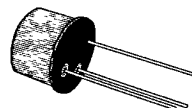


## MEDIUM POWER AMPLIFIER

### DESCRIPTION

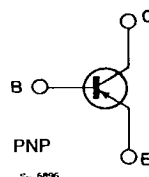
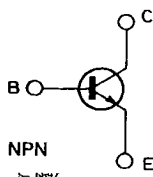
The BC440 and BC441 are silicon planar epitaxial NPN transistors in TO-39 metal case. They are intended for general purpose applications, especially for driver stages.

The complementary PNP types are respectively the BC460 and BC461.



TO-39

### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BC440	BC441	
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	50	70	V
$V_{CEO(sus)}$	Collector-emitter Voltage ( $I_B = 0$ )	40	60	V
$V_{CER}$	Collector-emitter Voltage ( $R_{BE} \leq 100 \Omega$ )	50	70	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	5		V
$I_{CM}$	Collector Peak Current	2		A
$P_{Tot}$	Total Power Dissipation at $T_{amb} \leq 25^\circ C$ at $T_{case} \leq 25^\circ C$	1		W
		10		W
$T_{stg}$	Storage Temperature	- 65 to 200		$^\circ C$
$T_J$	Junction Temperature	200		$^\circ C$

## THERMAL DATA

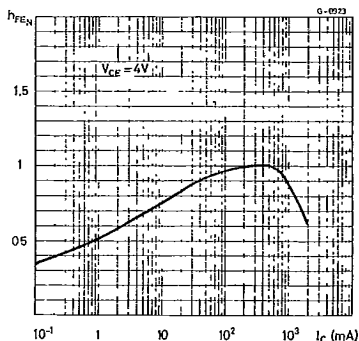
$R_{th \text{ j-case}}$	Thermal Resistance Junction-case	Max	17.5	$^{\circ}\text{C/W}$
$R_{th \text{ j-amb}}$	Thermal Resistance Junction-ambient	Max	175	$^{\circ}\text{C/W}$

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = 40 \text{ V}$			100	nA
$I_{CER}$	Collector Cutoff Current ( $R_{BE} = 100 \Omega$ )	For <b>BC440</b> $V_{CE} = 50 \text{ V}$ For <b>BC441</b> $V_{CE} = 70 \text{ V}$			10 10	$\mu\text{A}$ $\mu\text{A}$
$V_{(BR) \text{ EBO}}$	Emitter Base Breakdown Voltage ( $I_C = 0$ )	$I_E = 100 \mu\text{A}$	5			V
$V_{(BR) \text{ CEO}}^*$	Collector-emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = 10 \text{ mA}$ For <b>BC440</b> For <b>BC441</b>	40 60			V V
$V_{CE \text{ (sat)}}^*$	Collector-emitter Saturation Voltage	$I_C = 1 \text{ A}$ $I_B = 100 \text{ mA}$			1	V
$V_{BE \text{ (sat)}}$	Base-emitter Saturation Voltage	$I_C = 1 \text{ A}$ $I_B = 100 \text{ mA}$			1.5	V
$h_{FE}^*$	DC Current Gain	Gr. 4 $I_C = 500 \text{ mA}$ $V_{CE} = 4 \text{ V}$ Gr. 5 $I_C = 500 \text{ mA}$ $V_{CE} = 4 \text{ V}$ Gr. 6 $I_C = 500 \text{ mA}$ $V_{CE} = 4 \text{ V}$ $I_C = 1 \text{ A}$ $V_{CE} = 2 \text{ V}$ (for <b>BC440</b> only)	40 60 115 20		70 130 250	
$f_T$	Transition frequency	$I_C = 50 \text{ mA}$ $V_{CE} = 4 \text{ V}$	50			MHz

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

## DC Normalized Current Gain.



## Collector-emitter Saturation Voltage.

