

### GENERAL DESCRIPTION :

The BSY88 is a NPN silicon planar epitaxial transistor. It features high breakdown and low saturation voltage. It is intended for medium power amplifier driver stage and general purpose industrial applications.

### MECHANICAL OUTLINE



### THERMAL CHARACTERISTICS :

Thermal Resistance from Junction to Ambient, $\theta(j-amb)$	0.22°C/mW
Thermal Resistance from Junction to Case, $\theta(j-case)$	0.058°C/mW
Maximum Collector Junction Temperature, $T_j$	200°C
Storage Temperature Range, $T_{stg}$	-65°C to +200°C
Soldering Temperature (1/16 inch from Case for 10 seconds)	260°C

### ABSOLUTE MAXIMUM RATINGS :

Continuous Power Dissipation @ $T_A=25^\circ\text{C}$ , $P_{max}$	0.8W
Continuous Power Dissipation @ $T_C=25^\circ\text{C}$ , $P_{max}$	3W
Continuous Power Dissipation @ $T_C=100^\circ\text{C}$ , $P_{max}$	1.7W
Continuous Collector Current, $I_C$ max	500mA
Collector-Base Voltage, $V_{CB0}$	100V
Collector-Emitter Voltage, $V_{CEO}$	60V
Emitter-Base Voltage, $V_{EBO}$	7V

### ELECTRICAL CHARACTERISTICS @ $T_A=25^\circ\text{C}$ (unless otherwise stated) :

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Collector-Base Cutoff Current	$I_{CB0}$		0.5	10	nA	$V_{CB}=75\text{V}$
Collector-Base Cutoff Current	$I_{CB0}$		0.4	10	nA	$V_{CB}=75\text{V}$ $T_A=150^\circ\text{C}$
Emitter-Base Cutoff Current	$I_{EBO}$		1	10	nA	$V_{EB}=5\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	0.18	0.6		V	$I_C=150\text{mA}$ $I_B=15\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	0.95	1.2		V	$I_C=150\text{mA}$ $I_B=15\text{mA}$
D.C. Current Gain	$h_{FE}$	35	100			$V_{CE}=10\text{V}$ $I_C=0.1\text{mA}$
D.C. Current Gain	$h_{FE}$		125			$V_{CE}=10\text{V}$ $I_C=1\text{mA}$
D.C. Current Gain	$h_{FE}$	75	180			$V_{CE}=10\text{V}$ $I_C=10\text{mA}$
D.C. Current Gain	$h_{FE}$	100		300		$V_{CE}=10\text{V}$ $I_C=150\text{mA}$
D.C. Current Gain	$h_{FE}$	35				$V_{CE}=10\text{V}$ $I_C=500\text{mA}$
Collector-Base Capacitance	$C_{CB}$			10	pF	$V_{CB}=10\text{V}$ $f=1\text{MHz}$
Emitter-Base Capacitance	$C_{EB}$			35	pF	$V_{EB}=0.5\text{V}$ $f=1\text{MHz}$
Transition Frequency	$f_T$		180		MHz	$V_{CB}=10\text{V}$ $I_C=50\text{mA}$ $f=50\text{MHz}$
Noise Figure	N.F.		6		dB	$V_{CE}=10\text{V}$ $I_C=0.3\text{mA}$ $R_g=1.5\text{Kohm}$ $f=30\text{Hz to } 15\text{KHz}$



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ELECTRICAL CHARACTERISTICS @  $T_A=25^{\circ}\text{C}$  (unless otherwise stated) :

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Small Signal Current Gain	$h_{fe}$	60	150	280		$V_{CE}=5\text{V}$ $I_C=1\text{mA}$ $f=1\text{KHz}$
Input Impedance	$h_{ie}$	2	3.5	9.5	Kohm	$V_{CE}=5\text{V}$ $I_C=1\text{mA}$ $f=1\text{KHz}$
Voltage Feedback Ratio	$h_{re}$		0.7	3	$10^{-4}$	$V_{CE}=5\text{V}$ $I_C=1\text{mA}$ $f=1\text{KHz}$
Output Admittance	$h_{oe}$	3	6	10	$\mu\text{S}$	$V_{CE}=5\text{V}$ $I_C=1\text{mA}$ $f=1\text{KHz}$