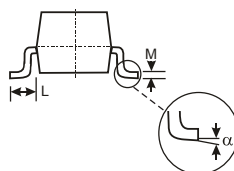
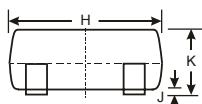
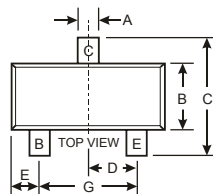


Features

- Epitaxial Planar Die Construction.
- Complementary NPN Type Available(MMBT4401).
- Ideal for Medium Power Amplification and Switching.
- Marking Code:2T



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

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	600	mA
Power Dissipation	P_d	300	mW
Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{Stg}	- 55 to + 150	$^\circ\text{C}$

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

Parameter	mbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100 \mu\text{A}, I_E = 0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, I_B = 0$	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100 \mu\text{A}, I_C = 0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB} = -35\text{V}, I_E = 0$			-0.1	μA
Collector cut-off current	I_{CEX}	$V_{CE} = -35\text{V}, V_{BE} = 0.4\text{V}$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -4\text{V}, I_C = 0$			-0.1	μA
DC current gain	h_{FE1}	$V_{CE} = -1\text{V}, I_C = -0.1\text{mA}$	30			
	h_{FE2}	$V_{CE} = -1\text{V}, I_C = -1\text{mA}$	60			
	h_{FE3}	$V_{CE} = -1\text{V}, I_C = -10\text{mA}$	100			
	h_{FE4}	$V_{CE} = -2\text{V}, I_C = -150\text{mA}$	100		300	
	h_{FE5}	$V_{CE} = -2\text{V}, I_C = -500\text{mA}$	20			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -150\text{mA}, I_B = -15\text{mA}$			-0.4	V
		$I_C = -500\text{mA}, I_B = -50\text{mA}$			-0.75	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -150\text{mA}, I_B = -15\text{mA}$			-0.95	V
		$I_C = -500\text{mA}, I_B = -50\text{mA}$			-1.3	V
Transition frequency	f_T	$V_{CE} = -10\text{V}, I_C = -20\text{mA}, f = 100\text{MHz}$	200			MHz
Delay time	t_d	$V_{CC} = -30\text{V}, V_{BE(off)} = -0.5\text{V}$			15	ns
Rise time	t_r	$I_C = -150\text{mA}, I_{B1} = -15\text{mA}$			20	ns
Storage time	t_s	$V_{CC} = -30\text{V}, I_C = -150\text{mA}$			225	ns
Fall time	t_f	$I_{B1} = I_{B2} = -15\text{mA}$			30	ns

TYPICAL TRANSIENT CHARACTERISTICS

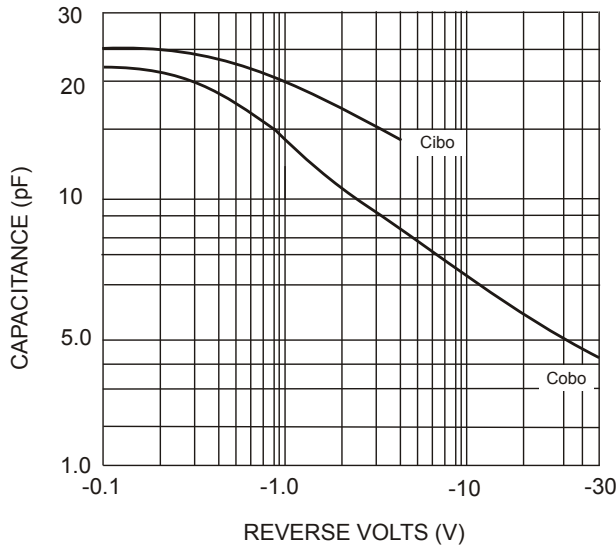


Fig. 1 Typical Capacitance

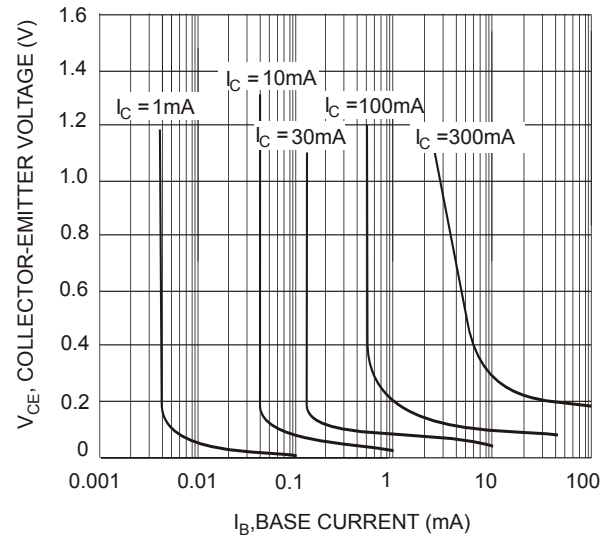


Fig. 2 Typical Collector Saturation Region

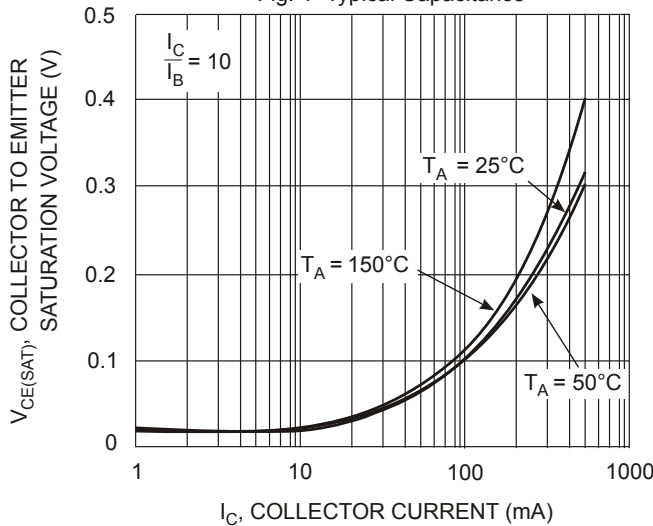


Fig. 3 Collector Emitter Saturation Voltage vs. Collector Current

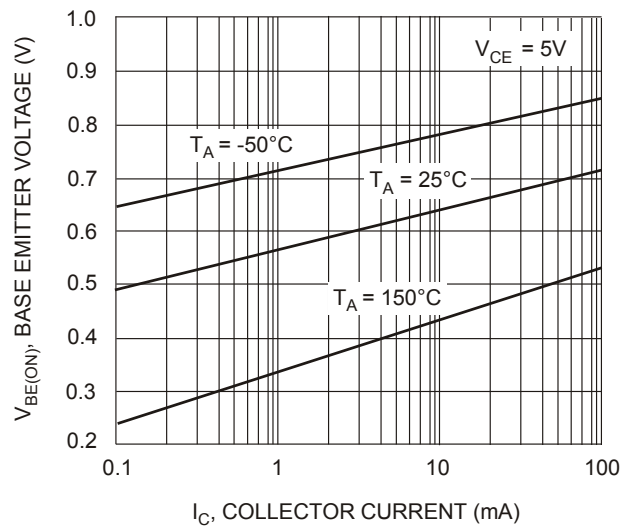


Fig. 4 Base-Emitter Voltage vs. Collector Current

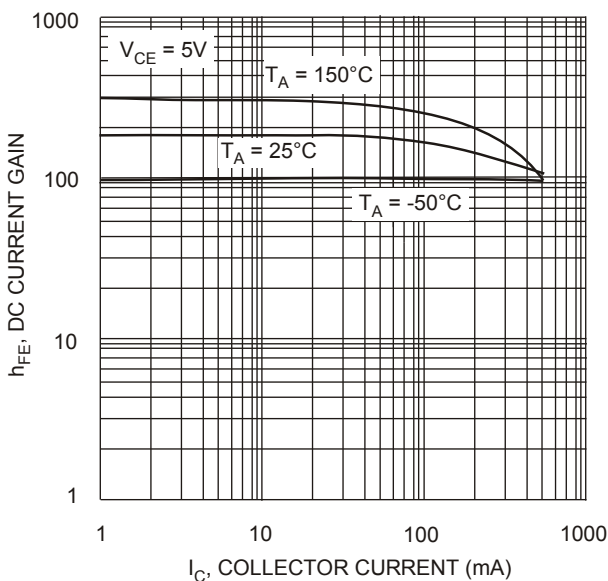


Fig. 5 DC Current Gain vs. Collector Current

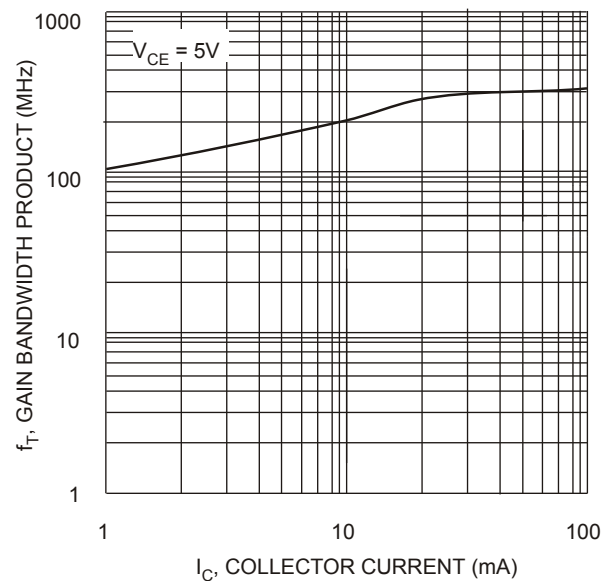


Fig. 6 Gain Bandwidth Product vs. Collector Current

IMPORTANT NOTICE

HC-SEMI reserves the right to make changes without further notice to any products herein.

HC-SEMI makes no warranty, representation or guarantee regarding

The suitability of its products for any particular purpose, nor does HC-SEMI assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages.

“Typical” parameters can and do vary in different applications. All operating parameters, including “Typicals” must be validated for each customer application by customer’s technical experts.

HC-SEMI products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the HC-SEMI product could create a situation where personal injury or death may occur.

Should Buyer purchase or use HC-SEMI products for any such unintended or unauthorized application, Buyer shall indemnify and hold HC-SEMI and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that HC-SEMI was negligent regarding the design or manufacture of the part.