

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

FEATURES

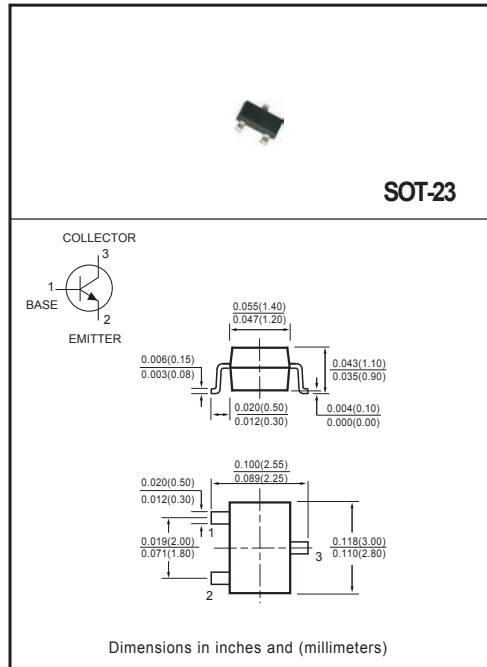
- * High breakdown voltage
- * Low collector-emitter saturation voltage
- * Complementary to MMBTA92 (NPN)

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
Collector Current-Continuous	I_C	0.3	A
Collector Power Dissipation	P_C	350	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
Collector-base breakdown voltage ($I_C=100\mu A, I_E=0$)	$V_{(BR)CBO}$	300	-	-	V
Collector-emitter breakdown voltage ($I_C=1mA, I_B=0$)	$V_{(BR)CEO}$	300	-	-	V
Emitter-Base breakdown voltage ($I_E=100\mu A, I_C=0$)	$V_{(BR)EBO}$	5	-	-	V
Collector cut-off current ($V_{CB}=200V, I_E=0$)	I_{CBO}	-	-	0.25	μA
Emitter cut-off current ($V_{EB}=5V, I_C=0$)	I_{EBO}	-	-	0.1	μA
DC current gain	($V_{CE}=10V, I_C=1mA$)	$h_{FE(1)}$	60	-	-
	($V_{CE}=10V, I_C=10mA$)	$h_{FE(2)}$	100	-	200
	($V_{CE}=10V, I_C=30mA$)	$h_{FE(3)}$	60	-	-
Collector-emitter saturation voltage ($I_C=20mA, I_B=2mA$)	$V_{CE(sat)}$	-	-	0.2	V
Base-emitter saturation voltage ($I_C=20mA, I_B=2mA$)	$V_{BE(sat)}$	-	-	0.9	V
Transition frequency ($V_{CE}=20V, I_C=10mA, f=30MHz$)	f_T	50	-	-	MHz

Note: "Fully ROHS Compliant", "100% Sn plating (Pb-free)".

RATING AND CHARACTERISTICS CURVES (MMBTA42)

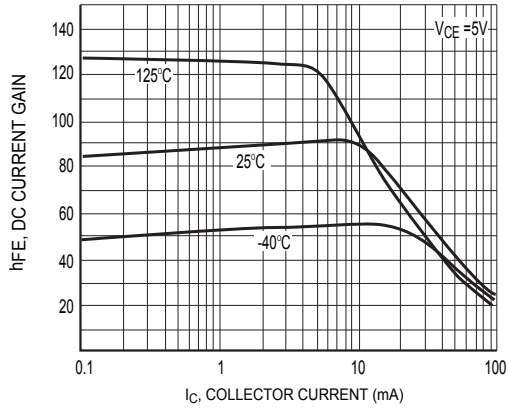


Figure 1 DC Current Gain vs. Collector Current

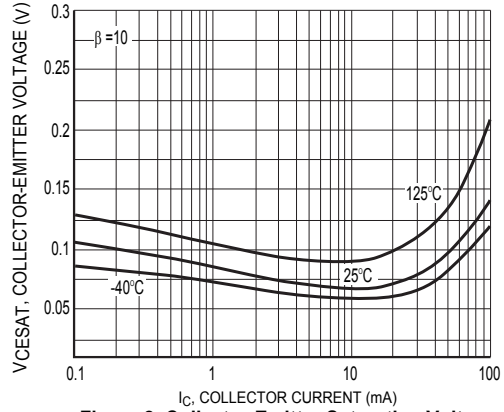


Figure 2 Collector-Emitter Saturation Voltage vs. Collector Current

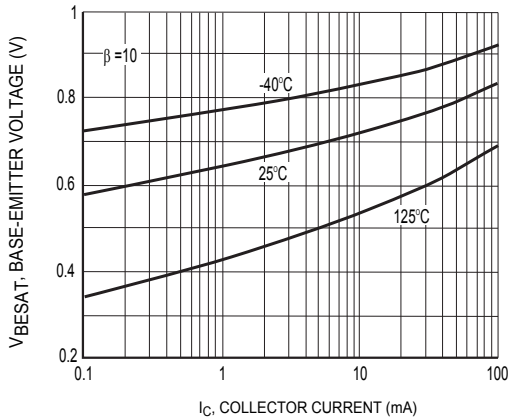


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

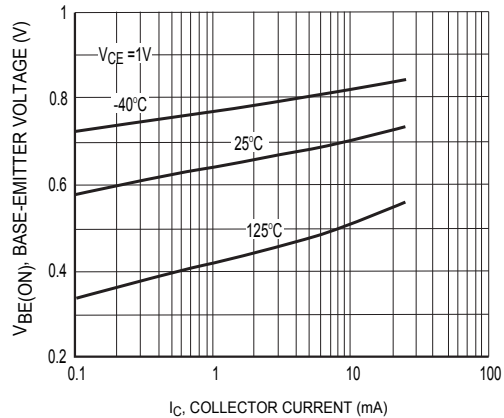


Figure 4 Base-Emitter ON Voltage vs. Collector Current

RATING AND CHARACTERISTICS CURVES (MMBTA42)

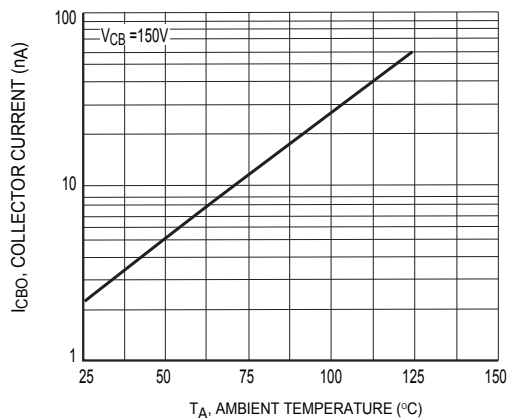


Figure 5 Collector-Cut off Current vs. Ambient Temperature

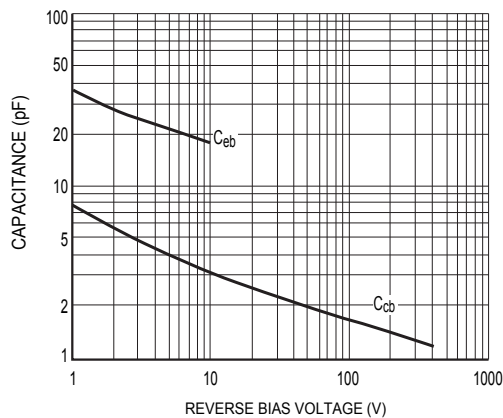


Figure 6 Collector-Base and Emitter-Base Capacitance vs. Reverse Bias Voltage

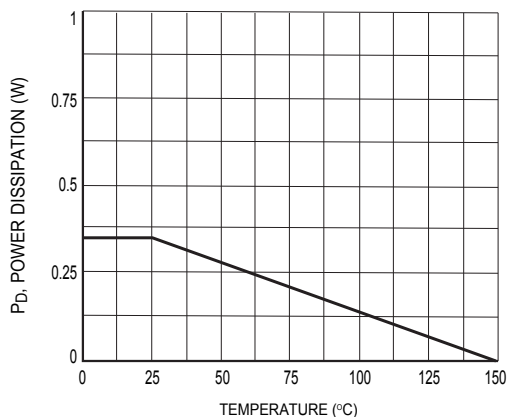


Figure 7 Power dissipation vs. Ambient Temperature

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