

# SOT223 NPN SILICON PLANAR HIGH VOLTAGE TRANSISTOR

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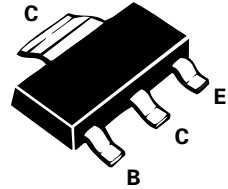
## FEATURES

- \* High  $V_{CEO}$
- \* Low saturation voltage

COMPLEMENTARY TYPE –    BSP15

PARTMARKING DETAIL –    BSP20

**BSP20**



## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                  | SYMBOL         | VALUE       | UNIT        |
|--------------------------------------------|----------------|-------------|-------------|
| Collector-Base Voltage                     | $V_{CBO}$      | 300         | V           |
| Collector-Emitter Voltage                  | $V_{CEO}$      | 250         | V           |
| Emitter-Base Voltage                       | $V_{EBO}$      | 5           | V           |
| Peak Pulse Current                         | $I_{CM}$       | 1           | A           |
| Continuous Collector Current               | $I_C$          | 0.5         | A           |
| Power Dissipation at $T_{amb}=25^{\circ}C$ | $P_{tot}$      | 2           | W           |
| Operating and Storage Temperature Range    | $T_j, T_{stg}$ | -55 to +150 | $^{\circ}C$ |

## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ unless otherwise stated).

| PARAMETER                             | SYMBOL        | MIN.     | TYP. | MAX. | UNIT | CONDITIONS.                                          |
|---------------------------------------|---------------|----------|------|------|------|------------------------------------------------------|
| Collector-Base Breakdown Voltage      | $V_{(BR)CBO}$ | 300      |      |      | V    | $I_C=100\mu A$                                       |
| Collector-Emitter Breakdown Voltage   | $V_{(BR)CEO}$ | 250      |      |      | V    | $I_C=10mA^*$                                         |
| Emitter-Base Breakdown Voltage        | $V_{(BR)EBO}$ | 5        |      |      | V    | $I_E=100\mu A$                                       |
| Collector Cut-Off Current             | $I_{CBO}$     |          |      | 20   | nA   | $V_{CB}=300V$                                        |
| Emitter Cut-Off Current               | $I_{EBO}$     |          |      | 50   | nA   | $V_{EB}=5V$                                          |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$ |          |      | 0.5  | V    | $I_C=50mA, I_B=4mA^*$                                |
| Base-Emitter Saturation Voltage       | $V_{BE(sat)}$ |          |      | 1.3  | V    | $I_C=50mA, I_B=4mA^*$                                |
| Base-Emitter Turn-On Voltage          | $V_{BE(on)}$  |          |      | 2.0  | V    | $I_C=100mA, V_{CE}=10V^*$                            |
| Static Forward Current Transfer Ratio | $h_{FE}$      | 40<br>30 |      | 200  |      | $I_C=20mA, V_{CE}=10V^*$<br>$I_C=30mA, V_{CE}=10V^*$ |
| Transition Frequency                  | $f_T$         | 40       |      | 200  | MHz  | $I_C=10mA, V_{CE}=20V$<br>$f = 20MHz$                |
| Output Capacitance                    | $C_{obo}$     |          |      | 6    | pF   | $V_{CB}=20V, f=1MHz$                                 |

\*Measured under pulsed conditions. Pulse width=300 $\mu s$ . Duty cycle  $\leq 2\%$   
For typical characteristics graphs see FMMTA42 datasheet.

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