



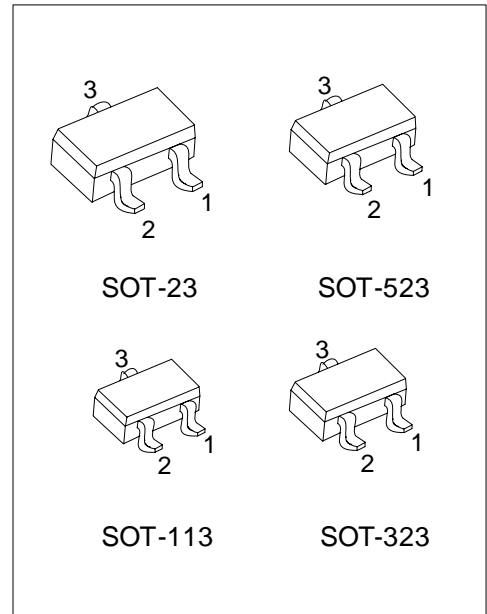
MMBT1815

NPN SILICON TRANSISTOR

HIGH FREQUENCY NPN AMPLIFIER TRANSISTOR

FEATURES

- *Collector-Emitter Voltage:
BV_{CEO}=50V
- *Collector current up to 150mA
- *High h_{FE} linearity
- *Complement to MMBT1015



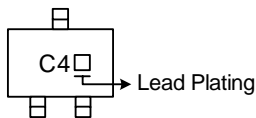
*Pb-free plating product number: MMBT1815L

ORDERING INFORMATION

| Order Number | | Package | Pin Assignment | | | Packing |
|------------------|-------------------|---------|----------------|---|---|-----------|
| Normal | Lead Free Plating | | 1 | 2 | 3 | |
| MMBT1815-x-AC3-R | MMBT1815L-x-AC3-R | SOT-113 | E | B | C | Tape Reel |
| MMBT1815-x-AE3-R | MMBT1815L-x-AE3-R | SOT-23 | E | B | C | Tape Reel |
| MMBT1815-x-AL3-R | MMBT1815L-x-AL3-R | SOT-323 | E | B | C | Tape Reel |
| MMBT1815-x-AN3-R | MMBT1815L-x-AN3-R | SOT-523 | E | B | C | Tape Reel |

| | |
|--------------------------|---|
| <p>MMBT1815L-x-AC3-R</p> | <p>(1) R: Tape Reel (2) AC3: SOT-113, AE3: SOT-23, AL3: SOT-323, AN3: SOT-523 (3) x: refer to Classification of h_{FE1} (4) L: Lead Free Plating, Blank: Pb/Sn</p> |
|--------------------------|---|

MARKING



MMBT1815

NPN SILICON TRANSISTOR

■ ABSOLUTE MAXIMUM RATING (Ta=25°C , unless otherwise specified)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---------------------------------|-------------------------|------------|------|
| Collector-Base Voltage | V_{CBO} | 60 | V |
| Collector-Emitter Voltage | V_{CEO} | 50 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Collector Dissipation (Ta=25°C) | SOT-23 | 250 | mW |
| | SOT-523/SOT-113/SOT-323 | 200 | mW |
| Collector Current | I_C | 150 | mA |
| Base Current | I_B | 50 | mA |
| Junction Temperature | T_J | 150 | |
| Storage Temperature | T_{STG} | -55 ~ +150 | |

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 (Ta=25°C, unless otherwise specified)

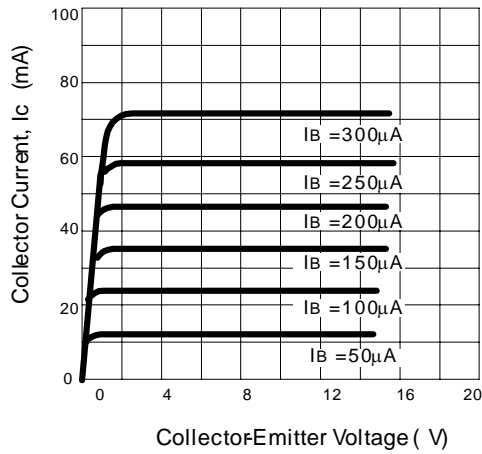
| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|---|-----|-----|------|------|
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C = 100mA, I_B = 10mA$ | | 0.1 | 0.25 | V |
| Base-Emitter Saturation Voltage | $V_{BE(SAT)}$ | $I_C = 100mA, I_B = 10mA$ | | | 1.0 | V |
| Collector Cut-off Current | I_{CBO} | $V_{CB} = 60V, I_E = 0$ | | | 100 | nA |
| Emitter Cut-off Current | I_{EBO} | $V_{EB} = 5V, I_C = 0$ | | | 100 | nA |
| DC Current Gain | h_{FE1} | $V_{CE} = 6V, I_C = 2mA$ | 120 | | 700 | |
| | h_{FE2} | $V_{CE} = 6V, I_C = 150mA$ | 25 | | | |
| Transition Frequency | f_T | $V_{CE} = 10V, I_C = 50mA$ | 80 | | | MHz |
| Output Capacitance | C_{OB} | $V_{CB} = 10V, I_E = 0, f = 1MHz$ | | 2.0 | 3.0 | pF |
| Noise Figure | NF | $I_C = -0.1mA, V_{CE} = 6V$ $R_G = 10k\Omega, f = 100Hz$ | | 1.0 | 1.0 | dB |

■ CLASSIFICATION OF h_{FE1}

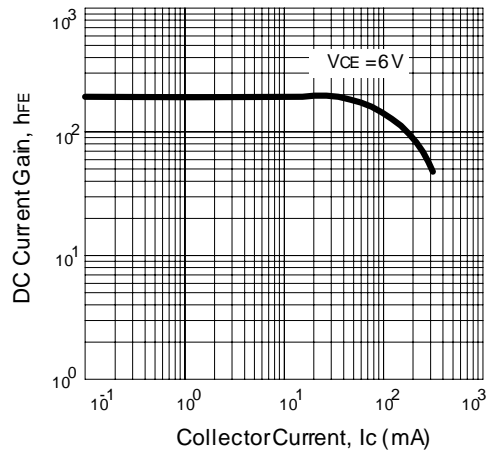
| RANK | Y | GR | BL |
|-------|---------|---------|---------|
| RANGE | 120-240 | 200-400 | 350-700 |

■ TYPICAL CHARACTERISTICS

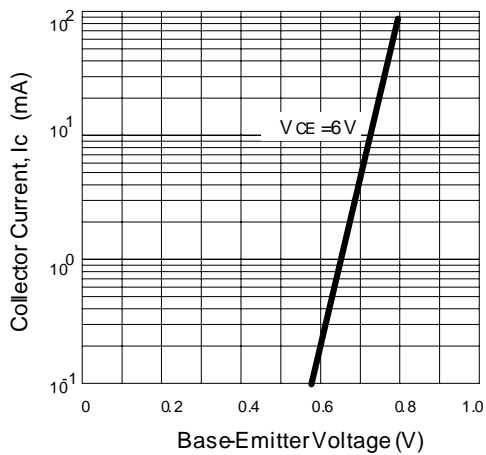
Static Characteristics



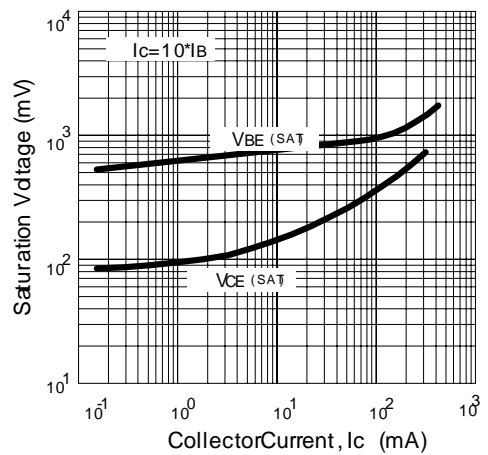
DC Current Gain



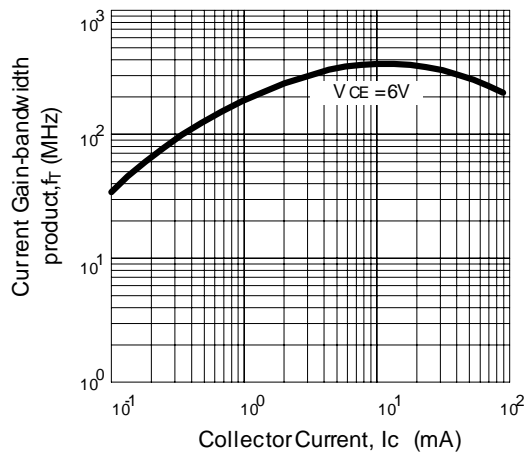
Base-Emitter On Voltage



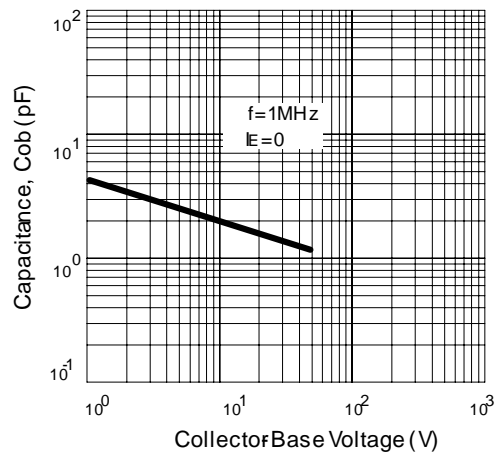
Saturation Voltage



Current Gain-Bandwidth Product



Collector Output Capacitance



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