

SOT-323 BIPOLAR TRANSISTORS
TRANSISTOR (NPN)

FEATURES

- * Power dissipation
Pcm: 0.2 W (Tamb=25°C)
- * Collector current
Icm: 0.6 A
- * Collector-base voltage
V(BR)CBO: 75 V
- * Operating and storage junction temperature range
Tj,Tstg: -55°C to +150°C

MECHANICAL DATA

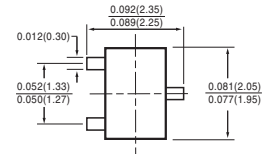
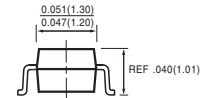
- * Case: Molded plastic
- * Epoxy: UL 94V-O rate flame retardant
- * Lead: MIL-STD-202E method 208C guaranteed
- * Mounting position: Any
- * Weight: 0.006 gram

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 @TA=25°C	P _D	200	mW
Max. Operating Temperature Range	T _J	-55 to +150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

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

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Thermal Resistance Junction to Ambient	R θ _{JA}	-	-	625	°C/W
Max. Instantaneous Forward Voltage at I _F = 10mA	V _F	-	-	-	Volts

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

Chatacteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C= 10\text{mA}$, $I_B= 0$)	$V_{(BR)CEO}$	40	-	Vdc
Collector-Base Breakdown Voltage ($I_C= 10\mu\text{A}$, $I_E= 0$)	$V_{(BR)CBO}$	75	-	Vdc
Emitter-Base Breakdown Voltage ($I_E= 10\mu\text{A}$, $I_C= 0$)	$V_{(BR)EBO}$	6.0	-	Vdc
Collector Cutoff Current ($V_{CE}= 60\text{Vdc}$, $V_{EB(off)}= 3.0\text{Vdc}$)	I_{CEX}	-	10	nAdc
Collector Cutoff Current ($V_{CB}= 60\text{Vdc}$, $I_E= 0$)	I_{CBO}	-	10	nAdc
($V_{CB}= 60\text{Vdc}$, $I_E= 0$, $T_A= 125^\circ\text{C}$)		-	10	μAdc
Emitter Cutoff Current ($V_{EB}= 3.0\text{Vdc}$, $I_C= 0$)	I_{EBO}	-	10	μAdc
Base Cutoff Current ($V_{CE}= 60\text{Vdc}$, $V_{EB(off)}= 3.0\text{Vdc}$)	I_{BL}	-	20	nAdc

ON CHARACTERISTICS (1)

DC Current Gain ($I_C= 100\mu\text{A}$, $V_{CE}= 10\text{Vdc}$)	hFE	35	-	-
($I_C= 1.0\text{mA}$, $V_{CE}= 10\text{Vdc}$)		50	-	
($I_C= 10\text{mA}$, $V_{CE}= 10\text{Vdc}$)		75	-	
($I_C= 150\text{mA}$, $V_{CE}= 10\text{Vdc}$)		100	300	
($I_C= 500\text{mA}$, $V_{CE}= 10\text{Vdc}$)		40	-	
($I_C= 10\text{mA}$, $V_{CE}= 10\text{Vdc}$, $T_A=-55^\circ\text{C}$)		50	-	
Collector-Emitter Saturation Voltage ($I_C= 150\text{mA}$, $I_B= 15\text{mA}$)	$V_{CE(sat)}$	-	0.3	Vdc
($I_C= 500\text{mA}$, $I_B= 50\text{mA}$)		-	1.0	
Base-Emitter Saturation Voltage ($I_C= 150\text{mA}$, $I_B= 15\text{mA}$)	$V_{BE(sat)}$	0.6	1.2	Vdc
($I_C= 500\text{mA}$, $I_B= 50\text{mA}$)		-	2.0	

SMALL-SIGNAL CHARACTERISTICS

Current-Gain-Bandwidth Product ($I_C= 20\text{mA}$, $V_{CE}= 20\text{Vdc}$, $f= 100\text{MHz}$)	f_T	300	-	MHz
Input Capacitance ($V_{EB}=0.5\text{Vdc}$, $I_C= 0$, $f= 1.0\text{MHz}$)	C_{ibo}	-	25	pF
Output Capacitance ($I_E= 0$, $V_{CB}= 10\text{Vdc}$, $f= 1.0\text{MHz}$)	C_{obo}	-	8	pF
Noise Figure ($I_C= 100\mu\text{A}$, $V_{CE}= 10\text{Vdc}$, $R_S= 1.0\text{k}\Omega$, $f= 1.0\text{kHz}$)	NF	-	4.0	dB

SWITCHING CHARACTERISTICS

Delay Time	$(V_{CC}= 30\text{Vdc}$, $V_{BE(off)}= 0.5\text{Vdc}$, $I_C= 150\text{mA}$, $I_{B1}= 15\text{mA}$)	t_d	-	10	ns
Rise Time		t_r	-	25	
Storage Time	$(V_{CC}= 30\text{Vdc}$, $I_C= 150\text{mA}$, $I_{B1}= I_{B2}= 15\text{mA}$)	t_s	-	225	ns
Fall Time		t_f	-	60	

NOTES : 1. Short duration test pulse used to minimize self-heating effect.