

NPN SILICON TRANSISTOR

2SC2000

DESCRIPTION

The 2SC2000 is designed for use in AM/RF stage of CAR RADIO and general purpose applications.

FEATURES

- High Electrostatic-Discharge-Resistant (E-B reverse bias)
ESDR 1: TYP. 500 V ($C = 1\ 000\ \text{pF}$)
ESDR 2: TYP. 1 600 V ($C = 100\ \text{pF}$)
- Low f_T , $C_c \cdot r_{b'b}$ and NF.
 f_T : TYP. 70 MHz ($V_{CE} = 6.0\ \text{V}$, $I_E = -1.0\ \text{mA}$)
 $C_c \cdot r_{b'b}$: TYP. 6.0 ps ($V_{CB} = 6.0\ \text{V}$, $I_E = -10\ \text{mA}$, $f = 31.9\ \text{MHz}$)
NF: TYP. 3.0 dB ($V_{CE} = 6.0\ \text{V}$, $I_C = 1.0\ \text{mA}$, $f = 1.0\ \text{MHz}$, $R_G = 500\ \Omega$)

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to +150 °C

Junction Temperature +150 °C Maximum

Maximum Power Dissipation ($T_a = 25\ ^\circ\text{C}$)

Total Power Dissipation 600 mW

Maximum Voltages and Currents ($T_a = 25\ ^\circ\text{C}$)

V_{CBO} Collector to Base Voltage 60 V

V_{CEO} Collector to Emitter Voltage 50 V

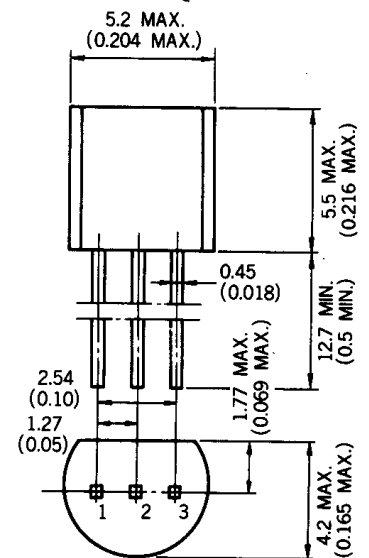
V_{EBO} Emitter to Base Voltage 5.0 V

I_C Collector Current 200 mA

I_B Base Current 20 mA

PACKAGE DIMENSIONS

in millimeters (inches)



1. EMITTER EIAJ : SC-43A
2. COLLECTOR JEDEC : TO-92
3. BASE IEC : PA33

ELECTRICAL CHARACTERISTICS ($T_a = 25\ ^\circ\text{C}$)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
h_{FE}	DC Current Gain	40	90	180	—	$V_{CE} = 6.0\ \text{V}$, $I_C = 1.0\ \text{mA}$
C_{ob}	Output Capacitance		3.7	4.5	pF	$V_{CB} = 6.0\ \text{V}$, $I_E = 0$, $f = 1.0\ \text{MHz}$
f_T	Gain Bandwidth Product	40	70		MHz	$V_{CE} = 6.0\ \text{V}$, $I_E = -1.0\ \text{mA}$
NF	Noise Figure		3.0		dB	$V_{CE} = 6.0\ \text{V}$, $I_C = 1.0\ \text{mA}$ $R_G = 500\ \Omega$, $f = 1.0\ \text{MHz}$
ESDR	Electrostatic-Discharge-Resistant		500		V	See Test Circuit
I_{CBO}	Collector Cutoff Current			100	nA	$V_{CB} = 60\ \text{V}$, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			100	nA	$V_{EB} = 5.0\ \text{V}$, $I_C = 0$
V_{BE}	Base to Emitter Voltage	600	650	700	mV	$V_{CE} = 6.0\ \text{V}$, $I_C = 1.0\ \text{mA}$
$V_{CE(sat)}$	Collector Saturation Voltage		110	300	mV	$I_C = 100\ \text{mA}$, $I_B = 10\ \text{mA}$
$V_{BE(sat)}$	Base Saturation Voltage		0.85	1.5	V	$I_C = 100\ \text{mA}$, $I_B = 10\ \text{mA}$
$C_c \cdot r_{b'b}$	Collector to Base Time Constant		6.0	15	ps	$V_{CB} = 6.0\ \text{V}$, $I_E = -10\ \text{mA}$ $f = 31.9\ \text{MHz}$

Classification of h_{FE}

Rank	M	L	K
Range	40 - 80	60 - 120	90 - 180

h_{FE} Test Conditions : $V_{CE} = 6.0\ \text{V}$, $I_C = 1.0\ \text{mA}$