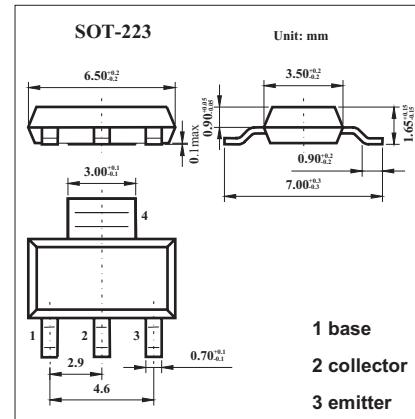


## NPN Silicon Planar Medium Power High Gain Transistor

### FZT1047A

#### ■ Features

- $V_{CE0} = 10V$ .
- 5 Amp continuous current.
- 20 Amp pulse current.
- Low saturation voltage.
- High gain.
- Extremely low equivalent on-resistance;  $R_{CE(sat)} = 44m\Omega$  at 5A.



#### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

| Parameter                               | Symbol         | Rating      | Unit       |
|---|----------------|-------------|------------|
| Collector-base voltage                  | $V_{CBO}$      | 35          | V          |
| Collector-emitter voltage               | $V_{CEO}$      | 10          | V          |
| Emitter-base voltage                    | $V_{EBO}$      | 5           | V          |
| Peak pulse current                      | $I_C$          | 5           | A          |
| Continuous collector current            | $I_{CM}$       | 20          | A          |
| Base current                            | $I_B$          | 500         | mA         |
| Power dissipation                       | $P_{tot}$      | 2.5         | W          |
| Operating and storage temperature range | $T_j, T_{stg}$ | -55 to +150 | $^\circ C$ |

**FZT1047A**

## ■ Electrical Characteristics Ta = 25°C

| Parameter                               | Symbol               | Testconditons  | Min | Typ                    | Max                    | Unit |
|---|----------------------|--|-----|------------------------|------------------------|------|
| Collector-base breakdown voltage        | V <sub>(BR)CBO</sub> | I <sub>C</sub> =100μA  | 35  | 65                     |                        | V    |
| Collector-emitter breakdown voltage *   | V <sub>(BR)CEO</sub> | I <sub>C</sub> =10mA   | 10  | 16                     |                        | V    |
| Emitter-base breakdown voltage          | V <sub>(BR)EBO</sub> | I <sub>E</sub> =100μA  | 5   | 8.9                    |                        | V    |
| Collector Cut-Off Current               | I <sub>CBO</sub>     | V <sub>CB</sub> =20V   |     | 0.3                    | 10                     | nA   |
| Collector Emitter Cut-Off Current       | I <sub>CES</sub>     | V <sub>CE</sub> =20V   |     | 0.3                    | 10                     | nA   |
| Emitter Cut-Off Current                 | I <sub>EBO</sub>     | V <sub>EB</sub> =4V  |     | 0.3                    | 10                     | nA   |
| Collector-emitter saturation voltage *  | V <sub>CE(sat)</sub> | I <sub>C</sub> =0.5A, I <sub>B</sub> =10mA<br>I <sub>C</sub> =1A, I <sub>B</sub> =10mA<br>I <sub>C</sub> =3A, I <sub>B</sub> =15mA<br>I <sub>C</sub> =5A, I <sub>B</sub> =25mA |     | 25<br>50<br>140<br>220 | 40<br>70<br>200<br>350 | mV   |
| Base-emitter saturation voltage *       | V <sub>BE(sat)</sub> | I <sub>C</sub> =5A, I <sub>B</sub> =250mA  |     | 925                    | 1000                   | mV   |
| Base-emitter ON voltage *               | V <sub>BE(on)</sub>  | I <sub>C</sub> =5A, V <sub>CE</sub> =2V  |     | 890                    | 975                    | mV   |
| Static Forward Current Transfer Ratio * | h <sub>FE</sub>      | I <sub>C</sub> =10mA, V <sub>CE</sub> =2V*   | 280 | 430                    |                        |      |
|   |                      | I <sub>C</sub> =0.5A, V <sub>CE</sub> =2V*   | 290 | 440                    |                        |      |
|   |                      | I <sub>C</sub> =1A, V <sub>CE</sub> =2V*   | 300 | 450                    | 1200                   |      |
|   |                      | I <sub>C</sub> =5A, V <sub>CE</sub> =2V*   | 200 | 330                    |                        |      |
|   |                      | I <sub>C</sub> =20A, V <sub>CE</sub> =2V*  | 60  | 110                    |                        |      |
| Transitional frequency                  | f <sub>T</sub>       | I <sub>C</sub> =50mA, V <sub>CE</sub> =10V f=50MHz   |     | 150                    |                        | MHz  |
| Output capacitance                      | C <sub>obo</sub>     | V <sub>CB</sub> =10V, f=1MHz   |     | 85                     | 110                    | pF   |
| Turn-on time                            | t <sub>(on)</sub>    | I <sub>C</sub> =4A, V <sub>CC</sub> =10V   |     | 130                    |                        | ns   |
| Turn-off time                           | t <sub>(off)</sub>   | I <sub>B1</sub> =I <sub>B2</sub> =40mA   |     | 230                    |                        | ns   |

\* Pulse test: t<sub>p</sub> = 300 μs; d ≤ 0.02.