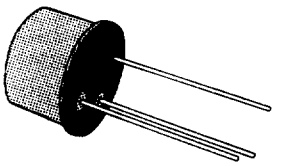
BC440
BC441

MEDIUM POWER AMPLIFIER

DESCRIPTION

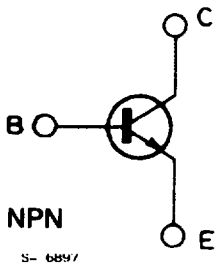
The BC440 and BC441 are silicon planar epitaxial NPN transistors in TO-39 metal case. They are intended for general purpose applications, especially for driver stages.

The complementary PNP types are respectively the BC460 and BC461.



TO-39

INTERNAL SCHEMATIC DIAGRAM



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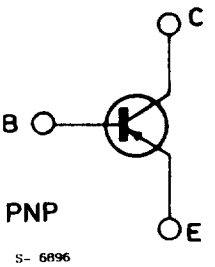

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ABSOLUTE MAXIMUM RATINGS

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 $T_{amb} \leq 25$ °C at $T_{case} \leq 25$ °C	1 10		W W
T_{stg}	Storage Temperature	– 65 to 200		°C
T_j	Junction Temperature	200		°C

THERMAL DATA

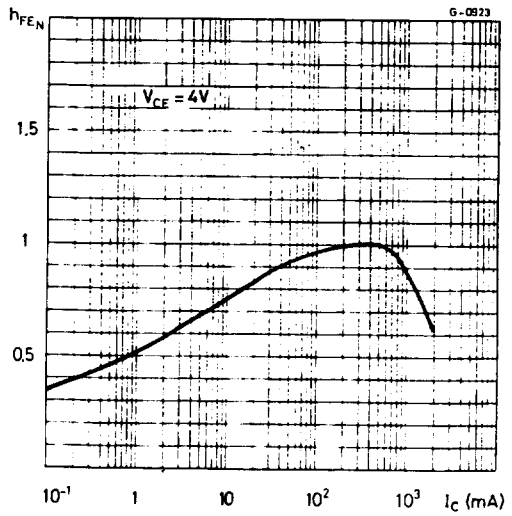
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	17.5	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	175	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

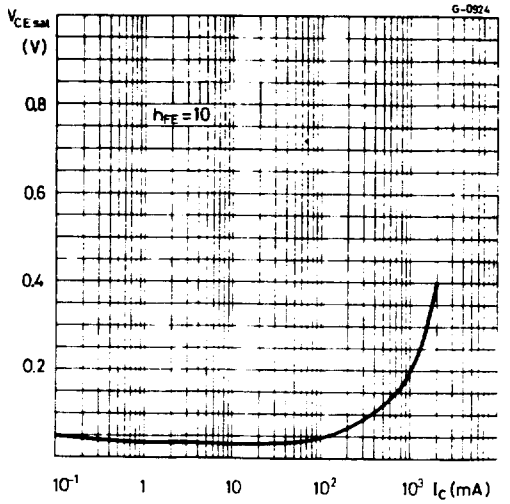
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = 40 V			100	nA
I_{CER}	Collector Cutoff Current (R_{BE} = 100 Ω)	For **BC440** V_{CE} = 50 V For **BC441** V_{CE} = 70 V			10 10	µA µA
$V_{(BR)\ EBO}$	Emitter Base Breakdown Voltage (I_C = 0)	I_E =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

* Pulsed : pulse duration = 300 µs, duty cycle = 1 %.

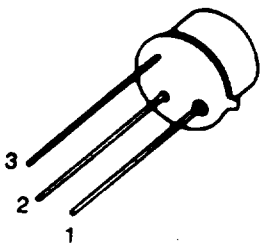
DC Normalized Current Gain.



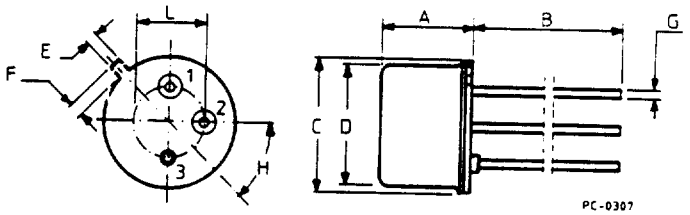
Collector-emitter Saturation Voltage.



TO-39



MECHANICAL DATA



	DIMENSIONS			
	mm		inches	
	min	max	min	max
A	—	6.6	—	0.260
B	12.7	—	0.500	—
C	—	9.4	—	0.370
D	—	8.5	—	0.334
E	—	0.9	—	0.035
F	—	1.2	—	0.047
G	—	0.49	—	0.019
H	45° typ		45° typ	
L	5.08 typ		0.200 typ	

pin 1: Emitter - pin 2: Base - pin 3: Collector