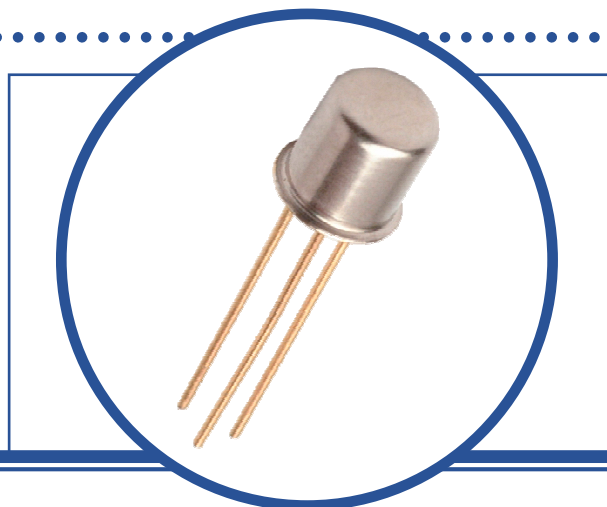


# SILICON EPITAXIAL NPN TRANSISTOR

## BC378

- Hermetic TO-18 Metal Package
- Designed For General Purpose Amplifiers, Driver Stages and Signal Processing Applications
- Screening Options Available



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise stated)

$V_{CES}$	Collector – Emitter Voltage ( $V_{EB} = 0\text{V}$ )	30V
$V_{CEO}$	Collector – Emitter Voltage ( $I_B = 0$ )	25V
$V_{EBO}$	Emitter – Base Voltage ( $I_C = 0$ )	6V
$I_C$	Collector Current	1.0A
$I_B$	Base Current	0.2A
$P_D$	Total Power Dissipation at $T_A \leq 25^\circ\text{C}$ $T_C \leq 75^\circ\text{C}$	375mW 1.0W
$T_J$	Junction Temperature Range	$175^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	$-65$ to $+175^\circ\text{C}$

### THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient			400	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction To Case			100	$^\circ\text{C/W}$

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.



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## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
I <sub>CES</sub>	Collector Cut off Current	V <sub>BE</sub> = 0V    V <sub>CE</sub> = 30V			15	nA
V <sub>(BR)CEO</sub> <sup>(1)</sup>	Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 2mA    I <sub>B</sub> = 0	25			V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> = 10μA    I <sub>C</sub> = 0	6			
V <sub>BE(sat)</sub> <sup>(1)</sup>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 500mA    I <sub>B</sub> = 50mA			1.2	
V <sub>CE(sat)</sub> <sup>(1)</sup>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 500mA    I <sub>B</sub> = 50mA			0.7	
V <sub>BE</sub> <sup>(1)</sup>	Base-Emitter Voltage	I <sub>C</sub> = 100mA    V <sub>CE</sub> = 1.0V		740		mV
h <sub>FE</sub> <sup>(1)</sup>	Forward-current transfer ratio	I <sub>C</sub> = 100mA    V <sub>CE</sub> = 1.0V	75		260	-
		I <sub>C</sub> = 300mA    V <sub>CE</sub> = 1.0V	35			

## DYNAMIC CHARACTERISTICS

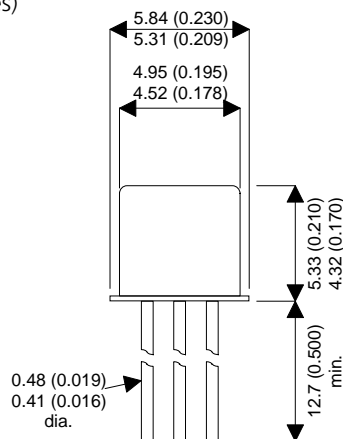
f <sub>T</sub>	Transition Frequency	I <sub>C</sub> = 50mA    V <sub>CE</sub> = 10V		100		MHz
C <sub>obo</sub>	Output Capacitance	V <sub>CB</sub> = 10V    I <sub>E</sub> = 0 f = 1.0MHz		10		pF
C <sub>ibo</sub>	Input Capacitance	V <sub>EB</sub> = 0.5V    I <sub>C</sub> = 0 f = 1.0MHz		30		pF

### Notes

(1) Pulse Width ≤ 300us, δ ≤ 2%

## MECHANICAL DATA

Dimensions in mm (inches)



## TO-18 (TO-206AA) METAL PACKAGE Underside View

Pin 1 - Emitter

Pin 2 - Base

Pin 3 - Collector

