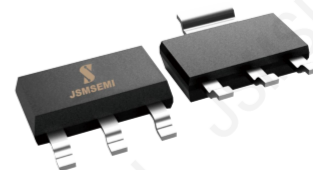


### Features

- For AF driver and output stages
- High collector current
- Low collector-emitter saturation voltage



**SOT-223**

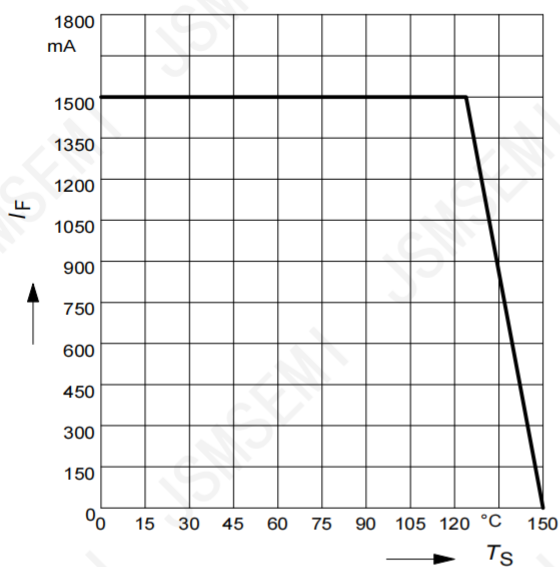
### Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter                                     | Symbol          | Rating      | Unit               |
|-----------------------------------------------|-----------------|-------------|--------------------|
| collector-base voltage                        | $V_{CB0}$       | 100         | V                  |
| collector-emitter voltage                     | $V_{CE0}$       | 80          | V                  |
| emitter-base voltage                          | $V_{EB0}$       | 5           | V                  |
| collector current (DC)                        | $I_C$           | 1           | A                  |
| peak collector current ( $t_p < 5\text{ms}$ ) | $I_{CM}$        | 1.5         | A                  |
| power dissipation                             | $P_D$           | 1.5         | W                  |
| thermal resistance from junction to ambient   | $R_{\theta JA}$ | 94          | $^\circ\text{C/W}$ |
| junction temperature                          | $T_j$           | 150         | $^\circ\text{C}$   |
| storage temperature                           | $T_{stg}$       | -65 to +150 | $^\circ\text{C}$   |

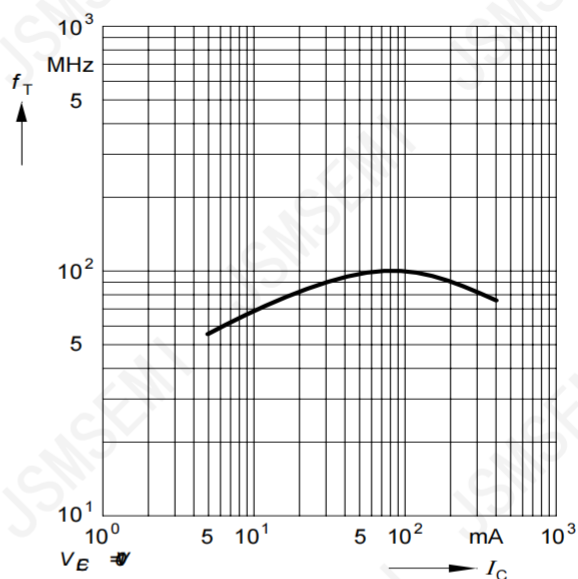
### Electrical Characteristics $T_a = 25^\circ\text{C}$

| Parameter                            | Symbol        | Testconditions                                             | Min | Typ | Max | Unit |
|--------------------------------------|---------------|------------------------------------------------------------|-----|-----|-----|------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C = 0.1\text{mA}, I_E = 0$                              | 100 |     |     |      |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C = 10\text{mA}, I_B = 0$                               | 80  |     |     |      |
| Base-emitter breakdown voltage       | $V_{(BR)EBO}$ | $I_C = 10\mu\text{A}, I_E = 0$                             | 5   |     |     |      |
| Collector cut-off current            | $I_{CBO}$     | $I_E = 0\text{A}; V_{CB} = 30\text{V}$                     |     |     | 100 | nA   |
| Emitter cut-off current              | $I_{EBO}$     | $I_C = 0\text{A}; V_{EB} = 5\text{V}$                      |     |     | 100 | nA   |
| DC current gain                      | $h_{FE}$      | $I_C = 5\text{mA}; V_{CE} = 2\text{V}$                     | 25  |     |     |      |
|                                      |               | $I_C = 150\text{mA}; V_{CE} = 2\text{V}$                   | 100 |     | 250 |      |
|                                      |               | $I_C = 500\text{mA}; V_{CE} = 2\text{V}$                   | 25  |     |     |      |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 500\text{mA}; I_B = 50\text{mA}$                    |     |     | 0.5 | V    |
| Transition frequency                 | $f_T$         | $I_C = 10\text{mA}; V_{CE} = 5\text{V}; f = 100\text{MHz}$ |     | 130 |     | MHz  |

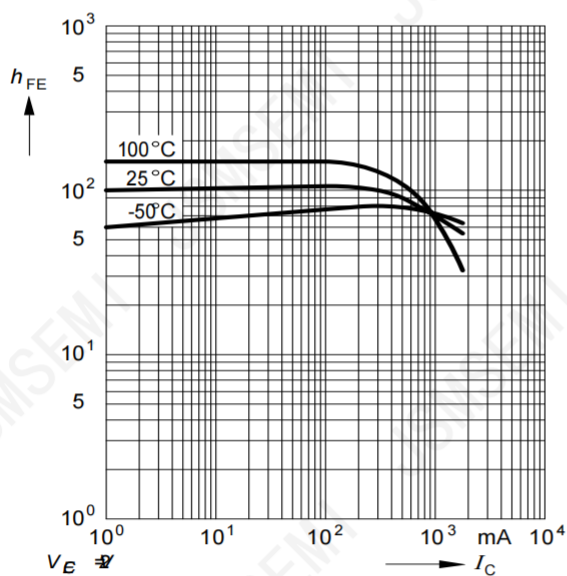
# Typical Characteristics



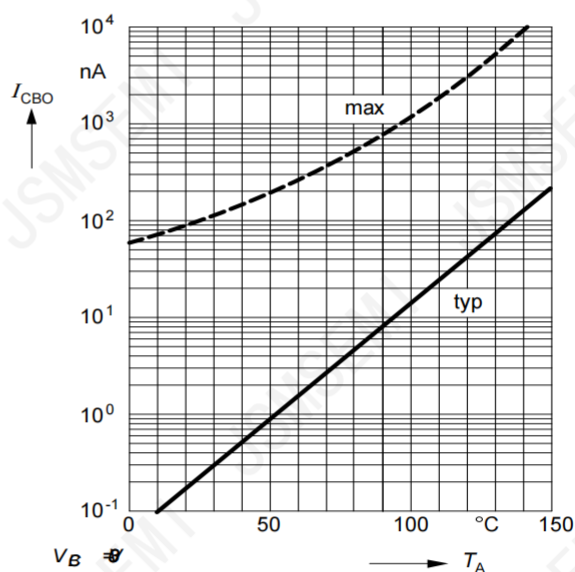
Total power dissipation  $P_{tot} = f(T_S)$



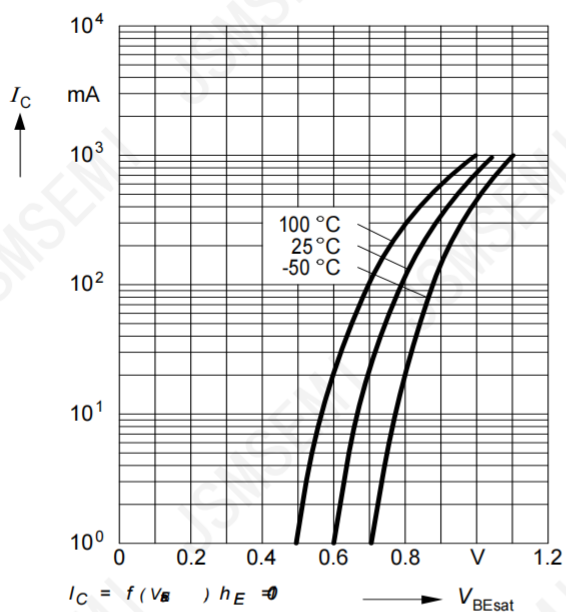
Transition frequency  $f_T = f(I_C)$



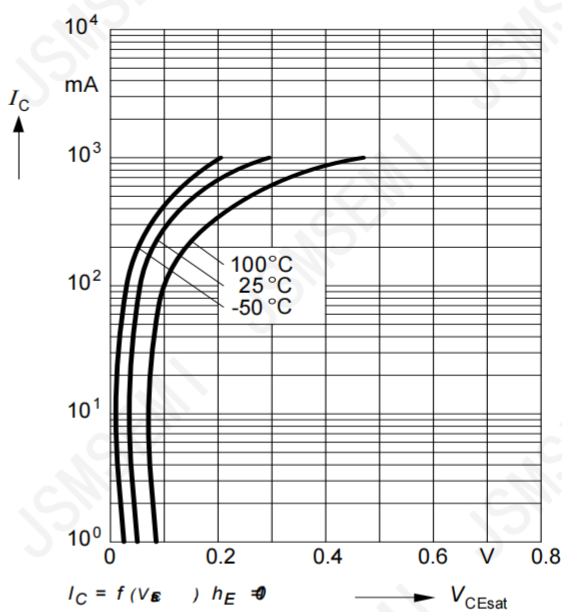
DC current gain  $h_{FE} = f(I_C)$



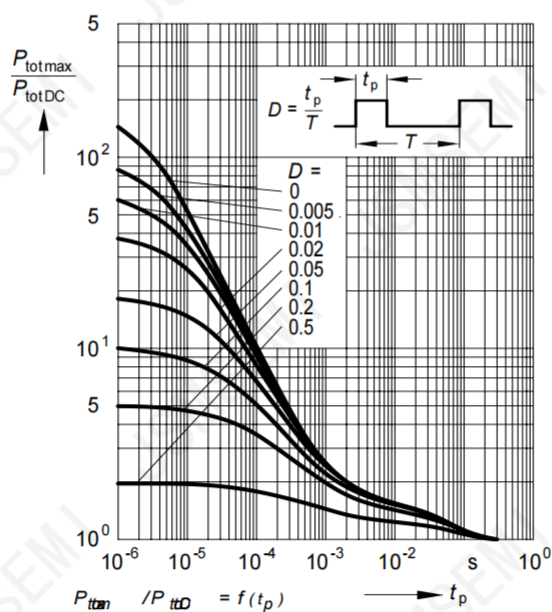
Collector cutoff current  $I_{CBO} = f(T_A)$



Base-emitter saturation voltage



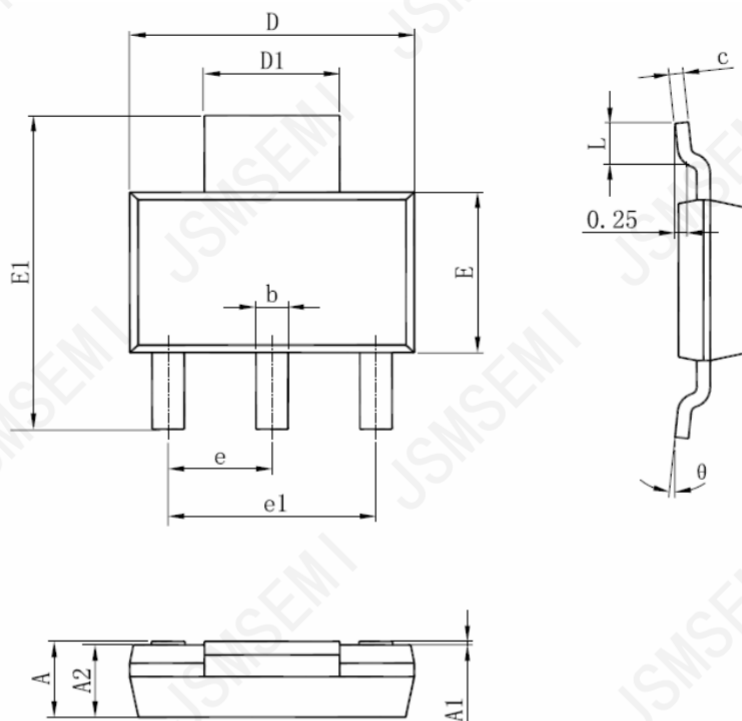
Collector-emitter saturation voltage



Permissible pulse load

## Package Information

SOT-223



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.520                     | 1.800 | 0.060                | 0.071 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 1.500                     | 1.700 | 0.059                | 0.067 |
| b      | 0.660                     | 0.820 | 0.026                | 0.032 |
| c      | 0.250                     | 0.350 | 0.010                | 0.014 |
| D      | 6.200                     | 6.400 | 0.244                | 0.252 |
| D1     | 2.900                     | 3.100 | 0.114                | 0.122 |
| E      | 3.300                     | 3.700 | 0.130                | 0.146 |
| E1     | 6.830                     | 7.070 | 0.269                | 0.278 |
| e      | 2.300(BSC)                |       | 0.091(BSC)           |       |
| e1     | 4.500                     | 4.700 | 0.177                | 0.185 |
| L      | 0.900                     | 1.150 | 0.035                | 0.045 |
| θ      | 0°                        | 10°   | 0°                   | 10°   |

## Revision History

| Rev. | Change          | Date      |
|------|-----------------|-----------|
| V1.0 | Initial version | 2/23/2024 |
|      |                 |           |

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