

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	μS	$V_{CE}=5\text{V}$ $I_C=1\text{mA}$ $f=1\text{KHz}$