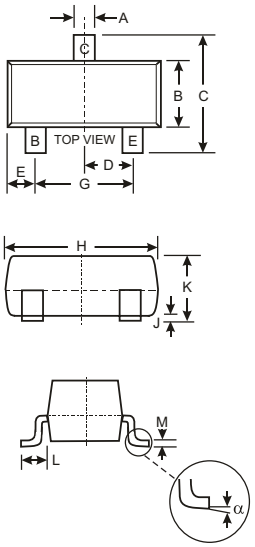
HAICHUANG SEMI

MMBTA42

NPN SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

- Epitaxial Planar Die Construction.
- Complementary PNP Type Available(MMBTA92).
- Ideal for Low Power Amplification and Switching.
- Marking Code:1D



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°C unless otherwise specified

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	300	V
Collector Emitter Voltage	V_{CEO}	300	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	500	mA
Power Dissipation	P_d	300	mW
Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{Stg}	- 55 to + 150	°C

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at V_{CE} = 10 V, I_C = 1 mA at V_{CE} = 10 V, I_C = 10 mA at V_{CE} = 10 V, I_C = 30 mA	 h_{FE} h_{FE} h_{FE}	 40 100 40	 - 200 -	 - - -
Collector Base Cutoff Current at V_{CB} = 200 V	I_{CBO}	-	0.1	µA
Emitter Base Cutoff Current at V_{EB} = 6 V	I_{EBO}	-	0.1	µA
Collector Base Breakdown Voltage at I_C = 100 µA	$V_{(BR)CBO}$	300	-	V
Collector Emitter Breakdown Voltage at I_C = 1 mA	$V_{(BR)CEO}$	300	-	V
Emitter Base Breakdown Voltage at I_E = 100 µA	$V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage at I_C = 20 mA, I_B = 2 mA	$V_{CE(sat)}$	-	0.5	V
Base Emitter Saturation Voltage at I_C = 20 mA, I_B = 2 mA	$V_{BE(sat)}$	-	0.9	V
Gain Bandwidth Product at V_{CE} = 20 V, I_C = 10 mA, f = 100 MHz	f_T	50	-	MHz
Collector Output Capacitance at V_{CB} = 20 V, f = 1 MHz	C_{ob}	-	3	pF

TYPICAL TRANSIENT CHARACTERISTICS

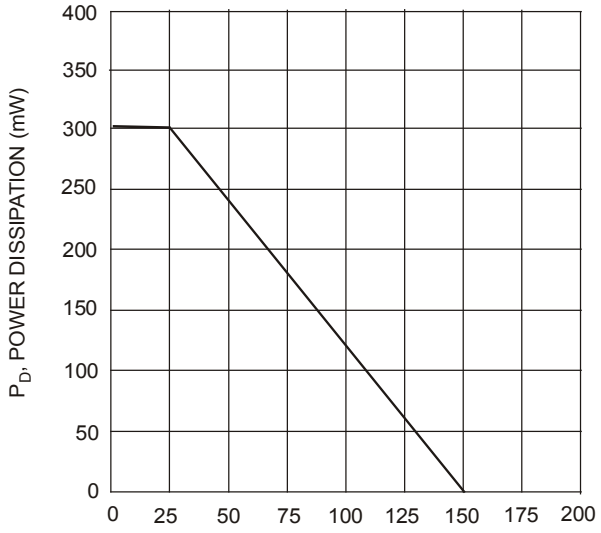


Fig. 1, Max Power Dissipation vs Ambient Temperature

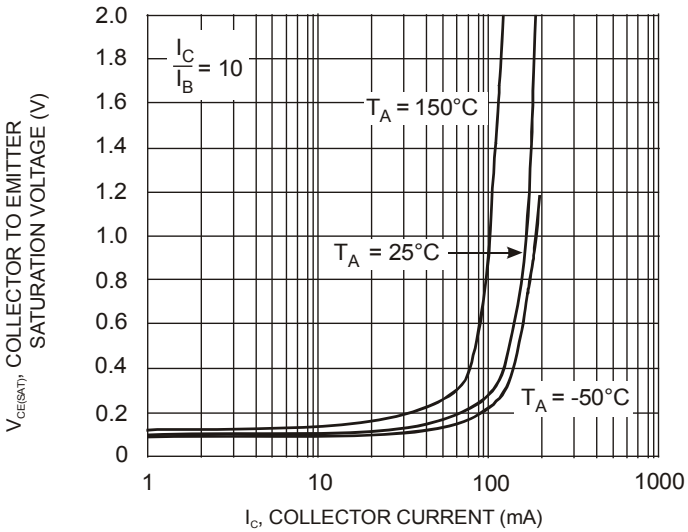


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

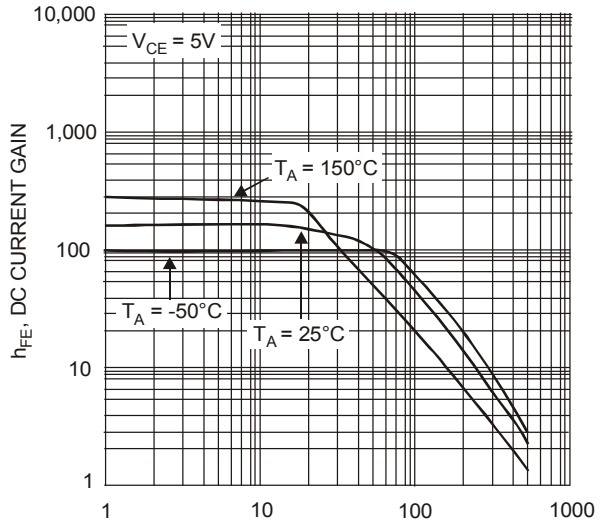


Fig. 3, DC Current Gain vs Collector Current

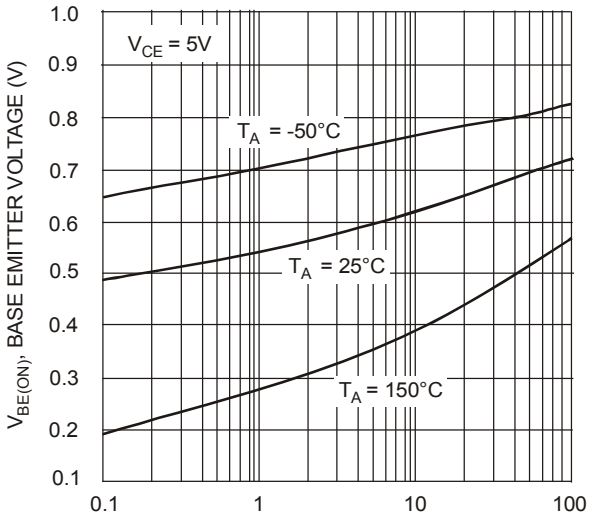


Fig. 4, Base Emitter Voltage vs Collector Current

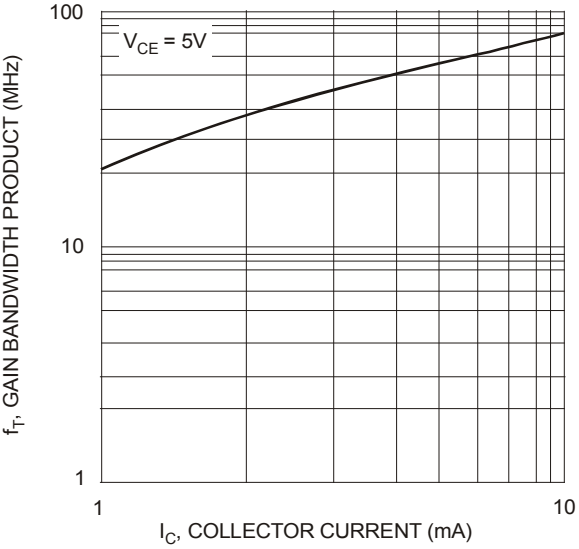


Fig. 5, Gain Bandwidth Product vs Collector Current

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