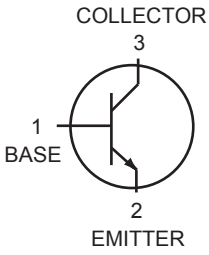
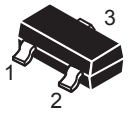
# WEITRON

# 2SC3838

## High-Frequency Amplifier Transistor
## NPN Silicon

**Pb Lead(Pb)-Free**




**SOT-23**

### MAXIMUM RATINGS (Ta=25ºC)

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Collector-Emitter Voltage | $V_{CEO}$ | 11 | V |
| Collector-Base Voltage | $V_{CBO}$ | 20 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 3.0 | V |
| Collector Current-Continuous | $I_C$ | 50 | mA |

### THERMAL CHARACTERISTICS

| Characteristics | Symbol | Value | Unit |
|---|---|---|---|
| Total Device Dissipation FR-5 Board (1) $T_A$ =25°C | $P_D$ | 150 | mW |
| Thermal Resistance, Junction Ambient | $R_{\theta JA}$ | 625 | °C/W |
| Junction and Storage, Temperature | $T_J$, Tstg | -55 to +150 | °C |

### Device Marking

2SC3838=AD

### ELECTRICAL CHARACTERISTICS

| Characteristics | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| Collector-Emitter Breakdown Voltage($I_C$ =1mA, $I_B$=0) | $V_{(BR)CEO}$ | 11 | - | V |
| Collector-Base Breakdown Voltage($I_C$ =10μA, $I_E$=0) | $V_{(BR)CBO}$ | 20 | - | V |
| Emitter-Base Breakdown Voltage($I_E$ =10μA, $I_C$=0) | $V_{(BR)EBO}$ | 3.0 | - | V |
| Collector Cufoff Current($V_{CB}$ =10V, $I_E$=0) | $I_{CBO}$ | - | 0.5 | μA |
| Emitter Cufoff Current($V_{EB}$ =2V, $I_C$=0) | $I_{EBO}$ | - | 0.5 | μA |

1. FR-5=1.0×0.75×0.062 in

## ELECTRICAL CHARACTERISTICS ($T_A$=25°C unless otherwise noted) (Countinued)

| Characteristics | Symbol | Min | TYP | Max | Unit |
|---|---|---|---|---|---|

## ON CHARACTERISTICS

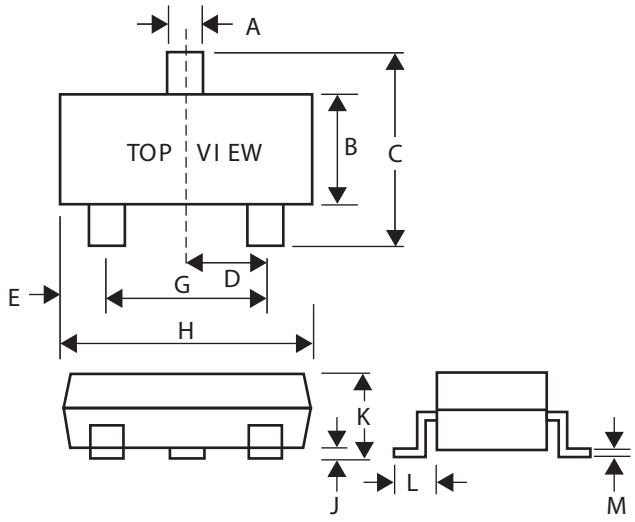
| | | | | | |
|---|---|---|---|---|---|
| DC Current Gain<br>$V_{CE}$=10V ,$I_C$= 5mA | $h_{FE}$ | 27 | - | 270 | - |
| Transition Frequency<br>$V_{CE}$=10V ,$I_C$= 10mA, f=500MHz | $f_T$ | 1.4 | - | - | GHz |
| Collector-Emitter Saturation Voltage<br>$I_C$=-10 mA, $I_B$=5mA | $V_{CE(sat)}$ | - | - | 0.5 | V |
| Noise Factor<br>$V_{CE}$=6V, $I_C$=2mA, f=500MHz | F | - | - | 4.0 | dB |

## CLASSIFICATION OF $h_{FE}$

| Rank | N | P |
|---|---|---|
| Range | 56-120 | 82-180 |

## SOT-23 Package OutlineDimensions

Unit:mm




| Dim | Min | Max |
|---|---|---|
| A | 0.35 | 0.51 |
| B | 1.19 | 1.40 |
| C | 2.10 | 3.00 |
| D | 0.85 | 1.05 |
| E | 0.46 | 1.00 |
| G | 1.70 | 2.10 |
| H | 2.70 | 3.10 |
| J | 0.01 | 0.13 |
| K | 0.89 | 1.10 |
| L | 0.30 | 0.61 |
| M | 0.076 | 0.25 |