



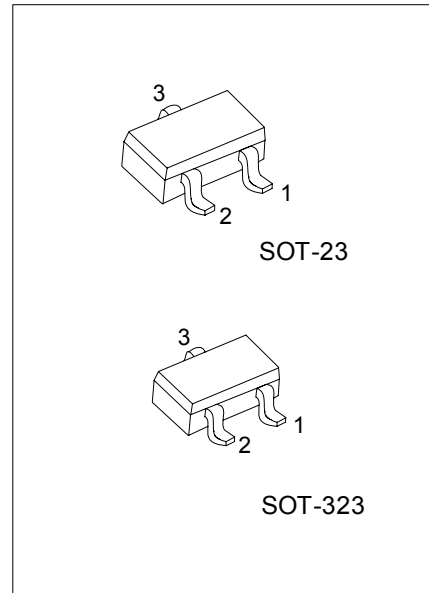
2SC3838

NPN SILICON TRANSISTOR

HIGH-FREQUENCY AMPLIFIER TRANSISTOR

FEATURES

- *High transition frequency.
- *Small r_{bb} , C_c and high gain.
- *Small NF.



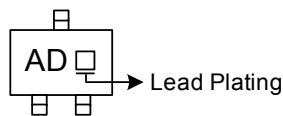
*Pb-free plating product number: 2SC3838L

ORDERING INFORMATION

| Order Number | | Package | Pin Assignment | | | Packing |
|-----------------|-------------------|---------|----------------|---|---|-----------|
| Normal | Lead Free Plating | | 1 | 2 | 3 | |
| 2SC3838-x-AE3-R | 2SC3838L-x-AE3-R | SOT-23 | E | B | C | Tape Reel |
| 2SC3838-x-AL3-R | 2SC3838L-x-AL3-R | SOT-323 | E | B | C | Tape Reel |

| | |
|--|--|
| <p>2SC3838L-x-AE3-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Rank (4) Lead Plating | <ul style="list-style-type: none"> (1) R: Tape Reel (2) AE3: SOT-23, AL3: SOT-323 (3) x: refer to Classification of h_{FE} (4) L: Lead Free Plating, Blank: Pb/Sn |
|--|--|

MARKING



■ ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------|------------------|------------|------|
| Collector-Base Voltage | V _{CBO} | 20 | V |
| Collector-Emitter Voltage | V _{CEO} | 11 | V |
| Emitter-Base Voltage | V _{EBO} | 3 | V |
| Collector current | I _C | 50 | mA |
| Collector power dissipation | P _D | 0.2 | W |
| Junction Temperature | T _J | +150 | °C |
| Storage Temperature | T _{STG} | -55 ~ +150 | °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 (Ta= 25 °C, unless otherwise specified.)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------------------|----------------------------------|---|-----|-----|-----|------|
| Collector-base breakdown voltage | BV _{CBO} | I _C =10μA | 20 | | | V |
| Collector-emitter breakdown voltage | BV _{CEO} | I _C =1mA | 11 | | | V |
| Emitter-base breakdown voltage | BV _{EBO} | I _E =10μA | 3 | | | V |
| Collector cutoff current | I _{CBO} | V _{CB} =10V | | | 0.5 | μA |
| Emitter cutoff current | I _{EBO} | V _{EB} =2V | | | 0.5 | μA |
| Collector-emitter saturation voltage | V _{CE(SAT)} | I _C =10mA, I _B = 5mA | | | 0.5 | V |
| DC current transfer ratio | h _{FE} | V _{CE} =10V, I _C =5mA | 56 | | 400 | |
| Transition frequency | f _T | V _{CE} =10V, I _E =10mA, f=500MHz | 1.4 | 3.2 | | GHz |
| Output capacitance | C _{ob} | V _{CB} =10V, I _E =0A, f=1MHz | | 0.8 | 1.5 | pF |
| Collector-base time constant | r _{bb'} ·C _c | V _{CB} =10V, I _C =10mA, f=31.8MHz | | 4 | 12 | ps |
| Noise factor | NF | V _{CE} =6V, I _C =2mA, f=500MHz, R _g =50Ω | | 3.5 | | dB |

■ CLASSIFICATION of h_{FE}

| RANK | A | B | C | D |
|-------|----------|-----------|-----------|-----------|
| RANGE | 56 ~ 110 | 100 ~ 170 | 120 ~ 270 | 250 ~ 400 |

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