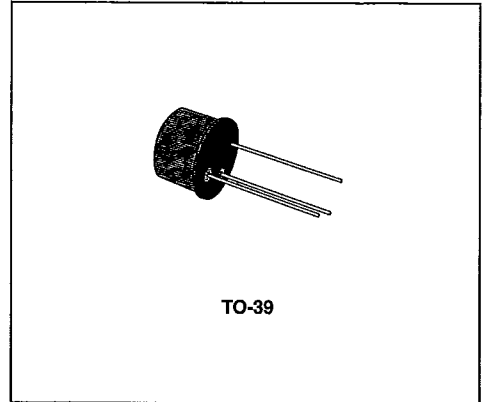
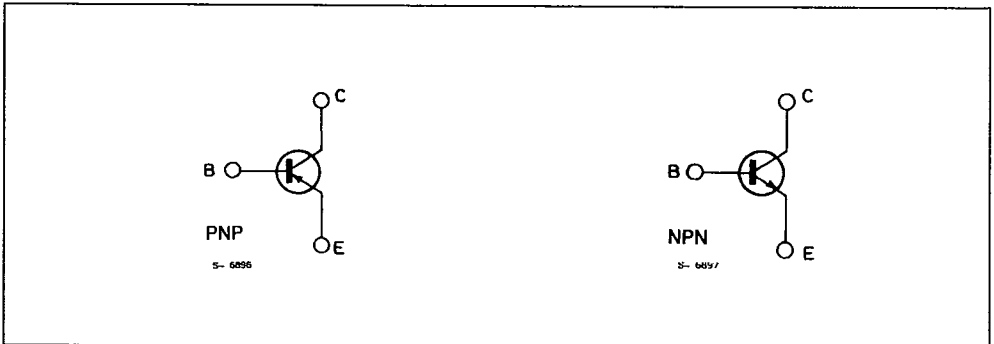


**AUDIO OUTPUT AMPLIFIER****DESCRIPTION**

The BC139 is a silicon planar epitaxial PNP transistor in a TO-39 metal case. It is particularly designed for use in audio output and driver stages. The complementary NPN type is the BC119.

**INTERNAL SCHEMATIC DIAGRAM****ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	- 40	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	- 40	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	- 5	V
$I_C$	Collector Current	- 0.5	A
$P_{tot}$	Total Power Dissipation at $T_{amb} \leq 25^\circ\text{C}$ at $T_{case} \leq 25^\circ\text{C}$	0.7	W
		3	W
$T_{stg}$	Storage Temperature	- 55 to 200	$^\circ\text{C}$
$T_J$	Junction Temperature	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	250	$^{\circ}C/W$

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

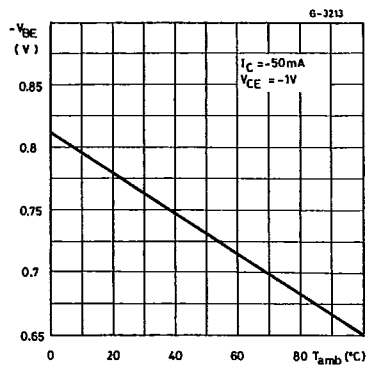
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = -30 V$ $V_{CB} = -30 V$ $T_{amb} = 75^{\circ}C$			- 100 - 50	nA $\mu A$
$V_{(BR)CBO}$	Collector-base Breakdown Voltage ( $I_E = 0$ )	$I_C = -10 \mu A$	- 40			V
$V_{(BR)CEO}^*$	Collector-emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = -10 mA$	- 40			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ( $I_C = 0$ )	$I_E = -10 \mu A$	- 5			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = -300 mA$ $I_B = -30 mA$ $I_C = -500 mA$ $I_B = -50 mA$		- 0.45 - 1	- 0.8	V V
$V_{BE}^*$	Base-emitter Voltage	$I_C = -10 mA$ $V_{CE} = -10 V$ $I_C = -100 mA$ $V_{CE} = -10 V$ $I_C = -300 mA$ $V_{CE} = -1 V$		- 0.7 - 0.77 - 0.97		V V V
$h_{FE}^*$	DC Current Gain	$I_C = -10 mA$ $V_{CE} = -10 V$ $I_C = -100 mA$ $V_{CE} = -10 V$ $I_C = -150 mA$ $V_{CE} = -1 V$ $I_C = -300 mA$ $V_{CE} = -1 V$	40 20	90 90 45 35		
$f_T$	Transition Frequency	$I_C = -50 mA$ $V_{CE} = -10 V$		200		MHz
$C_{CBO}$	Collector-base Capacitance	$I_E = 0$ $V_{CB} = -10 V$ $f = 1 MHz$		6		pF

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

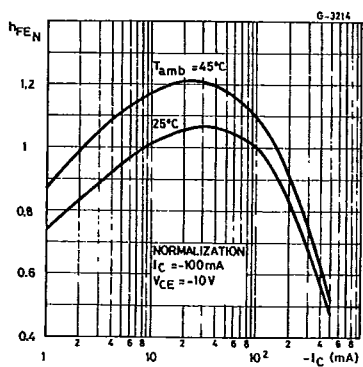
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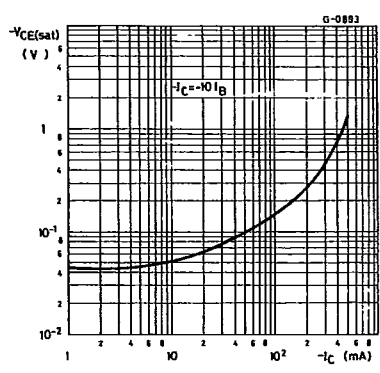
base-emitter Voltage.



DC Normalized Current Gain.



Collector-emitter Saturation Voltage.



Power Rating Chart.

