

**SOT-323 BIPOLAR TRANSISTORS**  
**TRANSISTOR (NPN)**

**FEATURES**

- \* Power dissipation  
Pcm: 0.2 W (Tamb=25°C)
- \* Collector current  
Icm: 0.2 A
- \* Collector-base voltage  
V(BR)CBO: 160 V
- \* Operating and storage junction temperature range  
Tj,Tstg: -55°C to +150°C

**MECHANICAL DATA**

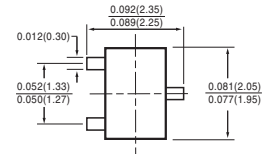
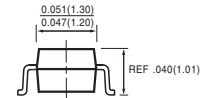
- \* Case: Molded plastic
- \* Epoxy: UL 94V-O rate flame retardant
- \* Lead: MIL-STD-202E method 208C guaranteed
- \* Mounting position: Any
- \* Weight: 0.006 gram

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified.



**SOT-323**



Dimensions in inches and (millimeters)

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

RATINGS	SYMBOL	VALUE	UNITS
Zener Current ( see Table "Characteristics" )	-	-	-
Max. Steady State Power Dissipation	P <sub>D</sub>	200	mW
Max. Operating Temperature Range	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	-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 <sub>JA</sub>	-	-	625	°C/W
Max. Instantaneous Forward Voltage at I <sub>F</sub> = 10mA	V <sub>F</sub>	-	-	-	Volts

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

Characteristic	Symbol	Min	Max	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Breakdown Voltage ( $I_C = 1.0\text{mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	160	-	Vdc
Collector-Base Breakdown Voltage ( $I_C = 100\mu\text{A}$ , $I_E = 0$ )	$V_{(BR)CBO}$	180	-	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10\mu\text{A}$ , $I_C = 0$ )	$V_{(BR)EBO}$	5	-	Vdc
Collector Cutoff Current ( $V_{CB} = 120\text{Vdc}$ , $I_E = 0$ )	$I_{CBO}$	-	50	nA
Emitter Cutoff Current ( $V_{EB} = 3\text{Vdc}$ , $I_C = 0$ )	$I_{EBO}$	-	50	nA

**ON CHARACTERISTICS**

DC Current Gain ( $I_C = 1\text{mA}$ , $V_{CE} = 5\text{Vdc}$ ) ( $I_C = -10\text{mA}$ , $V_{CE} = 5\text{Vdc}$ ) ( $I_C = 50\text{mA}$ , $V_{CE} = 5\text{Vdc}$ )	$h_{FE}$	80 80 30	- 250 -	-
Collector-Emitter Saturation Voltage ( $I_C = 10\text{mA}$ , $I_B = 1\text{mA}$ ) ( $I_C = 50\text{mA}$ , $I_B = 5\text{mA}$ )	$V_{CE(sat)}$	- -	0.15 0.2	Vdc
Base-Emitter Saturation Voltage ( $I_C = 10\text{mA}$ , $I_B = 1\text{mA}$ ) ( $I_C = 50\text{mA}$ , $I_B = 5\text{mA}$ )	$V_{BE(sat)}$	- -	1 1	Vdc

**SMALL-SIGNAL CHARACTERISTICS**

Current-Gain-Bandwidth Product ( $I_C = 10\text{mA}$ , $V_{CE} = 10\text{Vdc}$ , $f = 100\text{MHz}$ )	$f_T$	100	300	MHz
Output Capacitance ( $V_{CB} = 10\text{Vdc}$ , $I_E = 0$ , $f = 1.0\text{MHz}$ )	$C_{ob}$	-	6	pF
Noise figure ( $I_C = 0.2\text{mA}$ , $V_{CE} = 5\text{Vdc}$ , $f = 1.0\text{kHz}$ , $R_g = 10\Omega$ )	NF	-	8	dB