



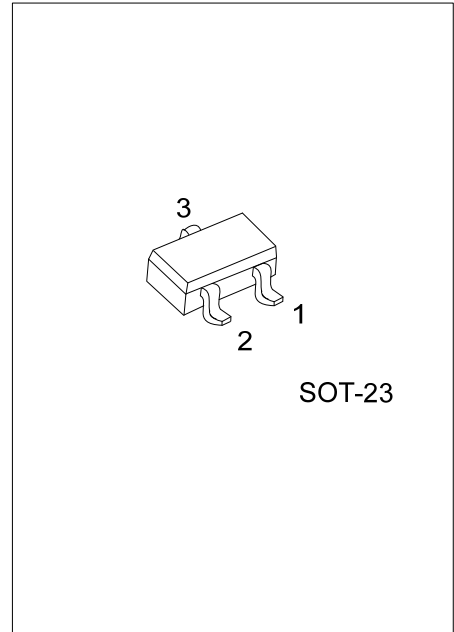
MMBT9014

NPN SILICON TRANSISTOR

PRE-AMPLIFIER, LOW LEVEL & LOW NOISE

FEATURES

- * High Total Power Dissipation. (450mW)
- * Excellent h_{FE} Linearity.
- * Complementary to UTC MMBT9015

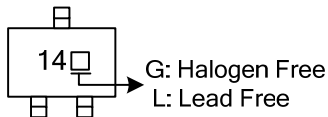


ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|-------------------|-------------------|---------|----------------|---|---|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| MMBT9014G-x-AE3-R | MMBT9014G-x-AE3-R | SOT-23 | E | B | C | Tape Reel |

| | |
|--|---|
| <p>MMBT9014L-x-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Lead Free</p> | <p>(1) R: Tape Reel (2) AE3: SOT-23 (3) x: refer to Classification of h_{FE} (4) G: Halogen Free, L: Lead Free</p> |
|--|---|

MARKING



MMBT9014

NPN SILICON TRANSISTOR

■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---------------------------|-----------|------------|--------------------|
| Collector-Emitter Voltage | V_{CEO} | 45 | V |
| Collector-Base Voltage | V_{CBO} | 50 | V |
| Emitter Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 100 | mA |
| Collector dissipation | P_C | 225 | mW |
| Junction Temperature | T_J | 150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{STG} | -55 ~ +150 | $^{\circ}\text{C}$ |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

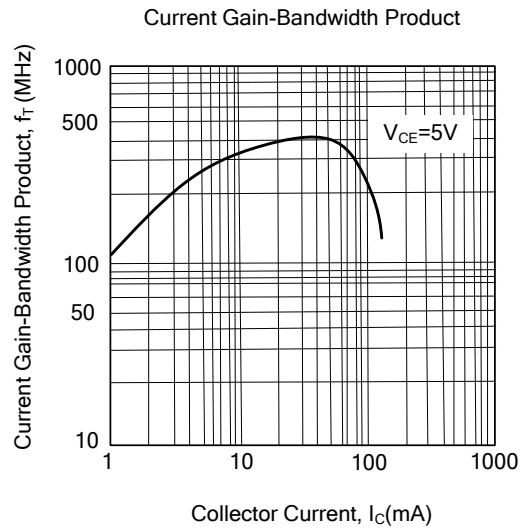
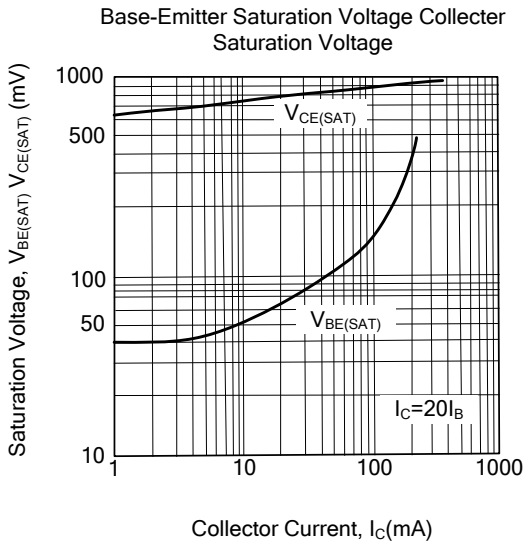
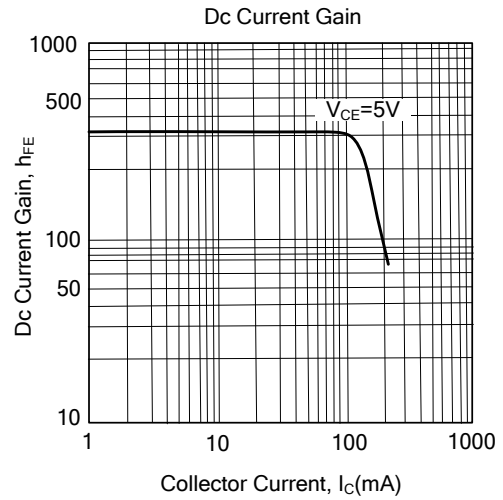
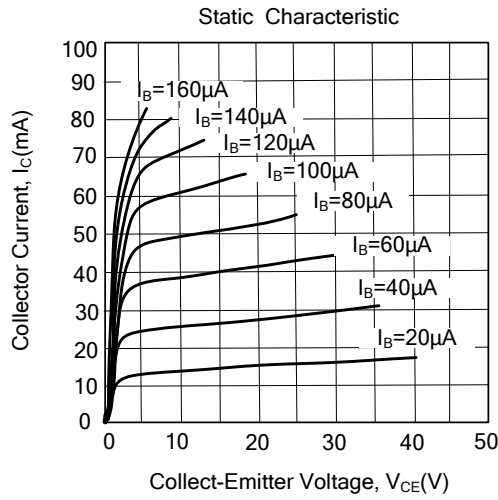
■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|--|------|------|------|------|
| Collector-Emitter Voltage | V_{CEO} | $I_C=100\mu\text{A}, I_E=0$ | 50 | | | V |
| Collector-Base Voltage | V_{CBO} | $I_C=1\text{mA}, I_B=0$ | 45 | | | V |
| Emitter Base Voltage | V_{EBO} | $I_E=100\mu\text{A}, I_C=0$ | 5 | | | V |
| Collector cutoff current | I_{CBO} | $V_{CB}=50\text{V}, I_E=0$ | | | 50 | nA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=5\text{V}, I_C=0$ | | | 100 | nA |
| DC Current Gain | h_{FE} | $V_{CE}=5\text{V}, I_C=1\text{mA}$ | 60 | 280 | 1000 | |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=100\text{mA}, I_B=5\text{mA}$ | | 0.14 | 0.3 | V |
| Base-Emitter Saturation Voltage | $V_{BE(SAT)}$ | $I_C=100\text{mA}, I_B=5\text{mA}$ | | 0.84 | 1.0 | V |
| Base-emitter on voltage | $V_{BE(ON)}$ | $V_{CE}=5\text{V}, I_C=2\text{mA}$ | 0.58 | 0.63 | 0.7 | V |
| Current-Gain-Bandwidth Product | f_T | $V_{CE}=5\text{V}, I_C=10\text{mA}$ | 150 | 270 | | MHz |
| Output Capacitance | C_{OB} | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$ | | 2.2 | 3.5 | pF |
| Noise Figure | NF | $V_{CE}=5\text{V}, I_C=0.2\text{mA}, f=1\text{KHz}, R_S=2\text{K}\Omega$ | | 0.9 | 10 | dB |

■ CLASSIFICATION OF h_{FE}

| RANK | A | B | C | D |
|-------|--------|---------|---------|----------|
| RANGE | 60-150 | 100-300 | 200-600 | 400-1000 |

TYPICAL CHARACTERISTICS



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