

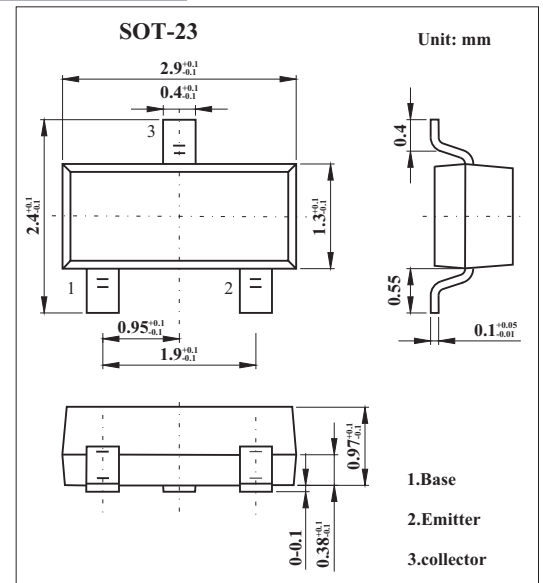
SOT-23 Plastic-Encapsulate Transistors

Features

- Low noise and high gain.
- $NF = 1.3 \text{ dB Typ.}$, $G_a = 11 \text{ dB Typ. @ } V_{CE} = 10 \text{ V}$, $I_C = 7 \text{ mA}$, $f = 1.0 \text{ GHz}$ High power gain.
- $MAG = 12 \text{ dB Typ. @ } V_{CE} = 10 \text{ V}$, $I_C = 20 \text{ mA}$, $f = 1.0 \text{ GHz}$
- TRANSISTOR (NPN)

MECHANICAL DATA

- Case: SOT-23 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- Mounting Position: Any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	20	V
Collector to emitter voltage	V_{CEO}	12	V
Emitter to base voltage	V_{EBO}	3	V
Collector current (DC)	I_C	100	mA
Total power dissipation	P_{tot}	200	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-65 to +150	°C

Electrical Specification ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 10 \text{ V}$, $I_E = 0 \text{ mA}$			1.0	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 1.0 \text{ V}$, $I_C = 0 \text{ mA}$			1.0	μA
DC current gain *	h_{FE}	$V_{CE} = 10 \text{ V}$, $I_C = 20 \text{ mA}$	50	120	250	
Insertion power gain	$ S_{21e} ^2$	$V_{CE} = 10 \text{ V}$, $I_C = 2.0 \text{ mA}$, $f = 1 \text{ GHz}$		11.5		dB
Noise figure	NF	$V_{CE} = 10 \text{ V}$, $I_C = 7 \text{ mA}$, $f = 1 \text{ GHz}$		1.2	2	dB
Reverse transfer capacitance **	C_{re}	$V_{CB} = 10 \text{ V}$, $I_E = 0 \text{ mA}$, $f = 1 \text{ MHz}$		0.55		pF
Transition frequency	f_t	$V_{CE} = 10 \text{ V}$, $I_C = 2.0 \text{ mA}$		7		GHz

* Pulse measurement: $PW \leq 350 \mu\text{s}$, Duty Cycle $\leq 2\%$.

** The emitter terminal and the case shall be connected to the guard terminal of the three-terminal capacitance bridge.

hFE Classification

Marking	R23	R24	R25
Rank	Q	R	S
h_{FE}	50~100	80~160	125~250

RATINGS AND CHARACTERISTIC CURVES

Typical Characteristics

