

**SOT-23 BIPOLAR TRANSISTORS
TRANSISTOR(PNP)**

FEATURES

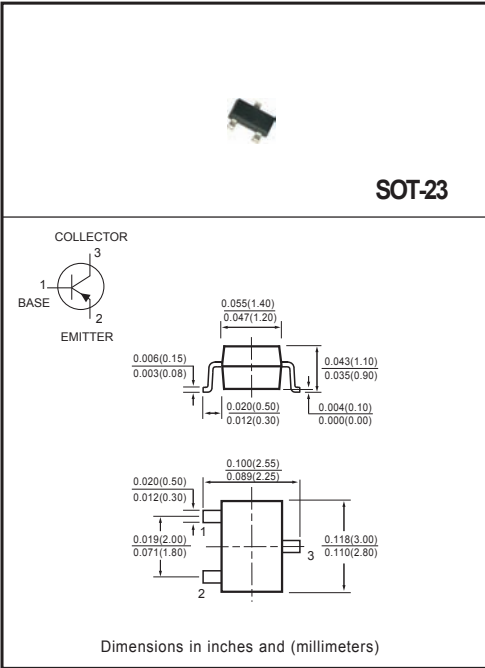
- * Power dissipation
P_{CM} 0.3 W(T_{amb}=25°C)
- * Collector current
I_{CM} -0.6 A
- * Collector-base voltage
V_{(BR)CBO}: -60 V
- * Operating and storage junction temperature range
T_J,T_{stg}: -55°Cto+150°C

MECHANICAL DATA

- * Case: Molded plastic
- * Epoxy: UL 94V-O rate flame retardant
- * Lead: MIL-STD-202E method 208C guaranteed
- * Mounting position: Any
- * Weight: 0.008 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.



MAXIMUM RATINGS (@ TA = 25°C unless otherwise noted)

RATINGS	SYMBOL	VALUE	UNITS
Max. Steady State Power Dissipation ⁽¹⁾ @TA=25°C Derate above 25°C	P _D	300	mW
Max. Operating Temperature Range	T _J	150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (@ TA = 25°C unless otherwise noted)

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Thermal Resistance Junction to Ambient	R θ _{JA}	-	-	417	°C/W

Notes : 1. Alumina=0.4*0.3*0.024in.99.5% alumina
2. " Fully ROHS Compliant ", "100% Sn plating (Pb-free)".

ELECTRICAL CHARACTERISTICS (@TA=25°C unless otherwise noted)

Chatacteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage(1) ($I_C = -10 \text{ mAdc}$, $I_B = 0$)	$V_{(BR)CEO}$	-60	-	Vdc
Collector-Base Breakdown Voltage ($I_C = -10\text{uAdc}$, $I_E = 0$)	$V_{(BR)CBO}$	-60	-	Vdc
Emitter-Base Breakdown Voltage ($I_E = -10\text{uAdc}$, $I_C = 0$)	$V_{(BR)EBO}$	-5.0	-	Vdc
Collector Cutoff Current ($V_{CE} = -30\text{Vdc}$, $V_{BE(off)} = -5.0\text{Vdc}$)	I_{CEX}	-	-50	nAdc
Collector Cutoff Current ($V_{CB} = -50\text{Vdc}$, $I_E = 0$) ($V_{CB} = -50\text{Vdc}$, $I_E = 0$, $T_A = 125^\circ\text{C}$)	I_{CBO}	-	-0.02 -20	uAdc
Base Current ($V_{CE} = -30\text{Vdc}$, $V_{EB(off)} = -0.5\text{Vdc}$)	I_B	-	-50	nAdc

ON CHARACTERISTICS

DC Current Gain ($I_C = -0.1\text{mAdc}$, $V_{CE} = -10\text{Vdc}$) ($I_C = -1.0\text{mAdc}$, $V_{CE} = -10\text{Vdc}$) ($I_C = -10\text{mAdc}$, $V_{CE} = -10\text{Vdc}$) ($I_C = -150\text{mAdc}$, $V_{CE} = -10\text{Vdc}$)(1) ($I_C = -500\text{mAdc}$, $V_{CE} = -10\text{Vdc}$)(1)	hFE	75 100 100 100 50	- - - 300 -	-
Collector-Emitter Saturation Voltage (1) ($I_C = -150\text{mAdc}$, $I_B = -15\text{mAdc}$) ($I_C = -500\text{mAdc}$, $I_B = -50\text{mAdc}$)	$V_{CE(sat)}$	- -	-0.4 -1.6	Vdc
Base-Emitter Saturation Voltage (1) ($I_C = -150\text{mAdc}$, $I_B = -15\text{mAdc}$) ($I_C = -500\text{mAdc}$, $I_B = -50\text{mAdc}$)	$V_{BE(sat)}$	- -	-1.3 -2.6	Vdc

SMALL-SIGNAL CHARACTERISTICS

Current-Gain-Bandwidth Product (1)(2) ($I_C = -50\text{mAdc}$, $V_{CE} = -20\text{Vdc}$, $f = 100\text{MHz}$)	f_T	200	-	MHz
Output Capacitance ($V_{CB} = -10\text{Vdc}$, $I_E = 0$, $f = 1.0\text{MHz}$)	C_{obo}	-	8.0	pF
Input Impedance ($V_{EB} = -2.0\text{Vdc}$, $I_C = 0$, $f = 1.0\text{MHz}$)	C_{ibo}	-	30	pF

SWITCHING CHARACTERISTICS

Turn-On Time	$(V_{CC} = -30\text{Vdc}$, $I_C = -150\text{mAdc}$, $I_{B1} = -15\text{mAdc}$)	t_{on}	-	45	ns
Delay Time		t_d	-	10	
Rise Time		t_r	-	40	
Turn-Off Time	$(V_{CC} = -6.0\text{Vdc}$, $I_C = -150\text{mAdc}$, $I_{B1} = I_{B2} = -15\text{mAdc}$)	t_{off}	-	100	ns
Storage Time		t_s	-	80	
Fall Time		t_f	-	30	

NOTES : 1. Pulse Test: Pulse Width \leq 300ms,Duty Cycle \leq 2.0%

2. f_T is defined as the frequency at which |hFE| extrapolates to unity

RATING AND CHARACTERISTICS CURVES (MMBT2907A)

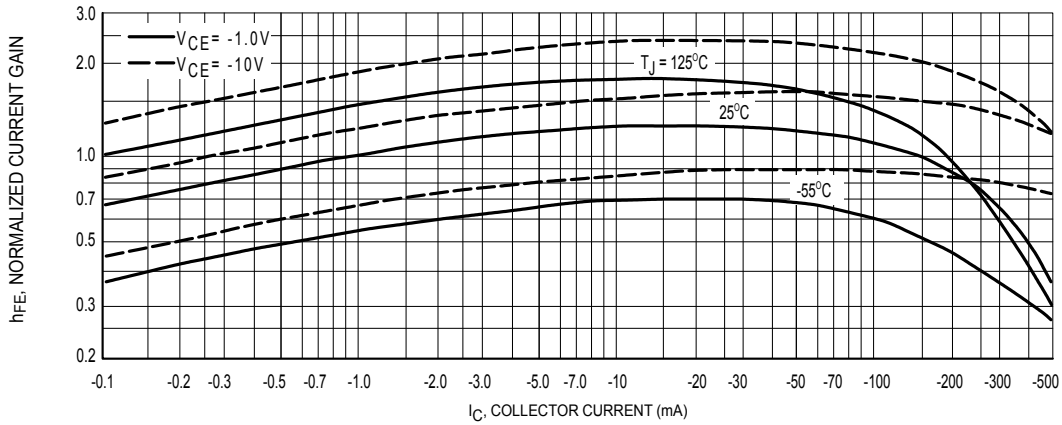


Figure 1. DC Current Gain

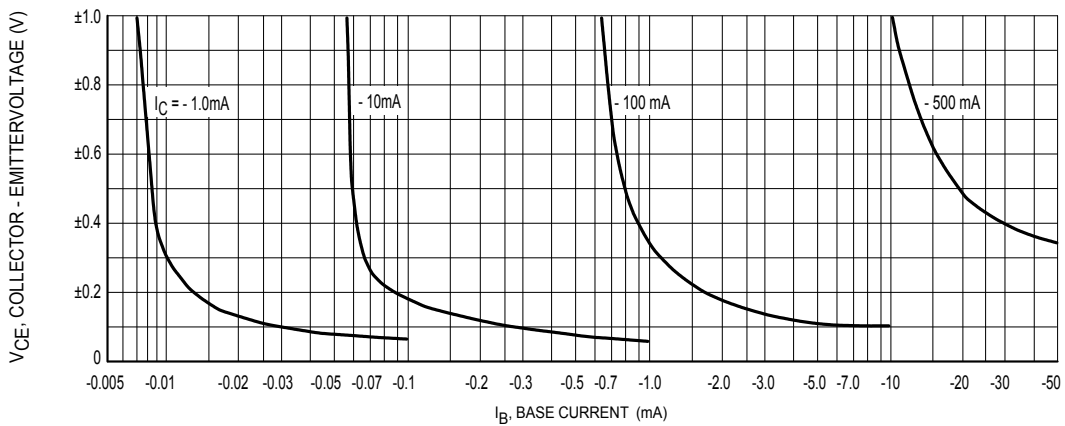


Figure 2. Collector Saturation Region

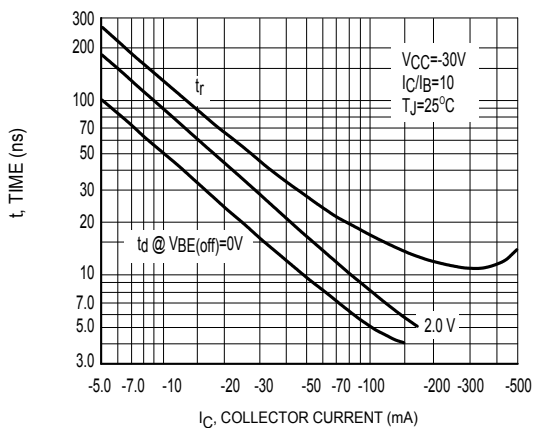


Figure 3. Turn - On Time

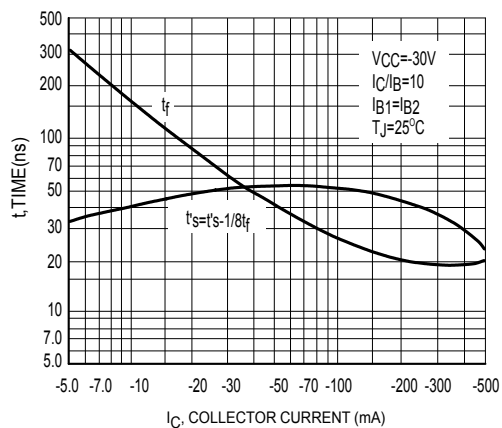


Figure 4. Turn - Off Time

RATING AND CHARACTERISTICS CURVES (MMBT2907A)

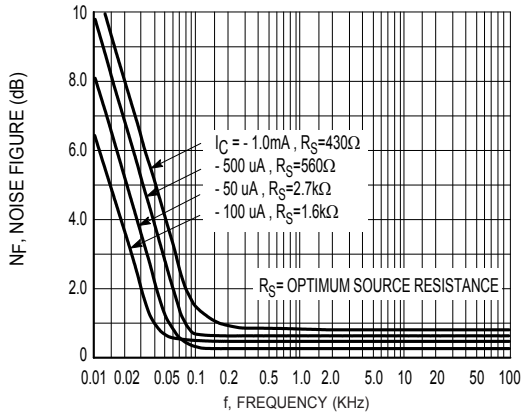


Figure 5. Frequency Effects

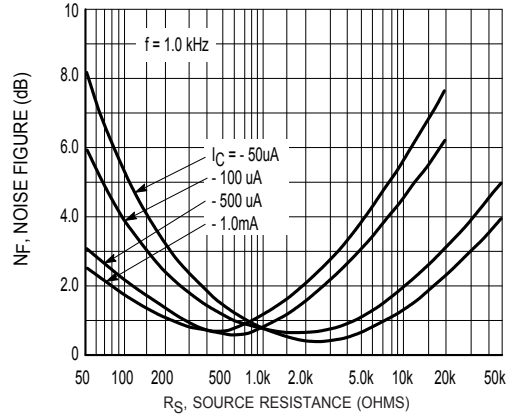


Figure 6. Source Resistance Effects

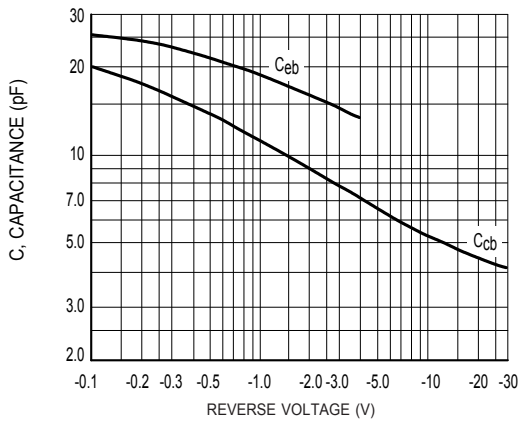


Figure 7. Capacitances

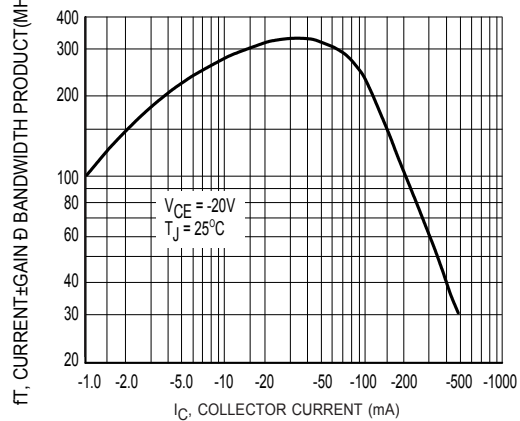


Figure 8. Current-Gain Bandwidth Product

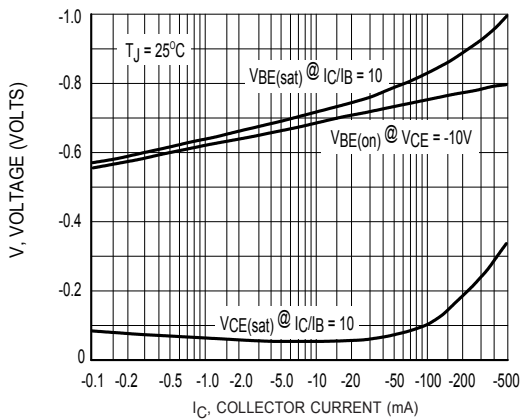


Figure 9. "On" Voltages

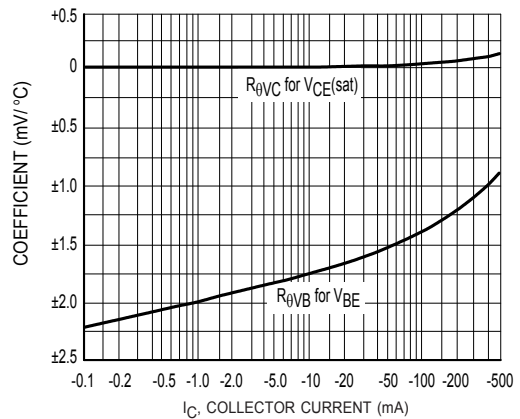


Figure 10. Temperature Coefficients

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