

2SC5023

Silicon NPN Epitaxial

Application

High frequency amplifier

Features

- Excellent high frequency characteristics
 $f_T = 1000$ MHz typ
- High breakdown voltage and low output capacitance
 $V_{CEO} = 100$ V, $C_{ob} = 4.5$ pF typ
- Suitable for wide band video amplifier

TO-126FM



1. Emitter
2. Collector
3. Base

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

Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	100	V
Collector to emitter voltage	V_{CEO}	100	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	0.2	A
Collector peak current	$i_{c(\text{peak})}$	0.5	A
Collector power dissipation	P_C	1.25	W
Collector power dissipation	P_C^{*1}	8	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Note: 1. Value at $T_C = 25^\circ\text{C}$.

2SC5023
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	100	—	—	V	$I_C = 10 \mu\text{A}$, $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	100	—	—	V	$I_C = 1 \text{ mA}$, $R_{BE} = \infty$
Collector cutoff current	I_{CBO}	—	—	1.0	μA	$V_{CB} = 80 \text{ V}$, $I_E = 0$
Emitter cutoff current	I_{EBO}	—	—	10	μA	$V_{EB} = 3 \text{ V}$, $I_C = 0$
DC current transfer ratio	2SC5023B h_{FE}	60	—	120		$V_{CE} = 10 \text{ V}$, $I_C = 10 \text{ mA}$
	2SC5023C h_{FE}	100	—	200		
Base to emitter voltage	V_{BE}	—	—	1.0	V	$V_{CE} = 10 \text{ V}$, $I_C = 10 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.0	V	$I_C = 100 \text{ mA}$, $I_B = 10 \text{ mA}$
Gain bandwidth product	f_T	800	1000	—	MHz	$V_{CE} = 20 \text{ V}$, $I_C = 100 \text{ mA}$
Capacitor output capacitance	C_{ob}	—	4.5	6.0	pF	$V_{CB} = 30 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$

See characteristic curves of 2SC4708.

