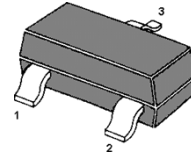


## MMBT5087 PNP Silicon Epitaxial Planar Transistor

for general purpose application

- This device is designed for low level, high gain, low noise general purpose amplifier applications at collector currents to 50mA.



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

MARKING CODE: 2Q

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	50	V
Collector Emitter Voltage	$-V_{CEO}$	50	V
Emitter Base Voltage	$-V_{EBO}$	3	V
Collector Current	$-I_C$	100	mA
Peak Collector Current	$-I_{CM}$	200	mA
Power Dissipation	$P_{tot}$	350	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_s$	- 55 to + 150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE} = 5\text{ V}$ , $-I_C = 100\text{ }\mu\text{A}$	$h_{FE}$	250	800	-
at $-V_{CE} = 5\text{ V}$ , $-I_C = 1\text{ mA}$	$h_{FE}$	250	-	-
at $-V_{CE} = 5\text{ V}$ , $-I_C = 10\text{ mA}$	$h_{FE}$	250	-	-
Collector Cutoff Current at $-V_{CB} = 35\text{ V}$	$-I_{CBO}$	-	50	nA
Emitter Cutoff Current at $-V_{EB} = 3\text{ V}$	$-I_{EBO}$	-	50	nA
Collector Base Breakdown Voltage at $-I_C = 100\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	50	-	V
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$	$-V_{(BR)CEO}$	50	-	V
Emitter Base Breakdown Voltage at $-I_E = 100\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	3	-	V
Collector Emitter Saturation Voltage at $-I_C = 10\text{ mA}$ , $-I_B = 1\text{ mA}$	$-V_{CE(sat)}$	-	0.3	V
Base Emitter On Voltage at $-V_{CE} = 5\text{ V}$ , $-I_C = 1\text{ mA}$	$-V_{BE(on)}$	-	0.85	V
Transition Frequency at $-V_{CE} = 5\text{ V}$ , $I_E = 0.5\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	40	-	MHz
Collector Base Capacitance at $-V_{CE} = 5\text{ V}$ , $I_E = 0$ , $f = 100\text{ KHz}$	$C_{cb}$	-	4	pF

Typical Characteristics

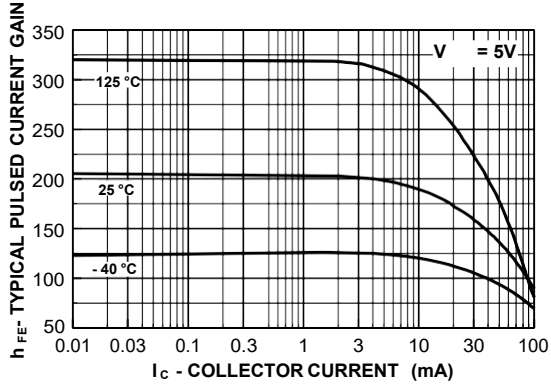


Figure 1. Typical Pulsed Current Gain vs Collector Current

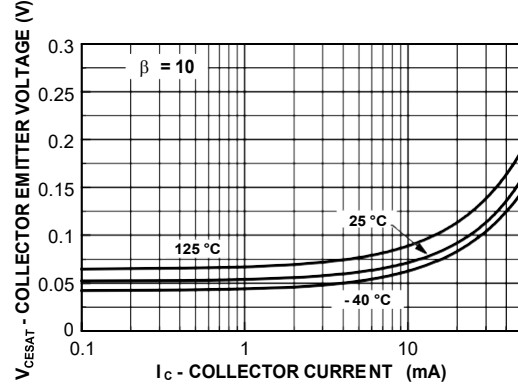


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

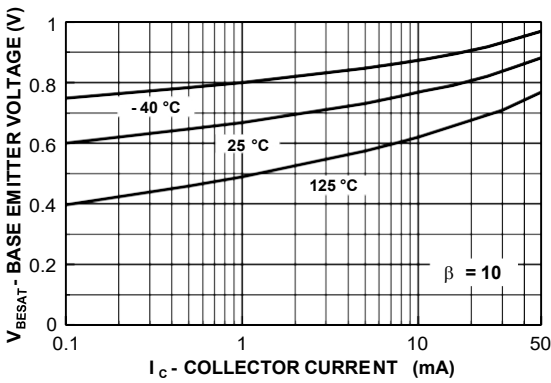


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

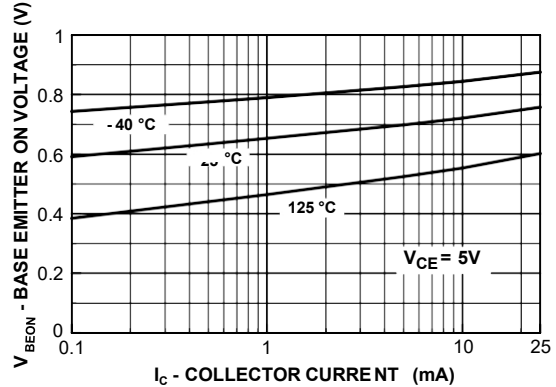


Figure 4. Base-Emitter On Voltage vs Collector Current

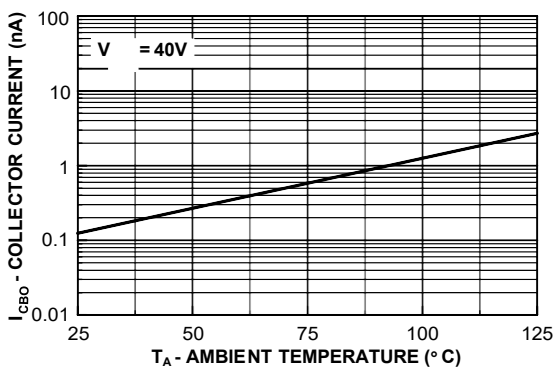


Figure 5. Collector Cutoff Current vs Ambient Temperature

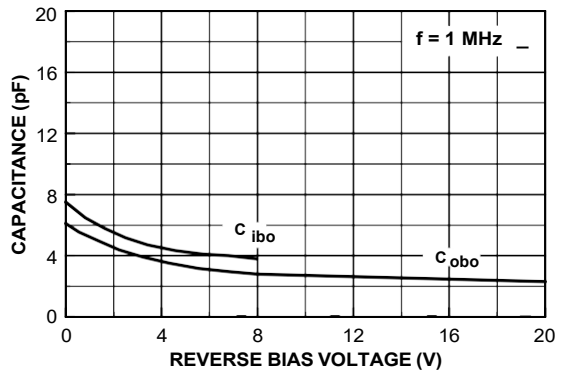


Figure 6. Input and Output Capacitance vs Reverse Voltage

Typical Characteristics

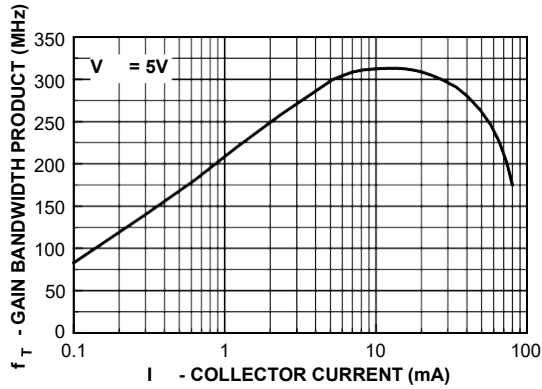


Figure 7. Gain Bandwidth Product vs Collector Current

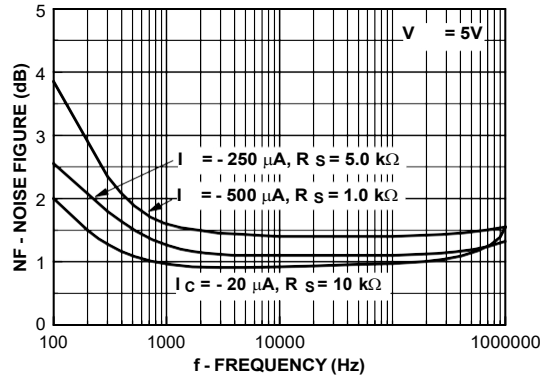


Figure 8. Noise Figure vs Frequency

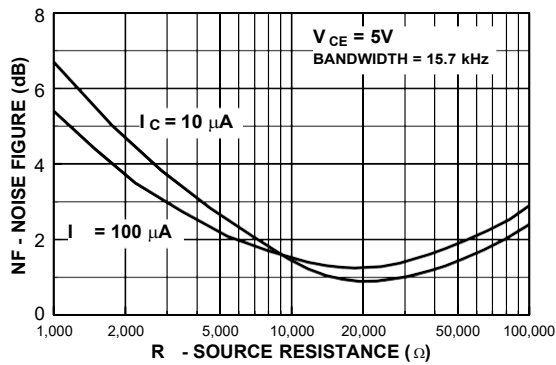


Figure 9. Wideband Noise Frequency vs Source Resistance

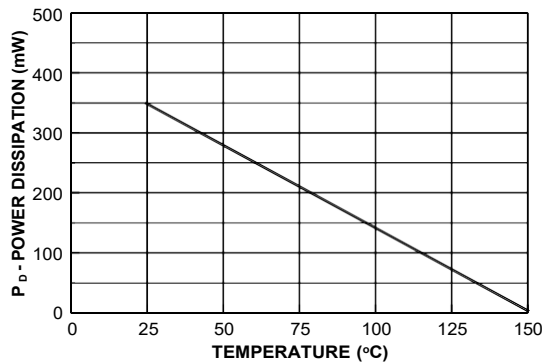


Figure 10. Power Dissipation vs Ambient Temperature

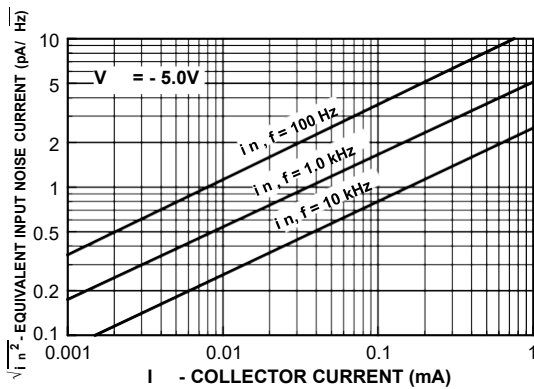


Figure 11. Equivalent Input Noise Current vs Collector Current

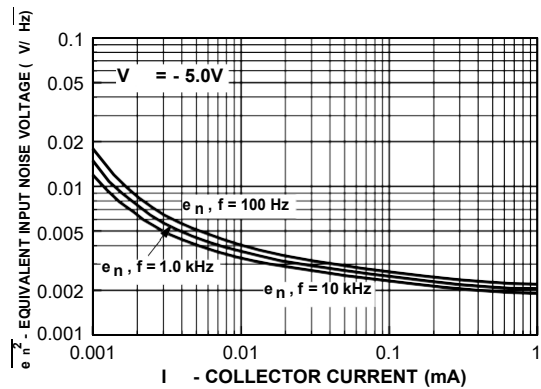
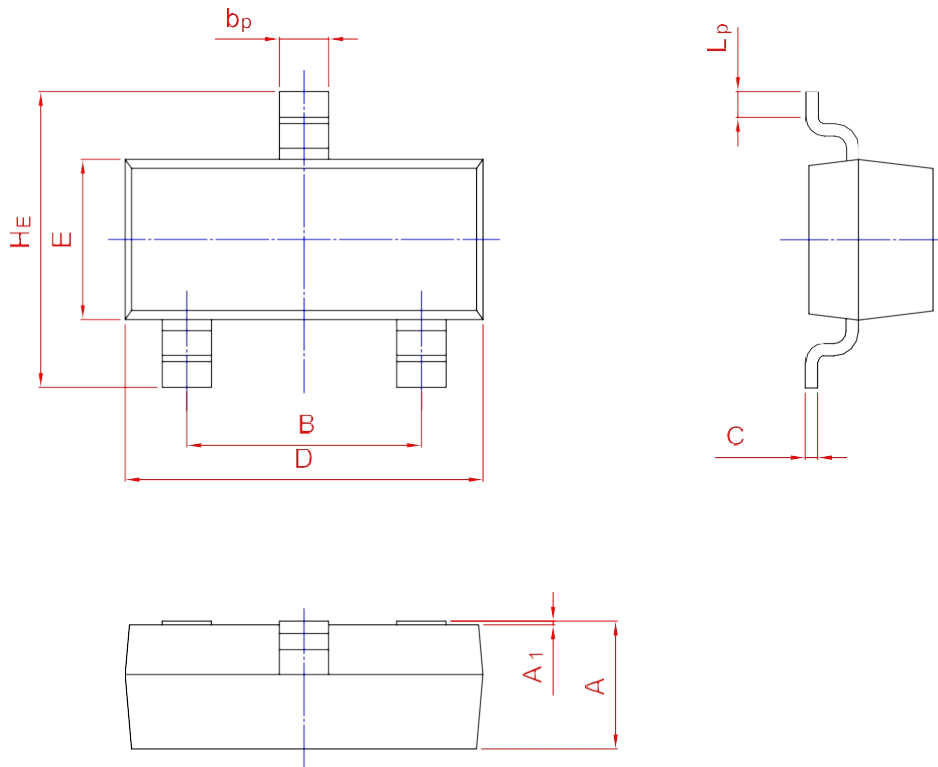
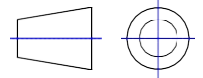


Figure 12. Equivalent Input Noise Voltage vs Collector Current

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	b <sub>p</sub>	C	D	E	H <sub>E</sub>	A <sub>1</sub>	L <sub>p</sub>
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20