

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

FEATURES

- * Power dissipation
P_{CM}: 0.225 W(T_{amb}=25°C)
- * Collector current
I_{CM}: 0.6 A
- * Collector-base voltage
V_{(BR)CBO}: 160 V
- * Operating and storage junction temperature range
T_J,T_{stg}: -55 °C to +150°C

MECHANICA DATA

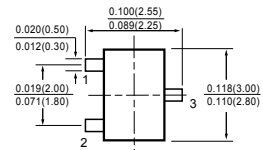
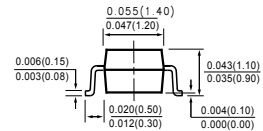
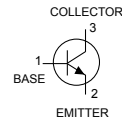
- *Case: Molded plastic
- *Epoxy: UL 94V-O rate flame retardant
- *Lead: MIL-STD-202E method 208C guaranteed
- *Mounting position: Any
- *Weight: 0.008 gram

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%.



SOT-23



Dimensions in inches and (millimeters)

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

RATINGS	SYMBOL	VALUE	UNITS
Max. Steady State Power Dissipation ⁽¹⁾ @T _A =25°C	P _D	225	mW
Max. Operating Temperature Range	T _J	150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

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

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

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

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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ⁽¹⁾ ($I_C = 1.0\text{mA}$, $I_B = 0$)	$V_{(BR)CEO}$	140	-	Vdc
Collector-Base Breakdown Voltage ($I_C = 100\mu\text{A}$, $I_E = 0$)	$V_{(BR)CBO}$	160	-	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10\mu\text{A}$, $I_C = 0$)	$V_{(BR)EBO}$	6.0	-	Vdc
Collector Cutoff Current ($V_{CB} = 100\text{Vdc}$, $I_E = 0$) ($V_{CB} = 100\text{Vdc}$, $I_E = 0$, $T_A = 100^\circ\text{C}$)	I_{CBO}	-	100	nAdc uAdc
Emitter Cutoff Current ($V_{EB} = 4.0\text{Vdc}$, $I_C = 0$)	I_{EBO}	-	50	nAdc

ON CHARACTERISTICS

DC Current Gain ($I_C = 1.0\text{mA}$, $V_{CE} = 5.0\text{Vdc}$) ($I_C = 10\text{mA}$, $V_{CE} = 5.0\text{Vdc}$) ($I_C = 50\text{mA}$, $V_{CE} = 5.0\text{Vdc}$)	h_{FE}	60 60 20	- 250 -	-
Collector-Emitter Saturation Voltage ($I_C = 10\text{mA}$, $I_B = 1.0\text{mA}$) ($I_C = 50\text{mA}$, $I_B = 5.0\text{mA}$)	$V_{CE(sat)}$	- -	0.15 0.25	Vdc
Base-Emitter Saturation Voltage ($I_C = 10\text{mA}$, $I_B = 1.0\text{mA}$) ($I_C = 50\text{mA}$, $I_B = 5.0\text{mA}$)	$V_{BE(sat)}$	- -	1.0 1.2	Vdc

Note: Pulse Test : Pulse Width = 300mS, Duty Cycle = 2.0%

RATING AND CHARACTERISTICS CURVES (MMBT5550)

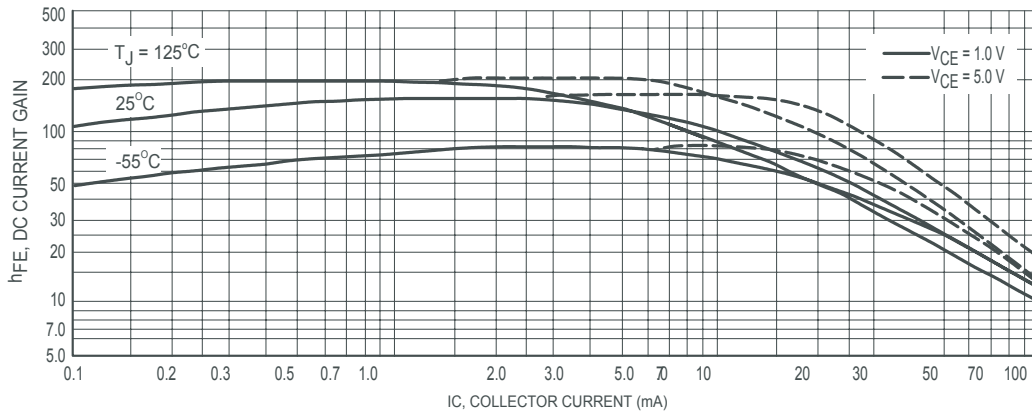


Figure 1. DC Current Gain

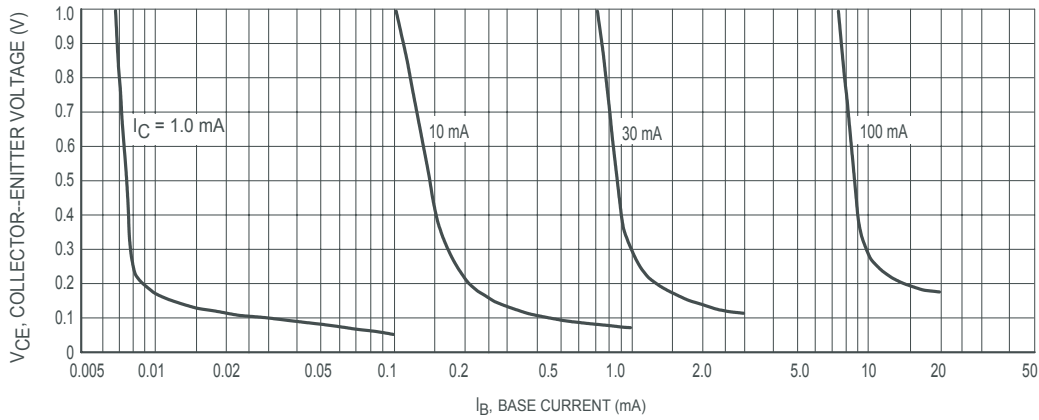


Figure 2. Collector Saturation Region

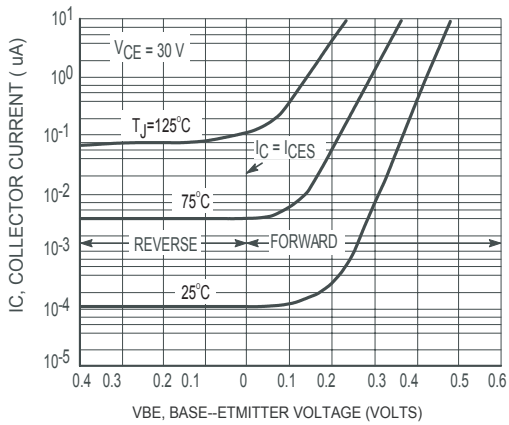


Figure 3. Collector Cut-Off Region

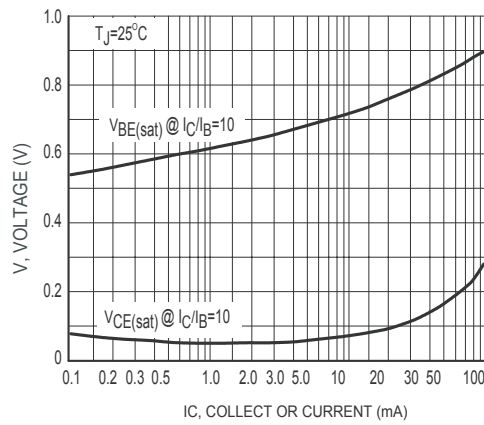


Figure 4. "On" Voltages

RATING AND CHARACTERISTICS CURVES (MMBT5550)

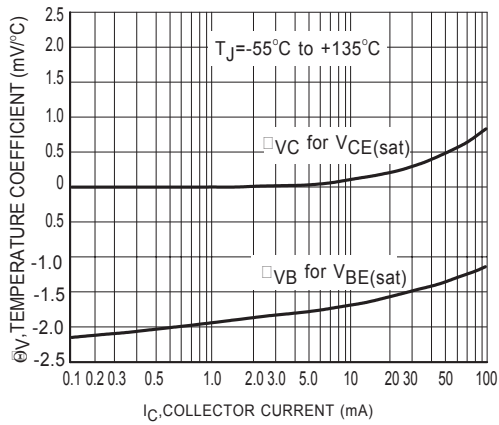


Figure 5. Temperature Coefficients

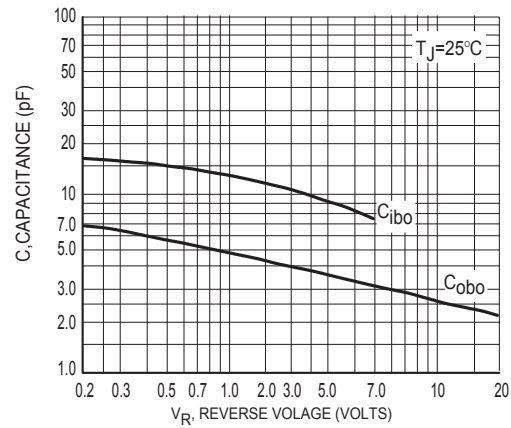


Figure 6. Capacitances

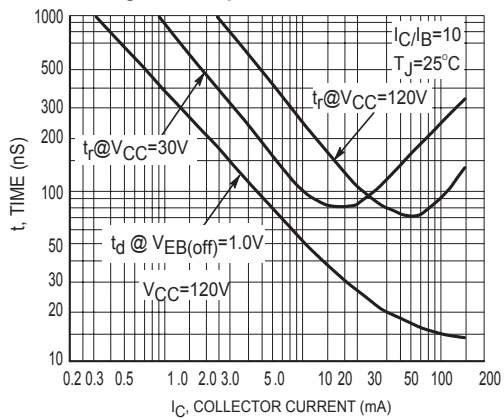


Figure 7. Turn-On Time

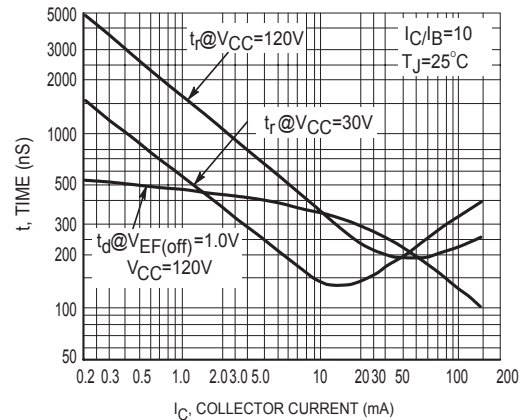


Figure 8. Turn-Off Time

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