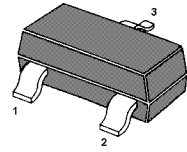


MMBT5240-HAF

PNP Silicon Epitaxial Planar Transistor

Features

- Halogen and Antimony Free(HAF), RoHS compliant



1. Base 2. Emitter 3. Collector
SOT-23 Plastic Package

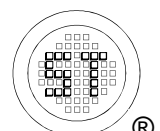
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	40	V
Collector Emitter Voltage	$-V_{CEO}$	40	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	2	A
Peak Collector Current	$-I_{CM}$	3	A
Peak Base Current	$-I_{BM}$	300	mA
Power Dissipation	P_{tot}	300	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 65 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient ¹⁾	$R_{\theta JA}$	417	$^\circ\text{C/W}$

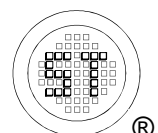
¹⁾ Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.



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

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE} = 2\text{ V}$, $-I_C = 100\text{ mA}$	h_{FE}	300	-	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 500\text{ mA}$	h_{FE}	260	-	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 1\text{ A}$	h_{FE}	210	-	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 2\text{ A}$	h_{FE}	100	-	-
Collector Base Cutoff Current at $-V_{CB} = 30\text{ V}$	$-I_{CBO}$	-	100	nA
Emitter Base Cutoff Current at $-V_{EB} = 4\text{ V}$	$-I_{EBO}$	-	100	nA
Collector Emitter Saturation Voltage at $-I_C = 100\text{ mA}$, $-I_B = 1\text{ mA}$	$-V_{CE(sat)}$	-	100	mV
at $-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$		-	110	
at $-I_C = 750\text{ mA}$, $-I_B = 15\text{ mA}$		-	225	
at $-I_C = 1\text{ A}$, $-I_B = 50\text{ mA}$		-	225	
at $-I_C = 2\text{ A}$, $-I_B = 200\text{ mA}$		-	350	
Base Emitter Saturation Voltage at $-I_C = 2\text{ A}$, $-I_B = 200\text{ mA}$	$-V_{BE(sat)}$	-	1.1	V
Base Emitter Turn-on Voltage at $-V_{CE} = 2\text{ V}$, $-I_C = 100\text{ mA}$	$-V_{BE(on)}$	-	0.75	V
Transition Frequency at $-V_{CE} = 10\text{ V}$, $-I_C = 100\text{ mA}$, $f = 100\text{ MHz}$	f_T	100	-	MHz
Output Capacitance at $-V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	35	pF



MMBT5240-HAF

Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

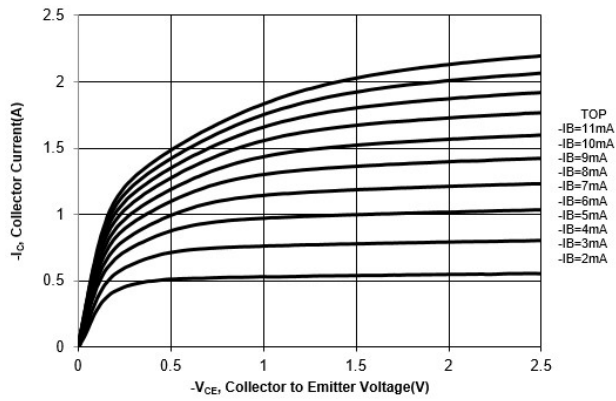


Fig. 2 Output Characteristics Curve

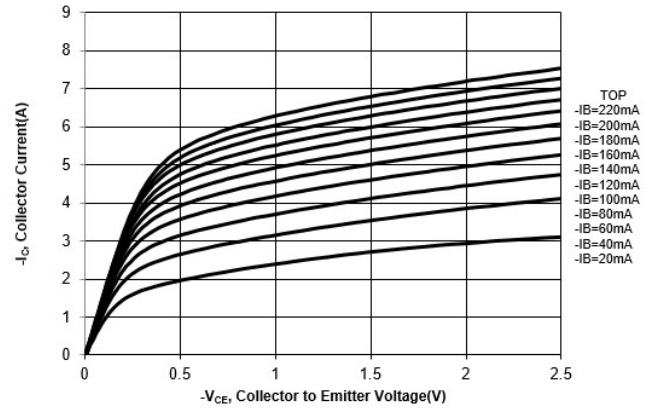


Fig. 3 Base to Emitter Voltage vs. Collector Current

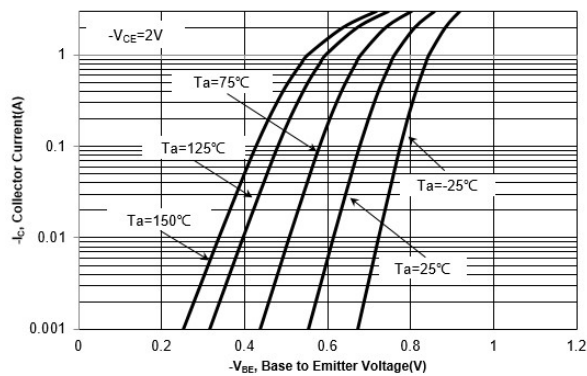
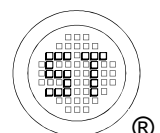
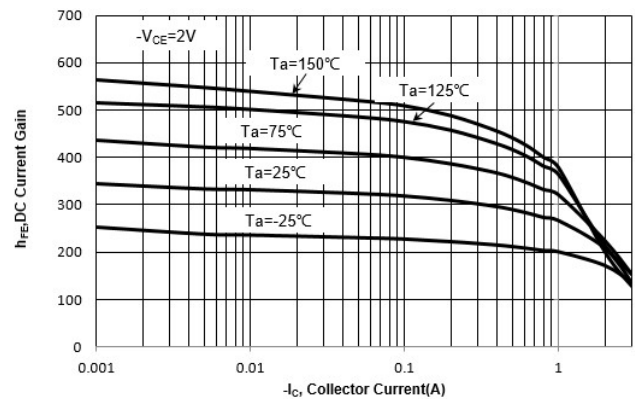


Fig. 4 $h_{FE,DC}$ Current Gain vs. Collector Current



Electrical Characteristics Curves

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

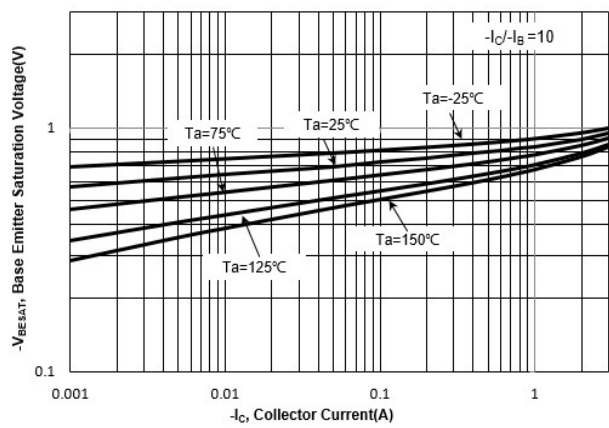


Fig. 6 $V_{CE(sat)}$ vs. Collector Current

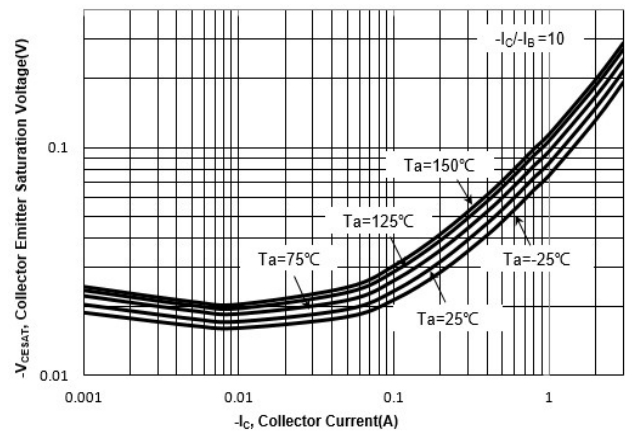


Fig. 7 Junction Capacitance

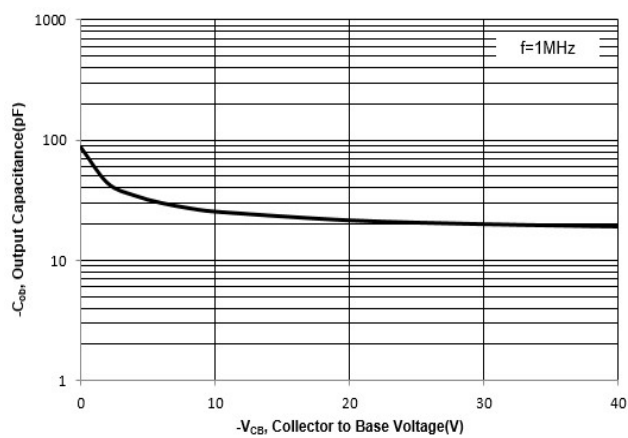
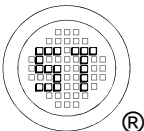
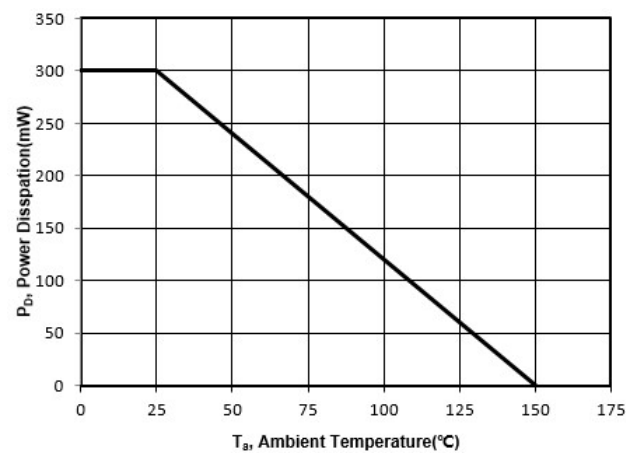


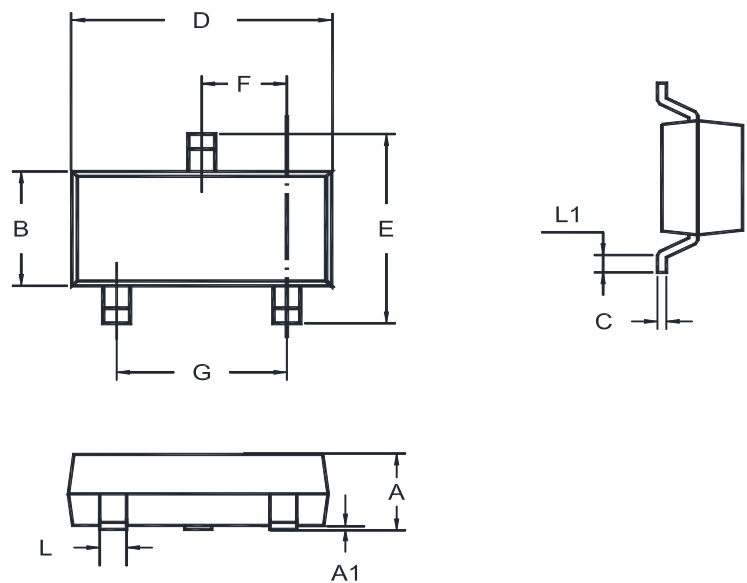
Fig. 8 Power Derating Curve



MMBT5240-HAF

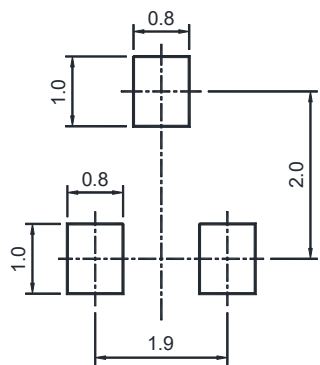
Package Outline (Dimensions in mm)

SOT-23



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	
SOT-23	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000

Marking information

" 5L " = Part No.
" . " = HAF (Halogen and Antimony Free)
"YM" = Date Code Marking
"Y" = Year
"M" = Month
Font type: Arial

