## MMBTSC3356W

## NPN Silicon Epitaxial Planar Transistor

for microwave low noise amplifier at VHF, UHF and CATV band.

1.Base 2.Emitter 3.Collector SOT-323 Plastic Package

Absolute Maximum Ratings $\left(\mathrm{T}_{\mathrm{a}}=25^{\circ} \mathrm{C}\right)$

| Parameter | Symbol | Value | Unit |
| :--- | :---: | :---: | :---: |
| Collector Base Voltage | $\mathrm{V}_{\text {CBO }}$ | 20 | V |
| Collector Emitter Voltage | $\mathrm{V}_{\text {CEO }}$ | 12 | V |
| Emitter Base Voltage | $\mathrm{V}_{\text {EBO }}$ | 3 | V |
| Collector Current | $\mathrm{I}_{\mathrm{C}}$ | 100 | mA |
| Power Dissipation | $\mathrm{P}_{\text {tot }}$ | 200 | mW |
| Junction Temperature | $\mathrm{T}_{\mathrm{j}}$ | 150 | ${ }^{\circ} \mathrm{C}$ |
| Storage Temperature Range | $\mathrm{T}_{\mathrm{S}}$ | -65 to +150 | ${ }^{\circ} \mathrm{C}$ |

Characteristics at $\mathrm{T}_{\mathrm{amb}}=25^{\circ} \mathrm{C}$

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
| :---: | :---: | :---: | :---: | :---: | :---: |
| DC Current Gain <br> at $\mathrm{V}_{\mathrm{CE}}=10 \mathrm{~V}, \mathrm{I}_{\mathrm{C}}=20 \mathrm{~mA}$ Current Gain Group Q <br> R <br> S | $\begin{aligned} & \mathrm{h}_{\mathrm{FE}} \\ & \mathrm{~h}_{\mathrm{FE}} \\ & \mathrm{~h}_{\mathrm{FE}} \end{aligned}$ | $\begin{gathered} 50 \\ 80 \\ 125 \end{gathered}$ | - | $\begin{aligned} & 100 \\ & 160 \\ & 250 \\ & \hline \end{aligned}$ |  |
| Collector Cutoff Current at $\mathrm{V}_{\mathrm{CB}}=10 \mathrm{~V}$ | $\mathrm{I}_{\text {CBO }}$ | - | - | 1 | $\mu \mathrm{A}$ |
| Emitter Cutoff Current at $\mathrm{V}_{\mathrm{EB}}=1 \mathrm{~V}$ | $\mathrm{I}_{\text {Ebo }}$ | - | - | 1 | $\mu \mathrm{A}$ |
| Gain Bandwidth Product at $\mathrm{V}_{\mathrm{CE}}=10 \mathrm{~V}, \mathrm{I}_{\mathrm{C}}=20 \mathrm{~mA}$ | $\mathrm{f}_{\mathrm{T}}$ | - | 7 | - | GHz |
| Feed-Back Capacitance at $\mathrm{V}_{\mathrm{CB}}=10 \mathrm{~V}, \mathrm{f}=1 \mathrm{MHz}$ | $\mathrm{Crer}^{1)}$ | - | 0.55 | 1 | pF |
| ```Insertion Power Gain at \(\mathrm{V}_{\mathrm{CE}}=10 \mathrm{~V}, \mathrm{I}_{\mathrm{C}}=20 \mathrm{~mA}, \mathrm{f}=1 \mathrm{GHz}\)``` | $\left\|S_{21 e}\right\|^{2}$ | - | 11.5 | - | dB |
| Noise Figure <br> at $\mathrm{V}_{\mathrm{CE}}=10 \mathrm{~V}, \mathrm{I}_{\mathrm{C}}=7 \mathrm{~mA}, \mathrm{f}=1 \mathrm{GHz}$ | NF | - | 1.1 | 2 | dB |

[^0]TYPICAL CHARACTERISTICS (TA $=25^{\circ} \mathrm{C}$ )



[^0]:    ${ }^{1)}$ The emitter terminal and the case shall be connected to the guard terminal of the three-terminal capacitance bridge.

