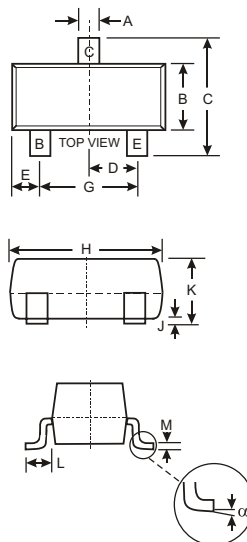


Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (MMBT5401)
- Ideal for Low Power Amplification and Switching
- Marking Code:G1



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Rating	Symbol	Max	Unit
Collector-Emitter Voltage	V_{CEO}	160	V
Collector-Base Voltage	V_{CBO}	180	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	600	mAdc

• THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,(1) $T_A = 25^\circ\text{C}$ Derate above 25°C	PD	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance,Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate,(2) $T_A = 25^\circ\text{C}$ Derate above 25°C	PD	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance,Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction and Storage Temperature	T_j, T_{stg}	-55 to +150	$^\circ\text{C}$

1. FR-5 = 1.0 x 0.75 x 0.062 in.

2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector-Emitter Breakdown Voltage ($I_C = 1.0\text{ mA}$, $I_B = 0$)	$V_{(BR)CEO}$	160	-	-	V
Collector-Base Breakdown voltage ($I_C = 100\mu\text{A}$, $I_E = 0$)	$V_{(BR)CBO}$	180	-	-	V
Emitter-Base Breakdown Voltage ($I_E = 10\mu\text{A}$, $I_C = 0$)	$V_{(BR)EBO}$	6	-	-	V
Collector Cutoff Current ($V_{CB} = 120\text{ V}$, $I_E = 0$) ($V_{CB} = 120\text{ V}$, $I_E = 0$, $T_A = 100^\circ\text{C}$)	I_{CBO}	-	-	50 50	nA μA
Emitter Cutoff Current ($V_{EB} = 4.0\text{ V}$, $I_C = 0$)	I_{EBO}	-	-	50	nA

ON CHARACTERISTICS

DC Current Gain ($I_C = 1.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$) ($I_C = 10\text{ mA}$, $V_{CE} = 5.0\text{ V}$) ($I_C = 50\text{ mA}$, $V_{CE} = 5.0\text{ V}$)	h_{FE}	80 100 30	- - -	- 300 -	
Collector-Emitter Saturation Voltage ($I_C = 10\text{ mA}$, $I_B = 1.0\text{ mA}$) ($I_C = 50\text{ mA}$, $I_B = 5.0\text{ mA}$)	$V_{CE(S)}$	- -	- -	0.15 0.2	V
Base-Emitter Saturation Voltage ($I_C = 10\text{ mA}$, $I_B = 1.0\text{ mA}$) ($I_C = 50\text{ mA}$, $I_B = 5.0\text{ mA}$)	$V_{BE(S)}$	- -	- -	1 1	V
Collector-base Output Capacitance $V_{CB} = -10\text{ V}$, $f = 1\text{ MHz}$, $I_E = 0$	C_{CBO}	-	-	6	pF
Current-Gain—Bandwidth Product $I_C = -10\text{ mA}$, $V_{CE} = 10\text{ V}$, $f = 100\text{ MHz}$	f_T	100	-	300	MHz

3. Pulse Test: Pulse Width = 300 μs , Duty Cycle = 2.0%.

CLASSIFICATION OF h_{FE}

Rank	L	H
Range	100-200	200-300

TYPICAL TRANSIENT CHARACTERISTICS

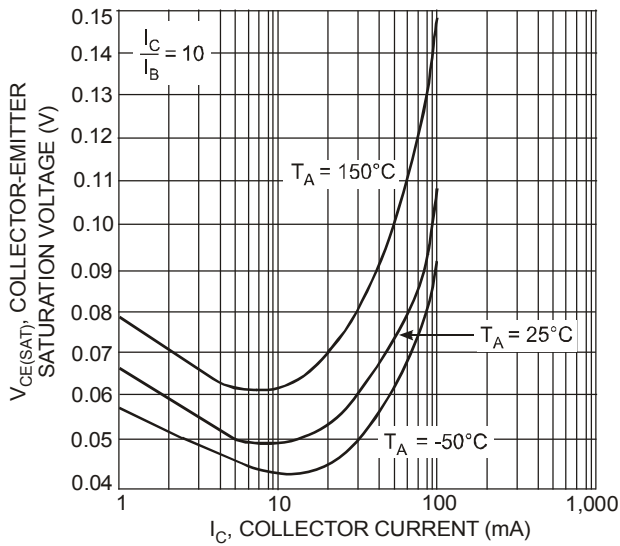


Fig. 1 Typical Collector-Emitter Saturation Voltage vs. Collector Current

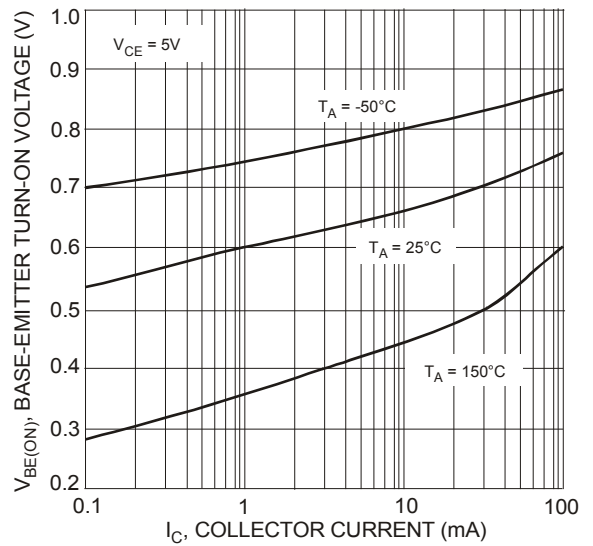


Fig. 2 Typical Base-Emitter Turn-On Voltage vs. Collector Current

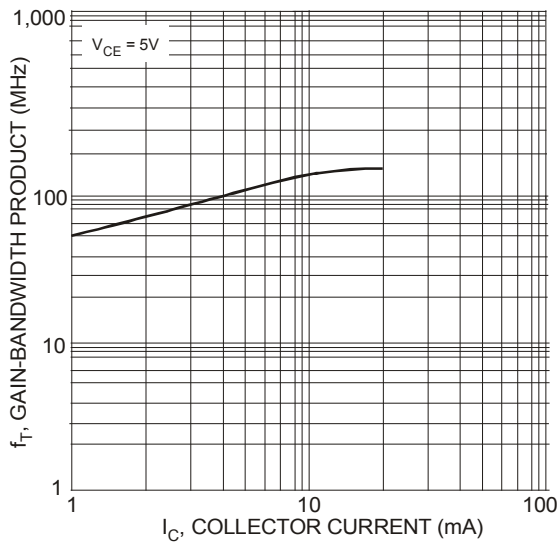


Fig. 3 Typical Gain-Bandwidth Product vs. Collector Current

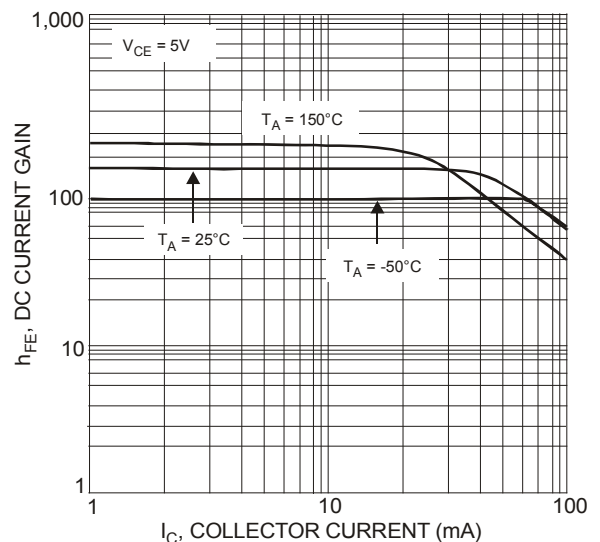


Fig. 4 Typical DC Current Gain vs. Collector Current

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