



## Features:

- Low current (maximum 100 mA)
- Low voltage (maximum 45 V)
- NPN transistor in a TO-18 metal package

## Applications:

A F silicon epitaxial planar transistor

## Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector - base voltage	50	V
$V_{CEO}$	Collector - emitter voltage	45	V
$V_{CES}$	Collector - emitter voltage	50	V
$V_{EBO}$	Emitter - base voltage	6	V
$I_C$	Collector current - continuous	100	mA
$P_C$	Collector power dissipation at $T_A = 25^\circ\text{C}$	300	mW
$T_J$	Junction temperature	175	$^\circ\text{C}$
$T_{stg}$	Storage temperature range	-55 to 175	$^\circ\text{C}$

## Thermal Characteristics

Symbol	Parameter	Maximum	Unit
$R_{th\ j-c}$	Thermal resistance from junction to case	0.2	$^\circ\text{C/W}$

## Electrical Characteristics ( $T_C = 25^\circ\text{C}$ Unless Otherwise Specified)

Symbol	Parameter	Conditions	Minimum	Typical	Maximum	Unit
$V_{(BR)\ CBO}$	Collector - base breakdown voltage	$I_C = 10\ \mu\text{A}; I_E = 0$	50	-	-	V
$V_{(BR)\ CEO}$	Collector - emitter breakdown voltage	$I_C = 2\ \text{mA}; I_B = 0$	45	-	-	V
$V_{(BR)\ EBO}$	Emitter - base breakdown voltage	$I_E = 10\ \mu\text{A}; I_C = 0$	5	-	-	V
$V_{CE\ (sat)-1}$	Collector - emitter saturation voltage	$I_C = 10\ \text{mA}; I_B = 0.5\ \text{mA}$	-	-	0.25	V
$V_{CE\ (sat)-2}$	Collector - emitter saturation voltage	$I_C = 100\ \text{mA}; I_B = 5\ \text{mA}$	-	-	0.6	V
$V_{BE\ (on)\ 1}$	Base - emitter on voltage	$I_C = 2\ \text{mA}; V_{CE} = 5\ \text{V}$	0.55	-	0.7	V

# Silicon NPN Transistor



## Electrical Characteristics ( $T_C = 25^\circ\text{C}$ Unless Otherwise Specified)

Symbol	Parameter	Conditions	Minimum	Typical	Maximum	Unit
$V_{BE(ON)2}$	Base - emitter on voltage	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}$	-	-	0.77	V
$I_{EBO}$	Emitter cut-off current	$I_E = 0; V_{CB} = 20\text{ V}$	-	-	50	nA
$I_{CBO}$	Collector cut-off current	$V_{CB} = 30\text{ V dc}, I_E = 0$ $V_{CB} = 30\text{ V dc}, I_E = 0, T_J = 150^\circ\text{C}$	-	-	15 15	nA $\mu\text{A}$
$h_{FE1}$	DC current gain	$I_C = 10\text{ }\mu\text{A}; V_{CE} = 5\text{ V}$	40	-	150	-
$h_{FE2}$	DC current gain	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	200	-	450	-
Cobo	Output capacitance	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	-	-	6	pF
NF	Noise figure	$V_{CE} = 5\text{ V}, I_C = 0.2\text{ mA}, R_g = 2\text{ K ohm}$ $F = 1\text{ K Hz B} = 200\text{ HZ}$	-	-	10	dB

## Part Number Table

Description	Part Number
Silicon NPN Transistor	BC107B

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