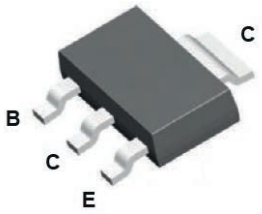
GOOD-ARK
SEMICONDUCTOR

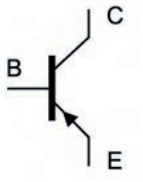
# GSFZT951
# PNP Transistor

## Features

- Very low saturation voltages
- Excellent gain characteristics




SOT-223




Schematic Diagram

## Applications

- DC-DC converters
- MOSFET gate drivers
- Charging circuits
- Power switches
- Motor control

## Absolute Maximum Ratings ($T_A$=25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector Base Voltage | $V_{CBO}$ | -100 | V |
| Collector Emitter Voltage | $V_{CEO}$ | -60 | V |
| Emitter Base Voltage | $V_{EBO}$ | -7 | V |
| Collector Current, Continuous | $I_C$ | -5.5 | A |
| Peak Collector Current, Pulse | $I_{CM}$ | -15 | A |
| Total Power Dissipation[1] | $P_{tot}$ | 1.6 | W |
| Max. Thermal Resistance from Junction to Ambient[1] | $R_{\theta JA}$ | 78.0 | °C/W |
| Junction Temperature | $T_J$ | 150 | °C |
| Storage Temperature Range | $T_{stg}$ | -55 to +150 | °C |

Note:

1. Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.

## Electrical Characteristics ($T_A$=25°C unless otherwise noted)

| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Collector Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$=-100μA | -100 | - | - | V |
| Collector Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$=-10mA | -60 | - | - | V |
| Emitter Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$=-100μA | -7 | - | - | V |
| Collector Base Cutoff Current | $I_{CBO}$ | $V_{CB}$=-80V | - | - | -100 | μA |
| Emitter Base Cutoff Current | $I_{EBO}$ | $V_{EB}$=-6V | - | - | -100 | μA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=-1V, $I_C$=-10mA | 100 | - | - | - |
| | | $V_{CE}$=-1V, $I_C$=-2A | 100 | - | 300 | - |
| | | $V_{CE}$=-1V, $I_C$=-5A | 45 | - | - | - |
| | | $V_{CE}$=-1V, $I_C$=-10A | 10 | - | - | - |
| Collector Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$=-0.1A, $I_B$=-10mA | - | - | -25 | mV |
| | | $I_C$=-1A, $I_B$=-100mA | - | - | -80 | mV |
| | | $I_C$=-2A, $I_B$=-200mA | - | - | -130 | mV |
| | | $I_C$=-5A, $I_B$=-500mA | - | - | -300 | mV |
| Base Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C$=-5A, $I_B$=-500mA | - | - | -1.2 | V |
| Base Emitter Turn-On Voltage | $V_{BE(on)}$ | $V_{CE}$=-1V, $I_C$=-5A | - | - | -1.5 | V |
| Transition Frequency | $f_T$ | $V_{CE}$=-10V, $I_C$=-100mA, f=100MHz | - | 105 | - | MHz |
| Collector Output Capacitance | $C_{ob}$ | $V_{CB}$=-10V, f=1MHz | - | 85 | - | pF |

## Electrical Characteristic Curves

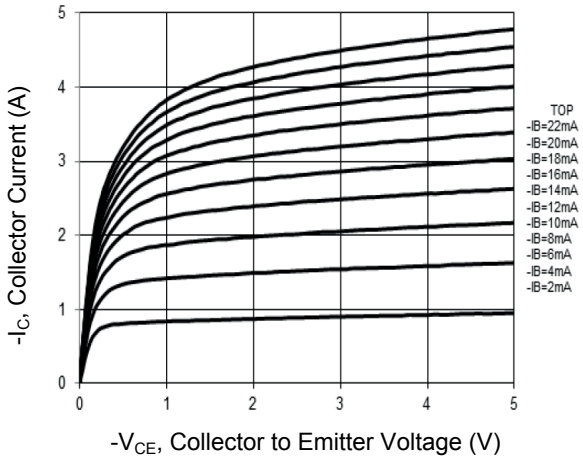



**Figure 1. Output Characteristics Curve**

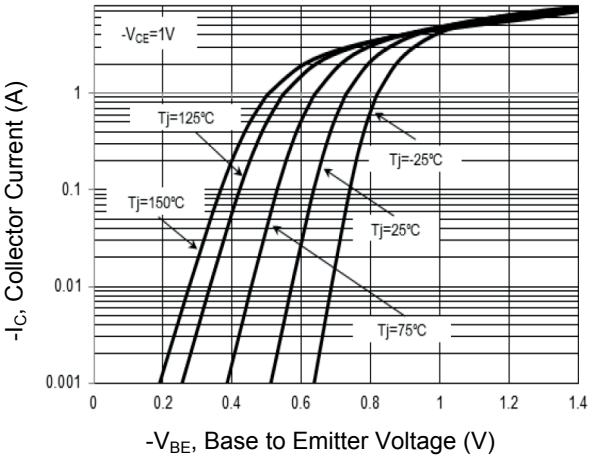



**Figure 2. Collector Current vs. Base to Emitter Voltage**

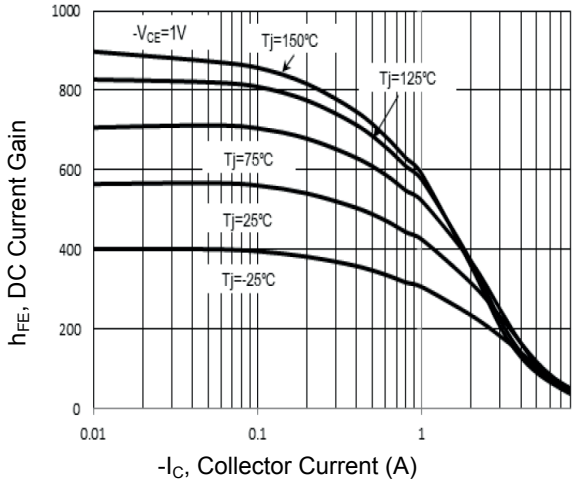



**Figure 3. DC Current Gain vs. Collector Current**

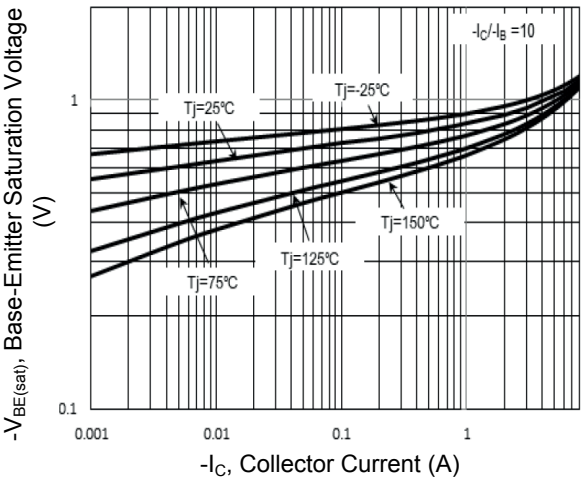



**Figure 4. Base-Emitter Saturation Voltage vs. Collector Current**

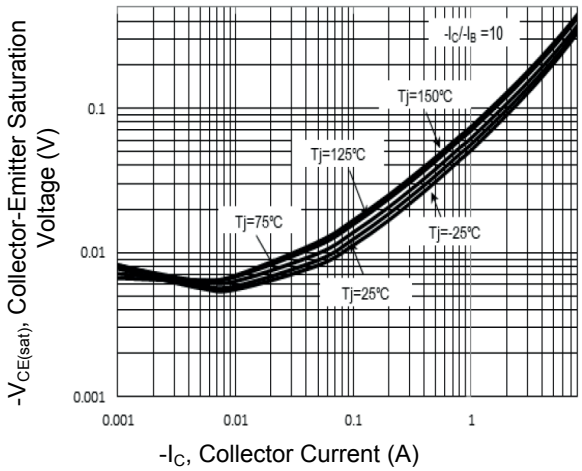



**Figure 5. Collector-Emitter Saturation Voltage vs. Collector Current**

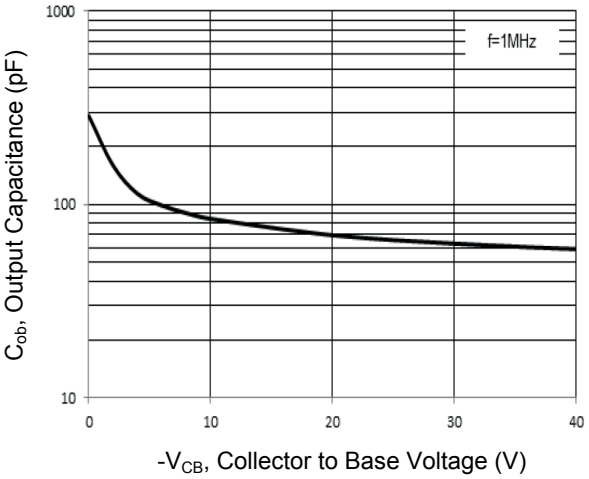



**Figure 6. Output Capacitance**

## Electrical Characteristic Curves

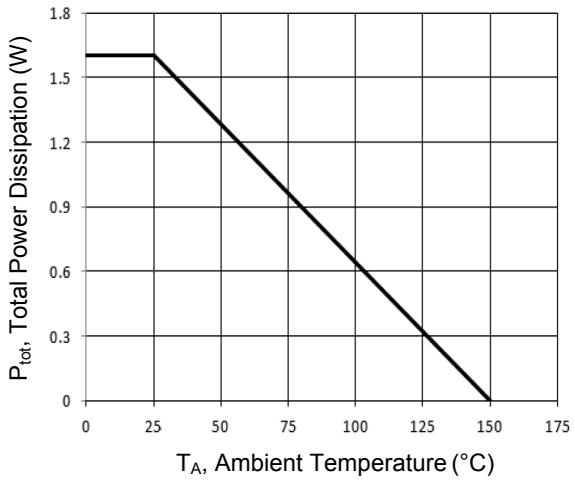
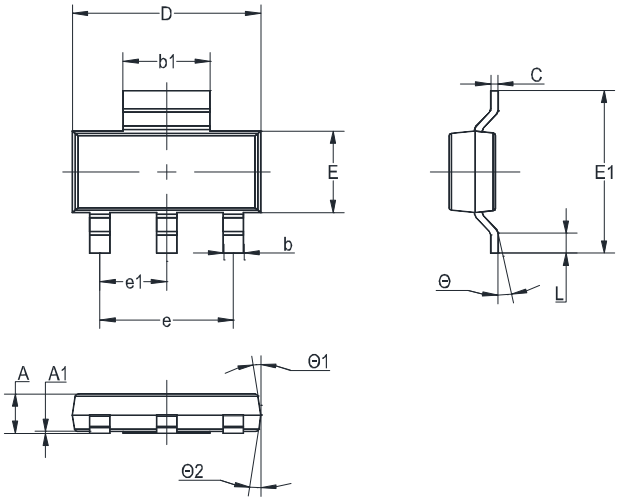


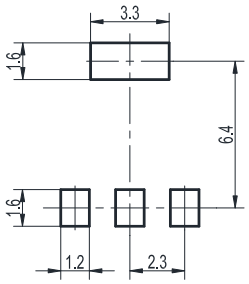

**Figure 7. Power Derating Curve**

## Package Outline Dimensions (SOT-223)




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 1.50 | 1.80 | 0.059 | 0.071 |
| A1 | - | 0.10 | - | 0.004 |
| b | 0.60 | 0.80 | 0.024 | 0.031 |
| b1 | 2.90 | 3.10 | 0.114 | 0.122 |
| C | 0.22 | 0.32 | 0.009 | 0.013 |
| D | 6.30 | 6.70 | 0.248 | 0.264 |
| E | 3.30 | 3.70 | 0.130 | 0.146 |
| E1 | 6.70 | 7.30 | 0.264 | 0.287 |
| e | 4.60 TYP | | 0.181 TYP | |
| e1 | 2.30 TYP | | 0.091 TYP | |
| L | 0.70 | 1.10 | 0.028 | 0.043 |
| θ | 0° | 10° | 0° | 10° |
| θ1 | 0° | 7° | 0° | 7° |
| θ2 | 0° | 7° | 0° | 7° |

## Recommended Pad Layout




unit: mm

## Order Information

| Device | Package | Marking | Packaging | SPQ |
|---|---|---|---|---|
| GSFZT951 | SOT-223 | FZT951Q | Tape & Reel | 3,000pcs / Reel |