

RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

**FEATURES**

- For AF driver and output stages
- Power switching applications

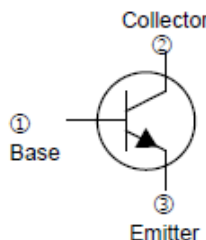
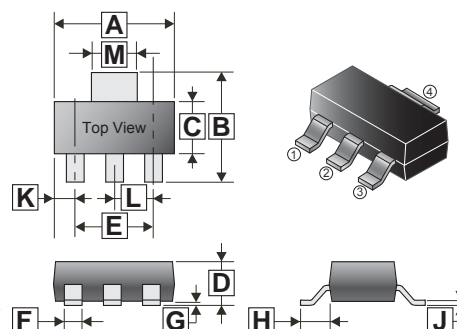
**SOT-223**

**CLASSIFICATION OF  $h_{FE}$**

| Product-Rank | PZT13003-A | PZT13003-B | PZT13003-C |
|--------------|------------|------------|------------|
| Range        | 8~20       | 15~30      | 25~40      |

**PACKAGE INFORMATION**

| Package | SOT-223 | MPQ | 2.5K | Leader Size | 13 inch |
|---------|---------|-----|------|-------------|---------|
|---------|---------|-----|------|-------------|---------|



| REF. | Millimeter |      | REF. | Millimeter |      |
|------|------------|------|------|------------|------|
|      | Min.       | Max. |      | Min.       | Max. |
| A    | 6.20       | 6.70 | G    | -          | 0.10 |
| B    | 6.70       | 7.30 | H    | -          | -    |
| C    | 3.30       | 3.70 | J    | 0.25       | 0.35 |
| D    | 1.42       | 1.90 | K    | -          | -    |
| E    | 4.50       | 4.70 | L    | 2.30 REF.  |      |
| F    | 0.60       | 0.82 | M    | 2.90       | 3.10 |

**ABSOLUTE MAXIMUM RATINGS** ( $T_A=25^{\circ}C$  unless otherwise specified)

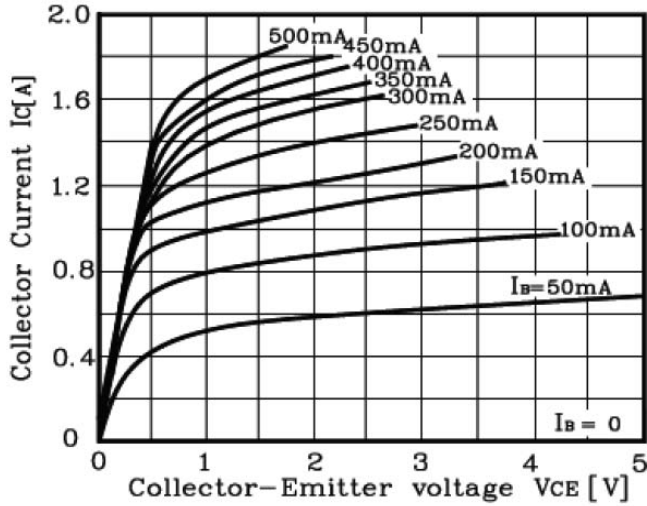
| Parameter                     | Symbol         | Ratings      | Unit        |
|-------------------------------|----------------|--------------|-------------|
| Collector-Base Voltage        | $V_{CBO}$      | 700          | V           |
| Collector-Emitter Voltage     | $V_{CEO}$      | 450          | V           |
| Emitter-Base Voltage          | $V_{EBO}$      | 9            | V           |
| Collector Current -Continuous | $I_C$          | 1.5          | A           |
| Collector Power Dissipation   | $P_D$          | 1.25         | W           |
| Junction, Storage Temperature | $T_J, T_{STG}$ | 150, -55~150 | $^{\circ}C$ |

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^{\circ}C$  unless otherwise specified)

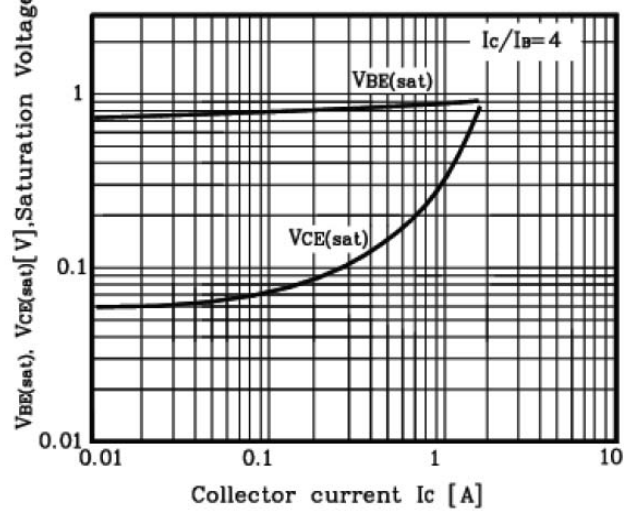
| Parameter   | Symbol        | Min. | Max. | Unit    | Test Conditions                               |
|---|---------------|------|------|---------|---|
| Collector-base breakdown voltage                  | $V_{(BR)CBO}$ | 700  |      | V       | $I_C=1mA, I_E=0$                              |
| Collector-emitter breakdown voltage               | $V_{(BR)CEO}$ | 450  |      | V       | $I_C=10mA, I_B=0$                             |
| Emitter-base breakdown voltage                    | $V_{(BR)EBO}$ | 9    |      | V       | $I_E=1mA, I_C=0$                              |
| Collector cut-off current                         | $I_{CBO}$     |      | 0.1  | mA      | $V_{CB}=700V, I_E=0$                          |
| Emitter-Base Cutoff Current                       | $I_{EBO}$     |      | 0.05 | mA      | $V_{EB}=9V, I_C=0$                            |
| DC current gain                                   | $h_{FE}$      | 8    | 40   |         | $V_{CE}=10V, I_C=0.5A$                        |
| Collector-emitter saturation voltage <sup>1</sup> | $V_{CE(sat)}$ |      | 1    | V       | $I_C=1A, I_B=250mA$                           |
| Base-emitter voltage                              | $V_{BE(on)}$  |      | 1.2  | V       | $I_C=1A, I_B=250mA$                           |
| ON-Time   | $T_{(on)}$    |      | 1    | $\mu S$ | $V_{CE}=10V, I_C=2A$<br>$I_{B1}=I_{B2}=400mA$ |
| Storage time                                      | $t_S$         |      | 4    | $\mu S$ |   |
| Fall time   | $t_f$         |      | 0.7  | $\mu S$ |   |
| Transition frequency                              | $f_T$         | 4    |      | MHz     | $V_{CE}=10V, I_C=500mA, f=1.0MHz$             |

**CHARACTERISTIC CURVES**

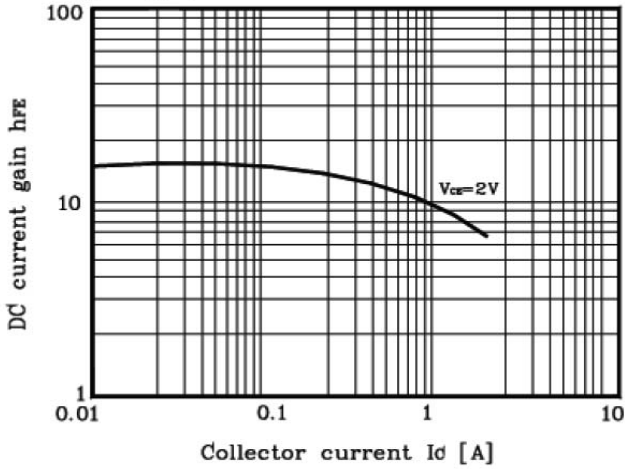
**Fig. 1  $I_C - V_{CE}$**



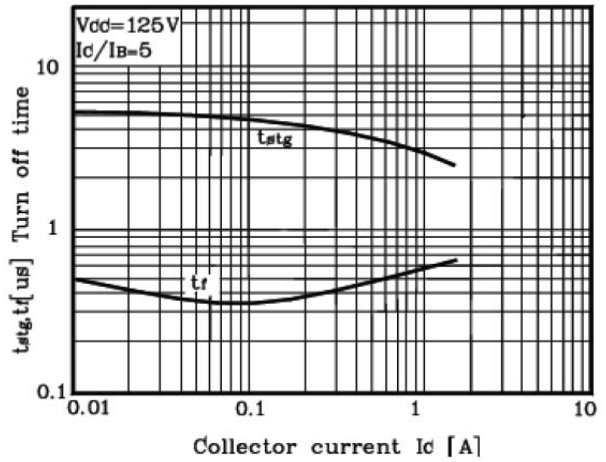
**Fig. 2  $V_{BE(sat)}, V_{CE(sat)} - I_C$**



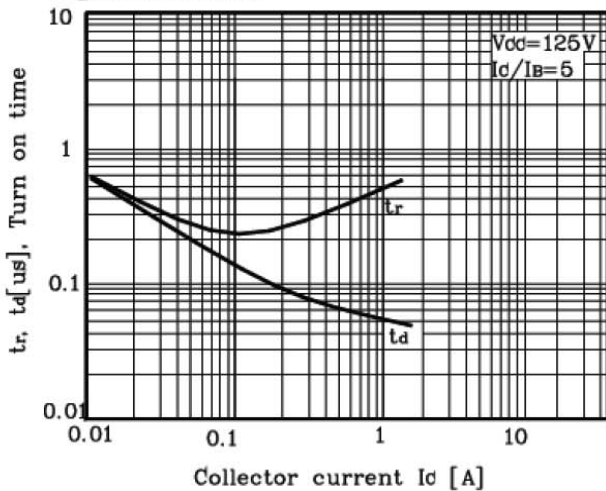
**Fig. 3  $h_{FE} - I_C$**



**Fig. 4 Turn off time**



**Fig. 5 Turn on time**



**Fig. 6 Safe Operating Area**

