

TRANSISTOR (NPN)

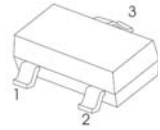
FEATURES

- 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 |