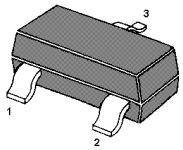
MMBTSB1116

PNP Silicon Epitaxial Planar Transistor

high collector power dissipation.



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

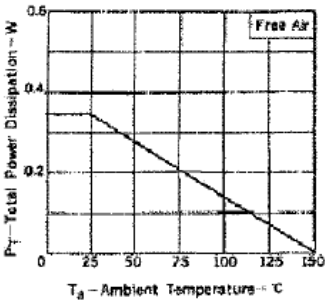
Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	60	V
Collector Emitter Voltage	$-V_{CEO}$	50	V
Emitter Base Voltage	$-V_{EBO}$	6	V
Collector Current	$-I_C$	1	A
Power Dissipation	P_{tot}	350	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

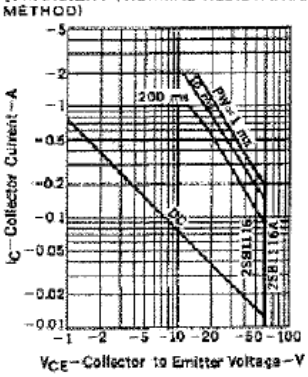
Characteristics at T_a = 25 °C

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_{CE}$ = 2 V, $-I_C$ = 0.1 A at $-V_{CE}$ = 2 V, $-I_C$ = 1 A	 h_{FE} h_{FE}	 135 81	 - -	 600 -	 - -
Collector Base Cutoff Current at $-V_{CB}$ = 60 V	$-I_{CBO}$	-	-	100	nA
Emitter Base Cutoff Current at $-V_{EB}$ = 6 V	$-I_{EBO}$	-	-	100	nA
Collector Base Breakdown Voltage at $-I_C$ = 100 µA	$-V_{(BR)CBO}$	60	-	-	V
Collector Emitter Breakdown Voltage at $-I_C$ = 1 mA	$-V_{(BR)CEO}$	50	-	-	V
Emitter Base Breakdown Voltage at $-I_E$ = 100 µA	$-V_{(BR)EBO}$	6	-	-	V
Collector Emitter Saturation Voltage at $-I_C$ = 1 A, $-I_B$ = 50 mA	$-V_{CE(sat)}$	-	-	0.3	V
Base Emitter Saturation Voltage at $-I_C$ = 1 A, $-I_B$ = 50 mA	$-V_{BE(sat)}$	-	-	1.2	V
Base Emitter On Voltage at $-V_{CE}$ = 2 V, $-I_C$ = 50 mA	$-V_{BE(on)}$	0.6	-	0.7	V
Collector Output Capacitance at $-V_{CB}$ = 10 V, f = 1 MHz	C_{ob}	-	25	-	pF
Transition Frequency at $-V_{CE}$ = 2 V, $-I_C$ = 0.1 A	f_T	70	-	-	MHz
Turn-on Time at $-V_{CE}$ = 10 V, $-I_C$ = 100 mA, $-I_{B1} = I_{B2}$ = 10 mA	t_{on}	-	70	-	ns
Storage Time at $-V_{CE}$ = 10 V, $-I_C$ = 100 mA, $-I_{B1} = I_{B2}$ = 10 mA	t_s	-	700	-	ns
Fall Time at $-V_{CE}$ = 10 V, $-I_C$ = 100 mA, $-I_{B1} = I_{B2}$ = 10 mA	t_f	-	70	-	ns

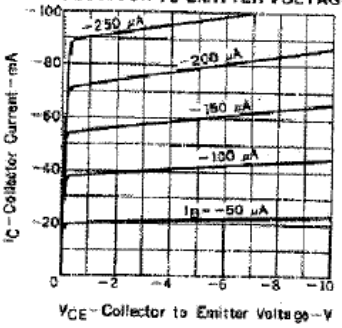
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



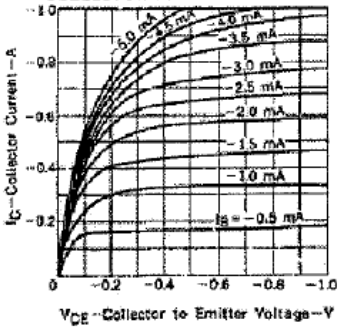
SAFE OPERATING AREAS (TRANSIENT THERMAL RESISTANCE METHOD)



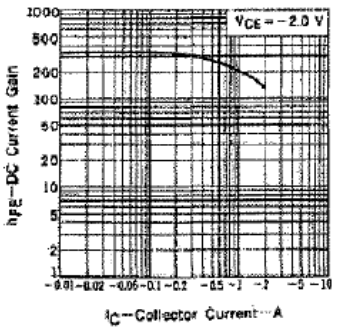
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



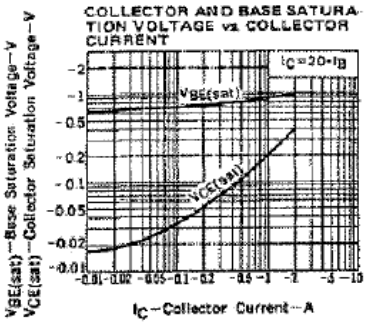
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



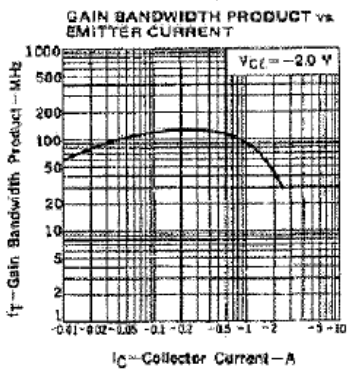
DC CURRENT GAIN vs. COLLECTOR CURRENT



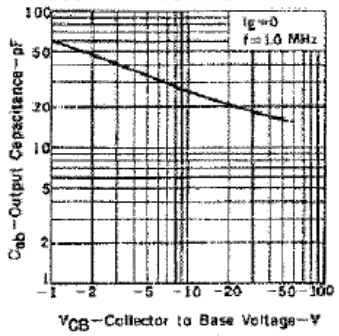
COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT