



DC COMPONENTS CO., LTD.

DISCRETE SEMICONDUCTORS

FMMT591

TECHNICAL SPECIFICATIONS OF PNP EPITAXIAL PLANAR TRANSISTOR

Description

Low equivalent on-resistance

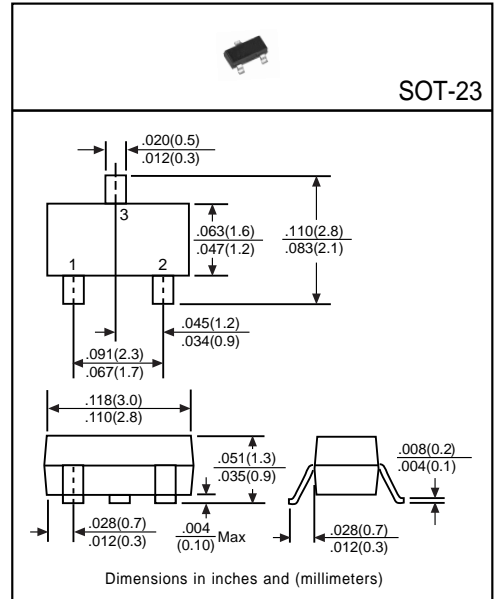
Pinning

- 1 = Base
- 2 = Emitter
- 3 = Collector

Marking: 591

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

| Characteristic | Symbol | Rating | Unit |
|---------------------------|-----------|-------------|--------------------|
| Collector-Base Voltage | V_{CB0} | -80 | V |
| Collector-Emitter Voltage | V_{CE0} | -60 | V |
| Emitter-Base Voltage | V_{EB0} | -6 | V |
| Collector Current | I_C | -1 | A |
| Peak Pulse Current | I_{CM} | -2 | A |
| Total Power Dissipation | PD | 250 | mW |
| Junction Temperature | T_J | +150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{STG} | -55 to +150 | $^{\circ}\text{C}$ |



Electrical Characteristics

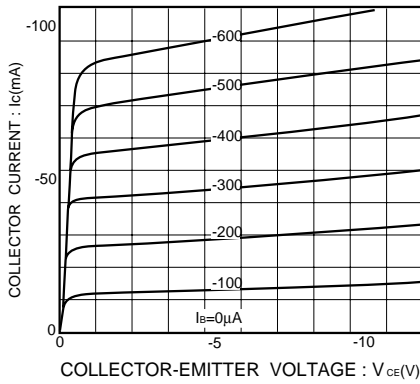
(Ratings at 25 $^{\circ}\text{C}$ ambient temperature unless otherwise specified)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|---|----------------|-----|-----|-------|------|--|
| Collector-Base Breakdown Voltage | BV_{CB0} | -80 | - | - | V | $I_C=-100\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage | BV_{CE0} | -60 | - | - | V | $I_C=-10\text{mA}$ |
| Emitter-Base Breakdown Voltage | BV_{EB0} | -5 | - | - | V | $I_E=-100\mu\text{A}$ |
| Collector Cutoff Current | I_{CBO} | - | - | -100 | nA | $V_{CB}=-60\text{V}, I_E=0\text{V}$ |
| Collector-Emitter Saturation Voltage ⁽¹⁾ | $V_{CE(sat)1}$ | - | - | -0.25 | V | $I_C=500\text{mA}, I_B=50\text{mA}$ |
| | $V_{CE(sat)2}$ | - | - | -0.5 | V | $I_C=1000\text{mA}, I_B=100\text{mA}$ |
| Base-Emitter Saturation Voltage ⁽¹⁾ | $V_{BE(sat)1}$ | - | - | -1.1 | V | $I_C=1000\text{mA}, I_B=100\text{mA}$ |
| Base-Emitter Voltage ⁽¹⁾ | V_{BE} | - | - | -1 | V | $V_{CE}=-5\text{V}, I_E=-1\text{A}$ |
| DC Current Gain ⁽¹⁾ | h_{FE1} | 100 | - | - | - | $I_C=1\text{mA}, V_{CE}=-5\text{V}$ |
| | h_{FE2} | 100 | - | 300 | - | $I_C=500\text{mA}, V_{CE}=-5\text{V}$ |
| | h_{FE3} | 80 | - | - | - | $I_C=1\text{A}, V_{CE}=-5\text{V}$ |
| | h_{FE4} | 30 | - | - | - | $I_C=2\text{A}, V_{CE}=-5\text{V}$ |
| Transition Frequency | f_T | 150 | - | - | MHz | $I_C=20\text{mA}, V_{CE}=-10\text{V}, f=100\text{MHz}$ |
| Output Capacitance | C_{ob} | - | - | 10 | pF | $V_{CB}=-5\text{V}, f=1\text{MHz}$ |

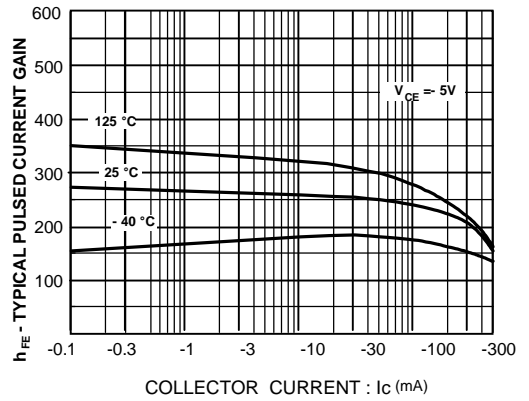
(1)Pulse Test: Pulse Width $\geq 380\mu\text{s}$, Duty Cycle $\geq 2\%$

Electrical Characteristic Curves

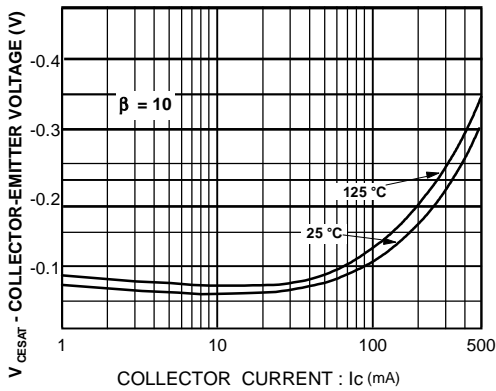
Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current



Collector Emitter Saturation vs. Collector Current



Gain bandwidth product vs. collector current

