MMBTA05 / MMBTA06

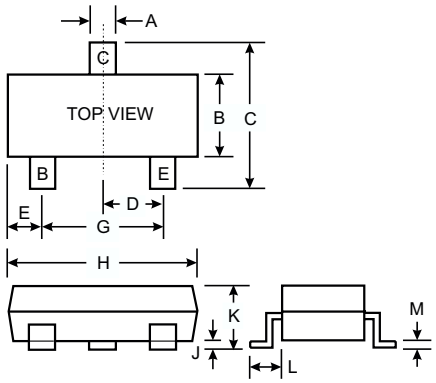
NPN SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Complementary PNP Types Available (MMBTA55 / MMBTA56)
- Ideal for Medium Power Amplification and Switching

Mechanical Data

- Case: SOT-23, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- MMBTA05 Marking: K1G, K1H, R1H
- MMBTA06 Marking: K1G, R1G
- Weight: 0.008 grams (approx.)



SOT-23		
Dim	**Min**	**Max**
A	0.37	0.51
B	1.19	1.40
C	2.10	2.50
D	0.89	1.05
E	0.45	0.61
G	1.78	2.05
H	2.65	3.05
J	0.013	0.15
K	0.89	1.10
L	0.45	0.61
M	0.076	0.178
All Dimensions in mm		

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	MMBTA05	MMBTA06	Unit
Collector-Base Voltage	V_{CBO}	60	80	V
Collector-Emitter Voltage	V_{CEO}	60	80	V
Emitter-Base Voltage	V_{EBO}	4.0		V
Collector Current - Continuous (Note 1)	I_C	500		mA
Power Dissipation (Note 1)	P_d	350		mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	357		K/W
Operating and Storage and Temperature Range	T_j, T_{STG}	-55 to +150		°C

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic		Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)						
Collector-Base Breakdown Voltage	MMBTA05 MMBTA06	$V_{(BR)CBO}$	60 80	—	V	I_C = 100μA, I_E = 0
Collector-Emitter Breakdown Voltage	MMBTA05 MMBTA06	$V_{(BR)CEO}$	60 80	—	V	I_C = 1.0mA, I_B = 0
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	4.0	—	V	I_E = 100μA, I_C = 0
Collector Cutoff Current	MMBTA05 MMBTA06	I_{CBO}	—	100	nA	V_{CB} = 60V, I_E = 0 V_{CB} = 80V, I_E = 0
Collector Cutoff Current	MMBTA05 MMBTA06	I_{CES}	—	100	nA	V_{CE} = 60V, I_{BO} = 0V V_{CE} = 80V, I_{BO} = 0V
ON CHARACTERISTICS (Note 2)						
DC Current Gain		h_{FE}	100	—	—	I_C = 10mA, V_{CE} = 1.0V I_C = 100mA, V_{CE} = 1.0V
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	—	0.25	V	I_C = 100mA, I_B = 10mA
Base- Emitter Saturation Voltage		$V_{BE(SAT)}$	—	1.2	V	I_C = 100mA, V_{CE} = 1.0V
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product		f_T	100	—	MHz	V_{CE} = 2.0V, I_C = 10mA, f = 100MHz

Note: 1. Valid provided that terminals are kept at ambient temperature.
2. Pulse test: Pulse width ≤ 300μs, duty cycle ≤ 2%.

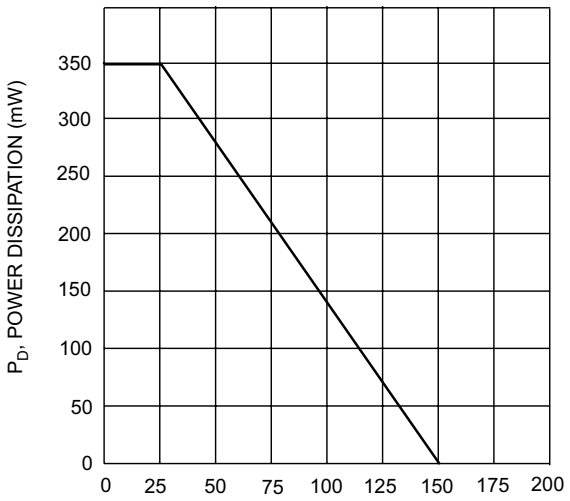


Fig. 1, Max Power Dissipation vs Ambient Temperature

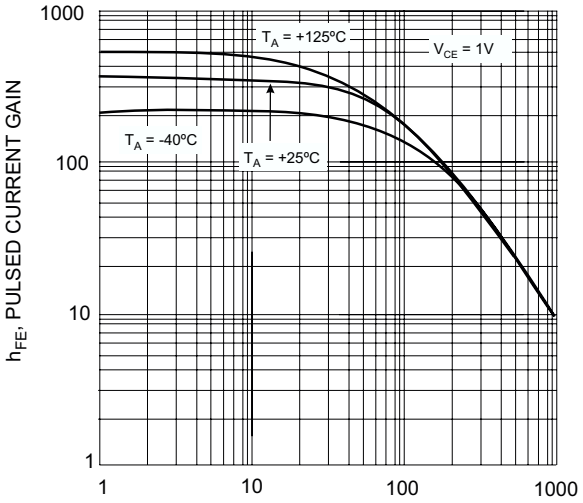


Fig. 2, Typical Pulsed Current Gain vs. Collector Current

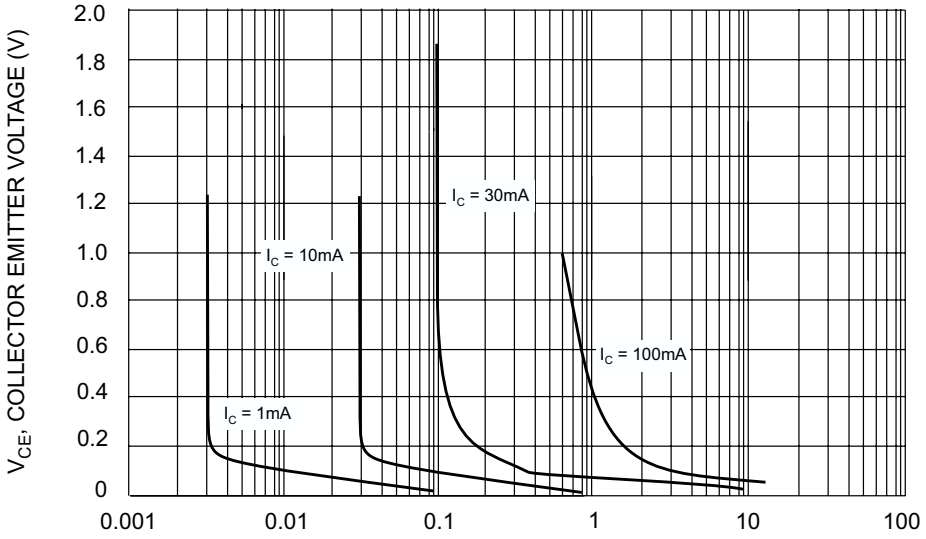


Fig. 3 Typical Collector Saturation Region

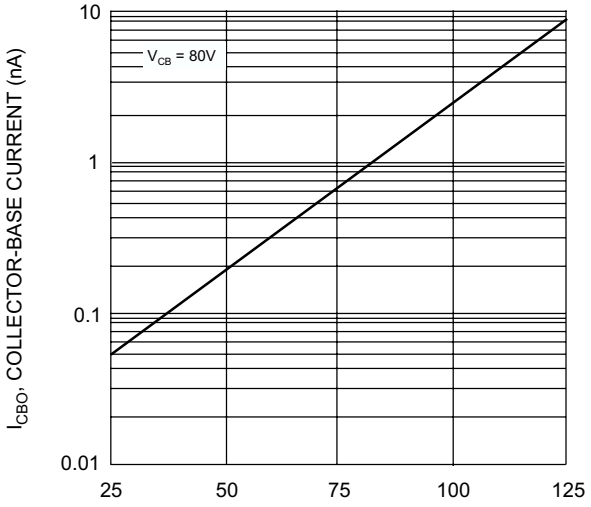


Fig. 4 Typical Collector-Cutoff Current vs. Ambient Temperature