

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

**FEATURES**

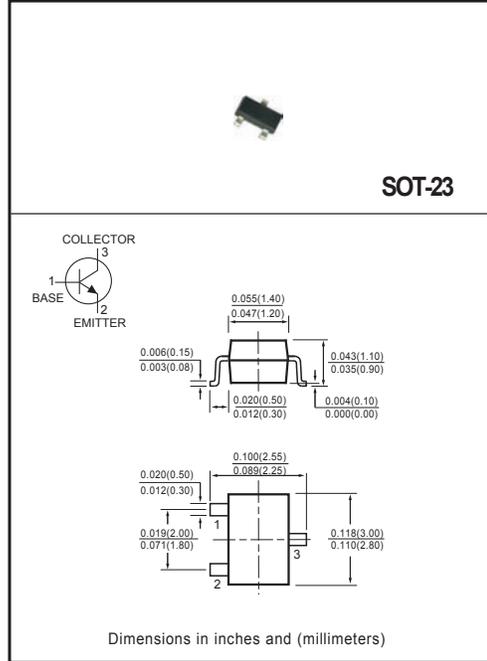
- \* Power dissipation  
P<sub>CM</sub> : □ 0.2 □ W (T<sub>amb</sub>=25°C)
- \* Collector current  
I<sub>CM</sub> : □ 0.15 □ A
- \* Collector-base voltage  
V<sub>(BR)CBO</sub> : □ 60 □ V
- \* Operating and storage junction temperature range  
T<sub>J</sub>, T<sub>stg</sub>: -55°C to +150°C

**MECHANICAL DATA**

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



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

CHARACTERISTICS	SYMBOL	MIN	TYP	MAX	UNITS
Collector-base breakdown voltage(I <sub>c</sub> = 1mA, I <sub>E</sub> =0)	V <sub>(BR)CBO</sub>	60	-	-	V
Collector-emitter breakdown voltage(I <sub>c</sub> = 0.1mA, I <sub>B</sub> =0)	V <sub>(BR)CEO</sub>	50	-	-	V
Emitter-base breakdown voltage(I <sub>c</sub> = 0.1mA, I <sub>B</sub> =0)	V <sub>(BR)EBO</sub>	5	-	-	V
Collector cut-off current(V <sub>CB</sub> = 60V, I <sub>E</sub> =0)	I <sub>CB0</sub>	-	-	0.1	μA
Collector cut-off current(V <sub>CB</sub> = 45V, I <sub>E</sub> =0)	I <sub>CEO</sub>	-	-	0.1	μA
Emitter cut-off current(V <sub>EB</sub> = 5V, I <sub>c</sub> =0)	I <sub>EBO</sub>	-	-	0.1	μA
DC current gain(V <sub>CE</sub> = 6V, I <sub>c</sub> = 1mA)	h <sub>FE</sub>	130	-	400	-
DC current gain(V <sub>CE</sub> = 6V, I <sub>c</sub> = 0.1mA)		40	-	-	-
Collector-emitter saturation voltage(I <sub>c</sub> =100 mA, I <sub>B</sub> = 10mA)	V <sub>CE(sat)</sub>	-	-	0.3	V
Base-emitter saturation voltage(I <sub>c</sub> = 100 mA, I <sub>B</sub> = 10mA)	V <sub>BE(sat)</sub>	-	-	1	V
Base-emitter voltage(I <sub>E</sub> = 310 mA)	V <sub>BEF</sub>	-	-	1.4	V
Transition frequency(V <sub>CE</sub> = 6V, I <sub>c</sub> = 10mA, f= 30MHz)	f <sub>t</sub>	150	-	-	MHz

**CLASSIFICATION OF hFE(1)**

RANK	L	H
Range	130~200	200~400
Marking	CR	

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

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