

TRANSISTOR (NPN)

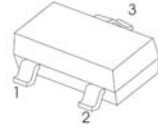
FEATURES

- AM/FM Amplifier, Local Oscillator of FM/VHF Tuner
- High Current Gain Bandwidth Product $f_T=1.1$ GHz (Typ)

MARKING: J8

SOT-23

1. BASE
2. EMITTER
3. COLLECTOR



MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	15	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	50	mA
P_C	Collector Power Dissipation	200	mW
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55-150	$^\circ\text{C}$

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$, $I_E=0$	30			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}$, $I_B=0$	15			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}$, $I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=12\text{V}$, $I_E=0$			0.05	μA
Collector cut-off current	I_{CEO}	$V_{CE}=12\text{V}$, $I_B=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=3\text{V}$, $I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=5\text{V}$, $I_C=1\text{mA}$	70		190	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10\text{mA}$, $I_B=1\text{mA}$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10\text{mA}$, $I_B=1\text{mA}$			1.4	V
Transition frequency	f_T	$V_{CE}=5\text{V}$, $I_C=5\text{mA}$ $f=400\text{MHz}$		850		MHz

CLASSIFICATION OF h_{FE}

Rank	L	H
Range	70-105	105-190