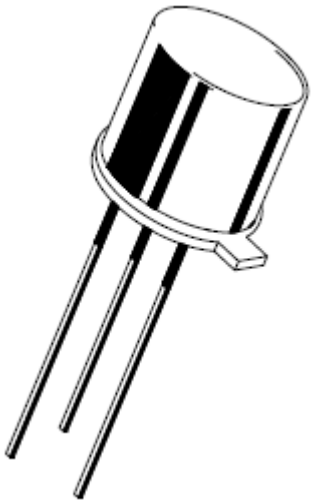
Silicon NPN Transistor



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°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°C	300	mW
T_J	Junction temperature	175	°C
T_{stg}	Storage temperature range	-55 to 175	°C

Thermal Characteristics

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

Electrical Characteristics (T_C = 25°C Unless Otherwise Specified)

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

Electrical Characteristics (T_C = 25°C Unless Otherwise Specified)

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

Part Number Table

Description	Part Number
Silicon NPN Transistor	BC107B