Current	I_B	30	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 ¹⁾	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$

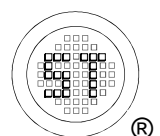
¹⁾ Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.



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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 6\text{ V}$, $I_C = 2\text{ mA}$ Current Gain Group	O	70	-	140	-
	Y	120	-	240	-
	G	200	-	400	-
	L	300	-	700	-
Collector Base Cutoff Current at $V_{CB} = 60\text{ V}$	I_{CBO}	-	-	100	nA
Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$	I_{EBO}	-	-	100	nA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	60	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	50	-	-	V
Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	-	V
Collector Emitter Saturation Voltage at $I_C = 100\text{ mA}$, $I_B = 10\text{ mA}$	$V_{CE(sat)}$	-	-	0.25	V
Transition Frequency at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$	f_T	80	-	-	MHz
Collector Output Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	2	3.5	pF



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Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

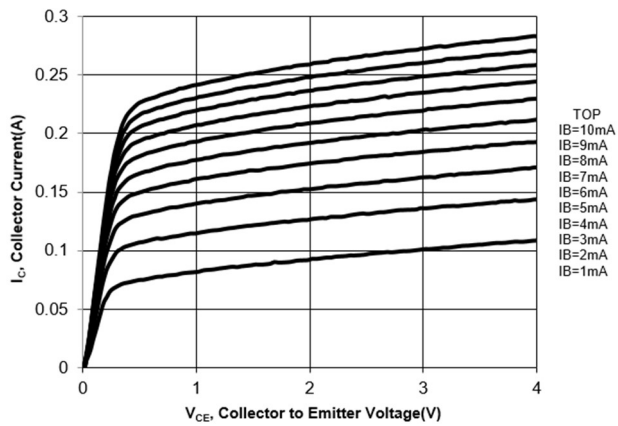


Fig. 3 h_{FE} vs. Collector Current

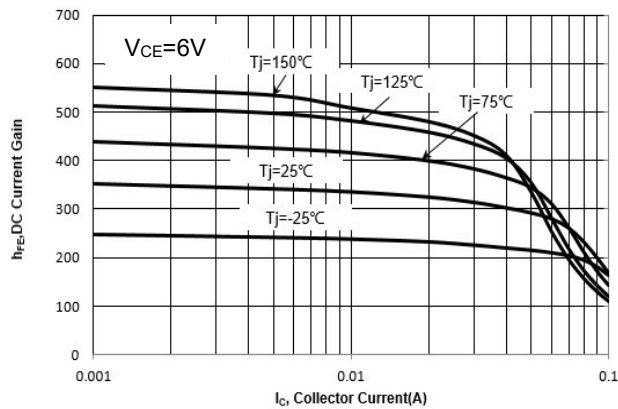


Fig. 5 $V_{CE(sat)}$ vs. Collector Current

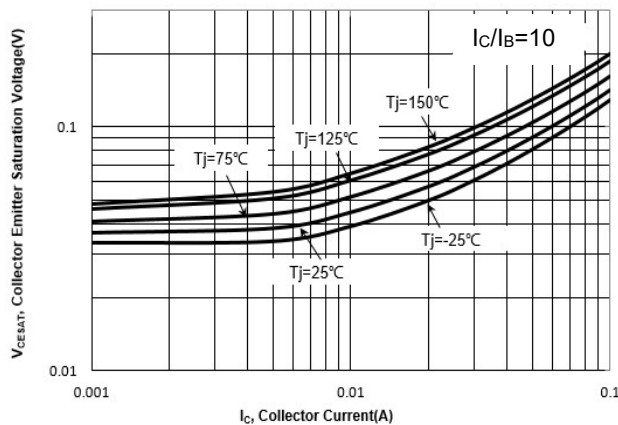


Fig. 2 Collector Current vs. V_{BE}

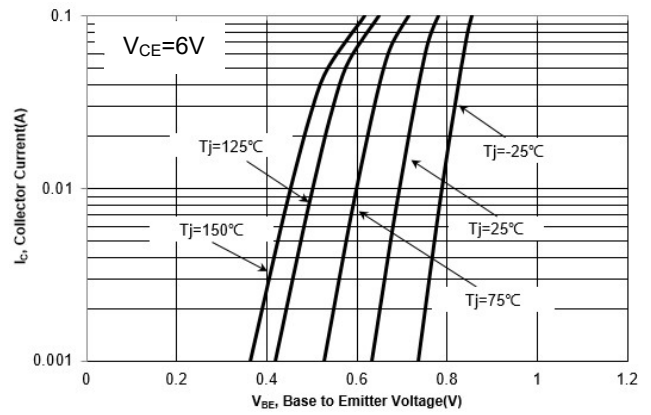


Fig. 4 $V_{BE(sat)}$ vs. Collector Current

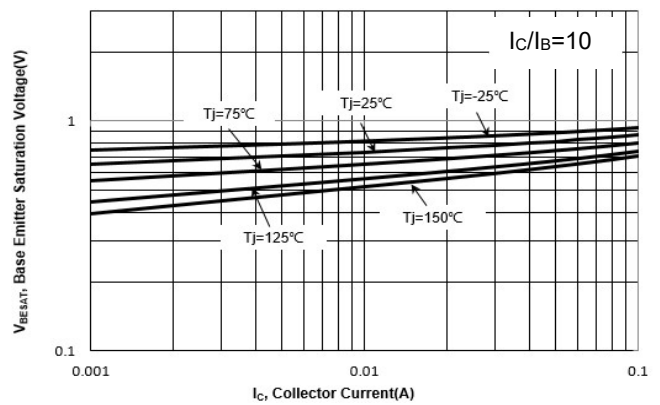
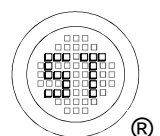
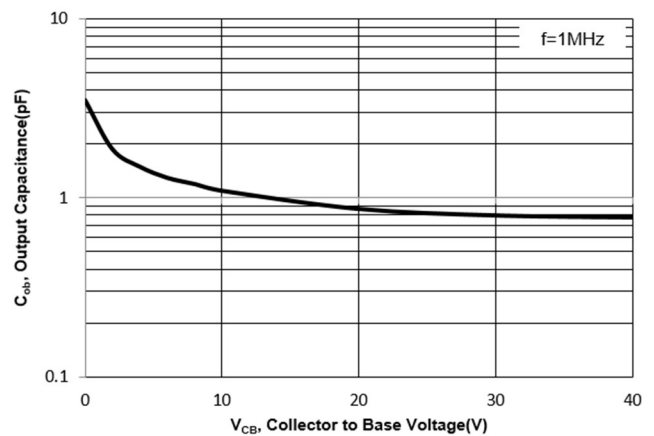


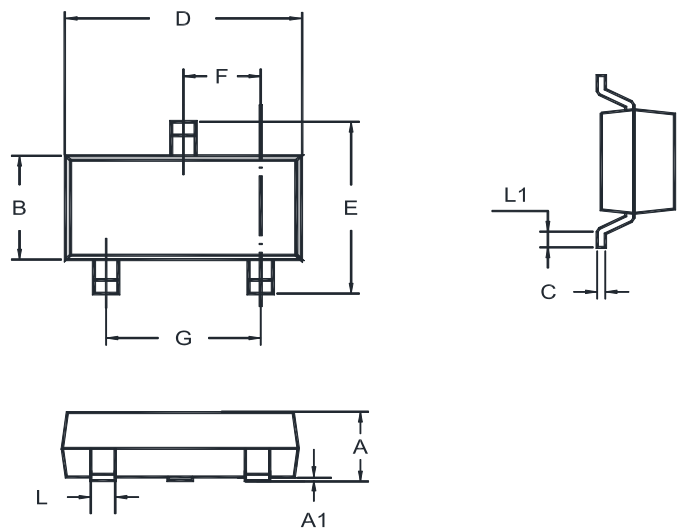
Fig. 6. Output Capacitance



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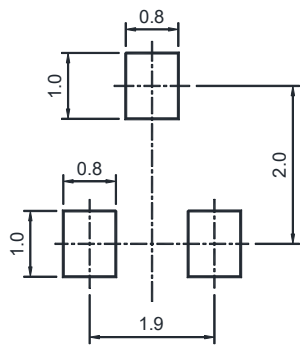
Package Outline (Dimensions in mm)

TO-236



Unit	A	A1	B	C	D	E	F	G	L	L1
mm	1.20	0.100	1.40	0.19	3.04	2.6	1.02	2.04	0.51	0.2
	0.89	0.013	1.20	0.08	2.80	2.2	0.89	1.78	0.37	MIN

Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
TO-236	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000

Marking information

" ** " = Part No.

MMBTSC3875O:2E

MMBTSC3875Y:1E

MMBTSC3875G:1F

MMBTSC3875L:1G

" • " = HAF (Halogen and Antimony Free)

" YM " = Date Code Marking

" Y " = Year

" M " = Month

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