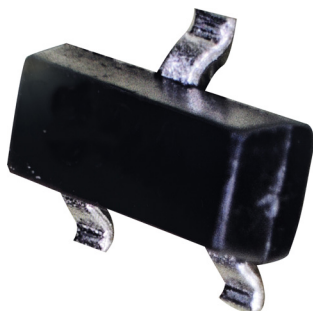


# Single Bipolar Transistor multicomp<sup>PRO</sup>

RoHS  
Compliant



## Features

- $V_{CE(sat)}$  maximum specification improvement
- Reverse blocking specification improvement

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

| Parameter                      | Symbol          | Rating     | Unit                      |
|--------------------------------|-----------------|------------|---------------------------|
| Collector - Base Voltage       | $V_{CBO}$       | 80         | V                         |
| Collector - Emitter Voltage    | $V_{CEO}$       | 60         |                           |
| Emitter - Base Voltage         | $V_{EBO}$       | 7          |                           |
| Collector Current - Continuous | $I_C$           | 1          | A                         |
| Collector Current - Pulse      | $I_{CP}$        | 2          |                           |
| Power Dissipation              | $P_D$           | 500        | mW                        |
| Linear derating factor         |                 | 4          | mW/ $^\circ\text{C}$      |
| Junction to ambient            | $R_{\theta JA}$ | 250        | $^\circ\text{C}/\text{W}$ |
| Junction Temperature           | $T_j$           | 150        | $^\circ\text{C}$          |
| Storage Temperature Range      | $T_{stg}$       | -55 to 150 |                           |

## Electrical Characteristics ( $T_A = 25^\circ\text{C}$ )

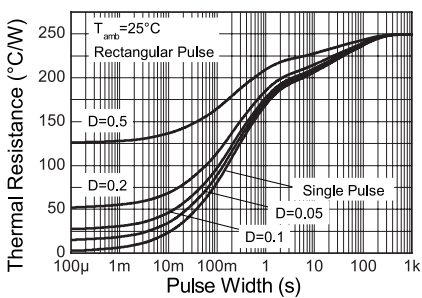
| Parameter                            | Symbol        | Test Conditions                                    | Min | Typ | Max | Unit |
|--------------------------------------|---------------|--|-----|-----|-----|------|
| Collector- base breakdown voltage    | $V_{CBO}$     | $I_C = 100 \mu\text{A}, I_E = 0$                   | 80  |     |     | V    |
| Collector- emitter breakdown voltage | $V_{CEO}$     | $I_C = 10 \text{ mA}, I_B = 0$                     | 60  |     |     |      |
| Emitter - base breakdown voltage     | $V_{EBO}$     | $I_E = 100 \mu\text{A}, I_C = 0$                   | 7   |     |     |      |
| Collector-base cut-off current       | $I_{CBO}$     | $V_{CB} = 60\text{V}, I_E = 0$                     |     |     | 100 | nA   |
| Collector- emitter cut-off current   | $I_{CES}$     | $V_{CE} = 60\text{V}, I_E = 0$                     |     |     |     |      |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = 5.6\text{V}, I_C = 0$                    |     |     |     |      |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 500 \text{ mA}, I_B = 50\text{mA}$ (Note.1) |     |     | 150 | mV   |
|                                      |               | $I_C = 1 \text{ A}, I_B = 100\text{mA}$ (Note.1)   |     |     | 250 |      |
| Base - emitter saturation voltage    | $V_{BE(sat)}$ | $I_C = 1 \text{ A}, I_B = 100\text{mA}$ (Note.1)   |     |     | 1.1 | V    |
| Base-emitter turn-on voltage         | $V_{BE(on)}$  | $V_{CE} = 5\text{V}, I_C = 1 \text{ A}$ (Note.1)   |     |     | 1   |      |

# Single Bipolar Transistor **multicomp**PRO

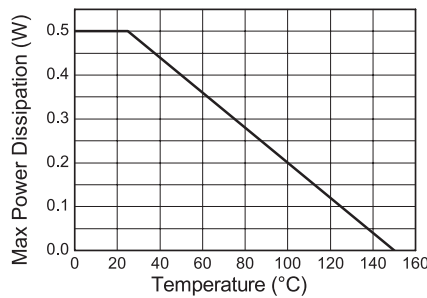
| Parameter                    | Symbol      | Test Conditions                        | Min | Typ | Max | Unit |
|------------------------------|-------------|--|-----|-----|-----|------|
| DC current gain              | $h_{FE(1)}$ | $V_{CE} = 5V, I_C = 1mA$               | 100 |     | 300 |      |
|                              | $h_{FE(2)}$ | $V_{CE} = 5V, I_C = 500mA$             |     |     |     |      |
|                              | $h_{FE(3)}$ | $V_{CE} = 5V, I_C = 1A$                | 80  |     |     |      |
|                              | $h_{FE(4)}$ | $V_{CE} = 5V, I_C = 2A$                | 30  |     |     |      |
| Collector output capacitance | $C_{ob}$    | $V_{CB} = 10V, f = 1MHz$               |     |     | 10  | pF   |
| Transition frequency         | $f_T$       | $V_{CE} = 10V, I_C = 50mA, f = 100MHz$ | 150 |     |     | MHz  |

Note.1: Measured under pulsed conditions. Pulse width  $\leq 300\mu s$ ; duty cycle  $\leq 2\%$ .

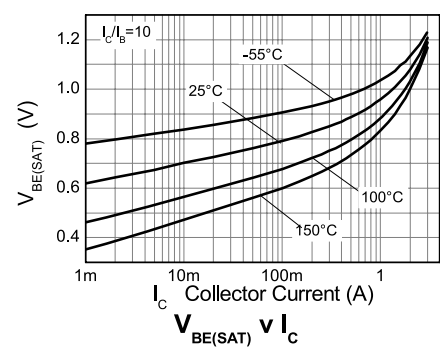
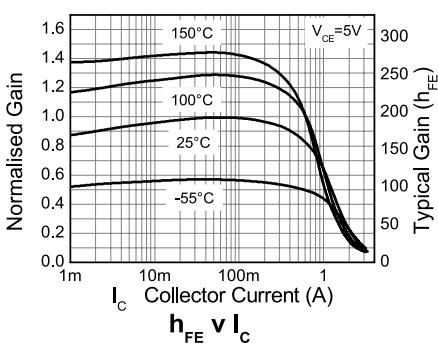
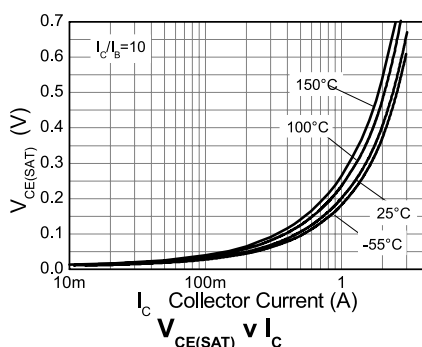
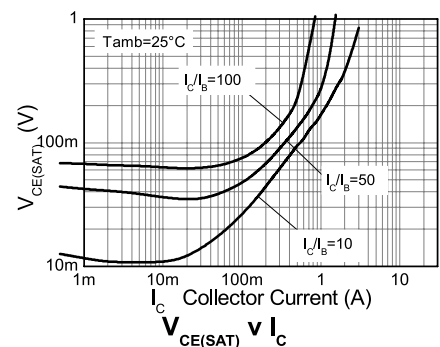
## Typical Characteristics



Transient Thermal Impedance

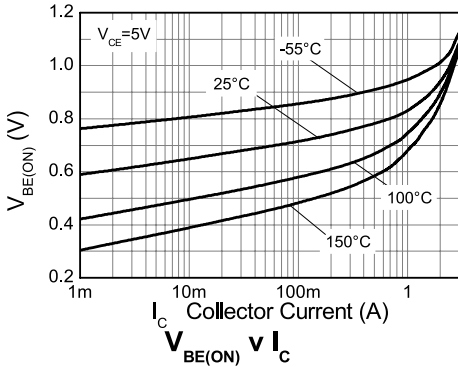


Derating Curve

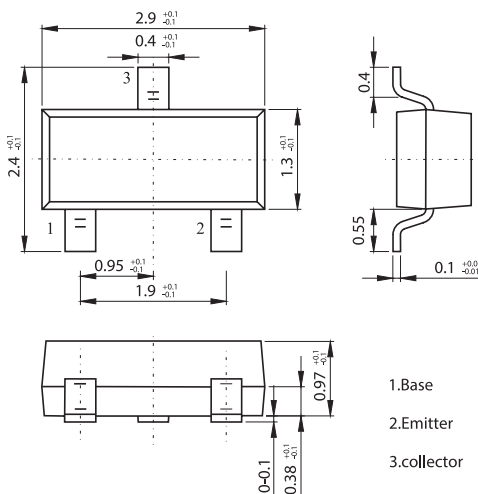


# Single Bipolar Transistor **multicomp**PRO

## Typical Characteristics



## Diagram



## Part Number Table

| Description                                     | Part Number |
|---|-------------|
| Single Bipolar Transistor, NPN, 1A, 60V, SOT 23 | FMMT491     |

Dimensions : Millimetres

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