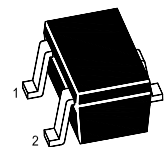


# MMBT2369W / MMBT2369AW

## NPN Silicon Switching Transistor

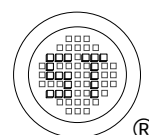


1.Base 2.Emitter 3.Collector  
SOT-323 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

| Parameter                                         | Symbol          | Value       | Unit               |
|---------------------------------------------------|-----------------|-------------|--------------------|
| Collector Base Voltage                            | $V_{CBO}$       | 40          | V                  |
| Collector Emitter Voltage                         | $V_{CEO}$       | 15          | V                  |
| Collector Emitter Voltage                         | $V_{CES}$       | 40          | V                  |
| Emitter Base Voltage                              | $V_{EBO}$       | 4.5         | V                  |
| Collector Current Continuous                      | $I_C$           | 200         | mA                 |
| Total Device Dissipation FR-5 Board <sup>1)</sup> | $P_{tot}$       | 200         | mW                 |
| Thermal Resistance Junction to Ambient            | $R_{\theta JA}$ | 625         | $^\circ\text{C/W}$ |
| Junction and Storage Temperature Range            | $T_J, T_{Stg}$  | -55 to +150 | $^\circ\text{C}$   |

<sup>1)</sup> FR-5=1 × 0.75 × 0.062 in.



# MMBT2369W / MMBT2369AW

## Characteristics at $T_{amb}=25^{\circ}\text{C}$

| Parameter                                                               |            | Symbol        | Min. | Max. | Unit          |
|-------------------------------------------------------------------------|------------|---------------|------|------|---------------|
| DC Current Gain                                                         |            |               |      |      |               |
| at $V_{CE} = 1\text{ V}$ , $I_C = 10\text{ mA}$                         | MMBT2369W  | $h_{FE}$      | 40   | 120  | -             |
| at $V_{CE} = 1\text{ V}$ , $I_C = 10\text{ mA}$                         | MMBT2369AW | $h_{FE}$      | -    | 120  | -             |
| at $V_{CE} = 0.35\text{ V}$ , $I_C = 10\text{ mA}$                      | MMBT2369AW | $h_{FE}$      | 40   | -    | -             |
| at $V_{CE} = 0.4\text{ V}$ , $I_C = 30\text{ mA}$                       | MMBT2369AW | $h_{FE}$      | 30   | -    | -             |
| at $V_{CE} = 2.0\text{ V}$ , $I_C = 100\text{ mA}$                      | MMBT2369W  | $h_{FE}$      | 20   | -    | -             |
| at $V_{CE} = 1.0\text{ V}$ , $I_C = 100\text{ mA}$                      | MMBT2369AW | $h_{FE}$      | 20   | -    | -             |
| Collector Cutoff Current<br>at $V_{CB} = 20\text{ V}$                   |            | $I_{CBO}$     | -    | 0.4  | $\mu\text{A}$ |
| Collector Cutoff Current<br>at $V_{CE} = 20\text{ V}$                   |            | $I_{CES}$     | -    | 0.4  | $\mu\text{A}$ |
| Collector Emitter Breakdown Voltage<br>at $I_C = 10\text{ mA}$          |            | $V_{(BR)CEO}$ | 15   | -    | V             |
| Collector Base Breakdown Voltage<br>at $I_C = 10\text{ }\mu\text{A}$    |            | $V_{(BR)CBO}$ | 40   | -    | V             |
| Collector Emitter Breakdown Voltage<br>at $I_C = 10\text{ }\mu\text{A}$ |            | $V_{(BR)CES}$ | 40   | -    | V             |
| Emitter Base Breakdown Voltage<br>at $I_E = 10\text{ }\mu\text{A}$      |            | $V_{(BR)EBO}$ | 4.5  | -    | V             |
| Collector Emitter Saturation Voltage                                    |            |               |      |      |               |
| at $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$                           | MMBT2369W  | $V_{CEsat}$   | -    | 0.25 | V             |
| at $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$                           | MMBT2369AW | $V_{CEsat}$   | -    | 0.2  | V             |
| at $I_C = 30\text{ mA}$ , $I_B = 3\text{ mA}$                           | MMBT2369AW | $V_{CEsat}$   | -    | 0.25 | V             |
| at $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$                         | MMBT2369AW | $V_{CEsat}$   | -    | 0.5  | V             |
| Base Emitter Saturation Voltage                                         |            |               |      |      |               |
| at $I_C = 10\text{ mA}$ , $I_B = 1\text{ mA}$                           | MMBT2369AW | $V_{BEsat}$   | 0.7  | 0.85 | V             |
| at $I_C = 30\text{ mA}$ , $I_B = 3\text{ mA}$                           | MMBT2369AW | $V_{BEsat}$   | -    | 1.15 | V             |
| at $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$                         | MMBT2369AW | $V_{BEsat}$   | -    | 1.60 | V             |

## Characteristics at $T_{amb}=25^{\circ}\text{C}$

| Parameter                                                                                                         | Symbol    | Min. | Typ. | Max. | Unit |
|-------------------------------------------------------------------------------------------------------------------|-----------|------|------|------|------|
| Output Capacitance<br>at $V_{CB} = 5\text{ V}$ , $f = 1\text{ MHz}$                                               | $C_{obo}$ | -    | -    | 4    | pF   |
| Storage Time<br>$I_{B1} = I_{B2} = I_C = 10\text{ mA}$                                                            | $t_s$     | -    | -    | 13   | ns   |
| Turn-On Time<br>$V_{CC} = 3\text{ V}$ , $I_C = 10\text{ mA}$ , $I_{B1} = 3\text{ mA}$                             | $t_{on}$  | -    | -    | 12   | ns   |
| Turn-Off Time<br>$V_{CC} = 3\text{ V}$ , $I_C = 10\text{ mA}$ , $I_{B1} = 3\text{ mA}$ , $I_{B2} = 1.5\text{ mA}$ | $t_{off}$ | -    | -    | 18   | ns   |

