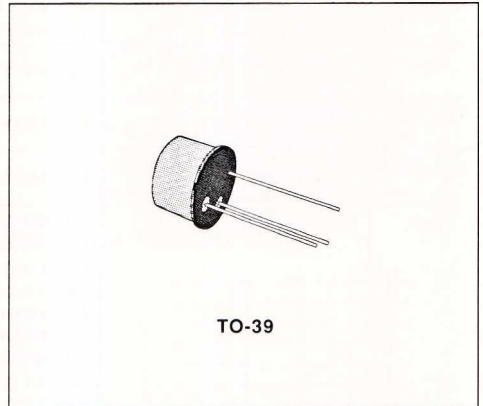


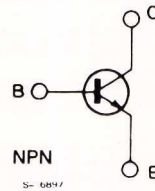
**GENERAL PURPOSE AMPLIFIERS**

**DESCRIPTION**

The BSY55 and BSY56 are silicon planar epitaxial NPN transistors in Jedec TO-39 metal case, intended for use in high performance amplifier, oscillator and switching circuits.



**INTERNAL SCHEMATIC DIAGRAM**



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	120	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	80	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	7	V
$I_C$	Collector Current	500	mA
$P_{tot}$	Total Power Dissipation at $T_{amb} \leq 25\text{ }^\circ\text{C}$ at $T_{case} \leq 25\text{ }^\circ\text{C}$	0.8 3	W W
$T_{stg}, T_j$	Storage and Junction Temperature	- 65 to 200	$^\circ\text{C}$

**THERMAL DATA**

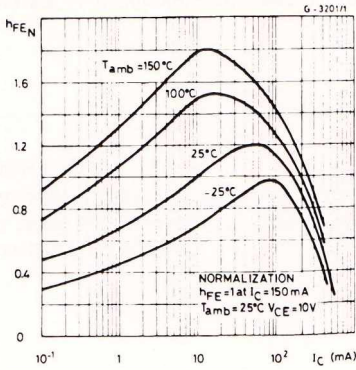
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	58	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	220	$^{\circ}C/W$

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\ ^{\circ}C$  unless otherwise specified)

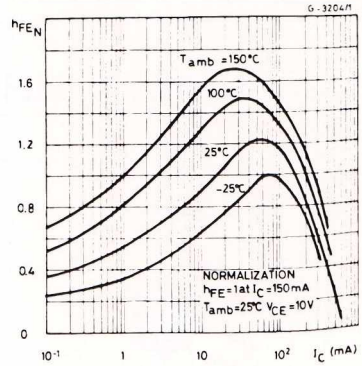
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = 90\ V$ $V_{CB} = 90\ V$ $T_{amb} = 150\ ^{\circ}C$			10 10	nA $\mu A$
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	$V_{EB} = 5\ V$			10	nA
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 150\ mA$ $I_B = 15\ mA$		0.2	0.6	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 150\ mA$ $I_B = 15\ mA$		1	1.3	V
$h_{FE}^*$	DC Current Gain	for <b>BSY55</b> $I_C = 0.1\ mA$ $V_{CE} = 10\ V$ $I_C = 1\ mA$ $V_{CE} = 10\ V$ $I_C = 10\ mA$ $V_{CE} = 10\ V$ $I_C = 150\ mA$ $V_{CE} = 10\ V$ $I_C = 500\ mA$ $V_{CE} = 10\ V$ for <b>BSY56</b> $I_C = 0.1\ mA$ $V_{CE} = 10\ V$ $I_C = 1\ mA$ $V_{CE} = 10\ V$ $I_C = 10\ mA$ $V_{CE} = 10\ V$ $I_C = 150\ mA$ $V_{CE} = 10\ V$ $I_C = 500\ mA$ $V_{CE} = 10\ V$	20 35 40  35 75 100	50 60 65  100 125 180 35	120   300	
$f_T$	Transition Frequency	$I_C = 50\ mA$ $f = 50\ MHz$ $V_{CE} = 10\ V$		100		MHz
$C_{CBO}$	Collector-base Capacitance	$I_E = 0$ $f = 1\ MHz$ $V_{CB} = 10\ V$		10		pF
$C_{EBO}$	Emitter-base Capacitance	$I_C = 0$ $f = 1\ MHz$ $V_{EB} = 0.5\ V$		23		pF
NF	Noise Figure	$I_C = 0.3\ mA$ $R_g = 1.5\ k\Omega$ $V_{CE} = 10\ V$ $f = 30\ Hz$ to $15\ kHz$		6		dB
$h_{ie}$	Small Signal Current Gain	$I_C = 1\ mA$ $f = 1\ kHz$ $V_{CE} = 10\ V$ for <b>BSY55</b> for <b>BSY56</b>	30 60		150 250	
$h_{ie}$	Input Impedance	$I_C = 1\ mA$ $f = 1\ kHz$ $V_{CE} = 10\ V$ for <b>BSY55</b> for <b>BSY56</b>	0.8 1.6		5 9	k $\Omega$ k $\Omega$
$h_{re}$	Reverse Voltage Ratio	$I_C = 1\ mA$ $f = 1\ kHz$ $V_{CE} = 10\ V$			$3 \times 10^{-4}$	
$h_{oe}$	Output Admittance	$I_C = 1\ mA$ $f = 1\ kHz$ $V_{CE} = 10\ V$ for <b>BSY55</b> for <b>BSY56</b>	2 3		7 10	$\mu S$ $\mu S$

\* Pulsed : pulse duration = 300  $\mu s$ , duty cycle = 1 %.

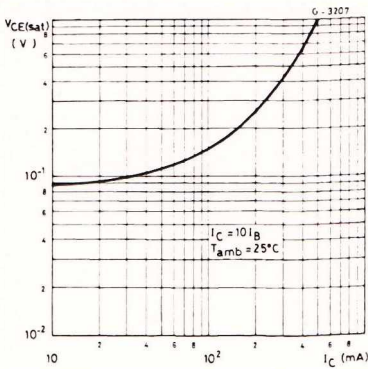
DC Normalized Current Gain (for BSY55 only).



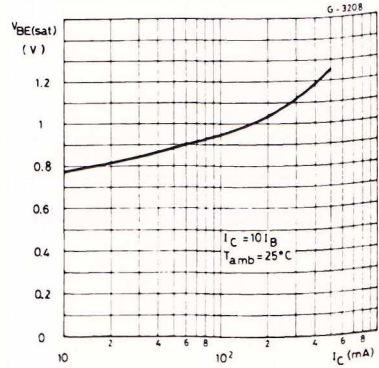
DC Normalized Current Gain (for BSY56 only).



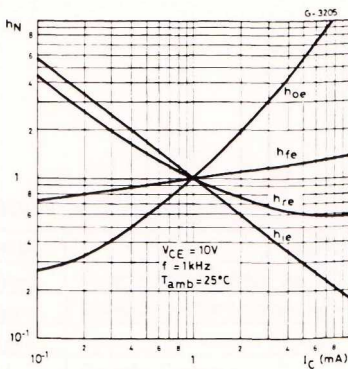
Collector-emitter Saturation Voltage.



Base-emitter Saturation Voltage.



Normalized h Parameters.



Power Rating Chart.

