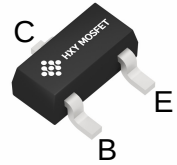


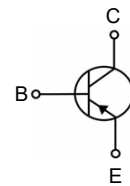


## Features

- Collector Current:  $I_C = -0.6A$
- Power Dissipation of 300mW



**SOT-23**



## Package Marking and Ordering Information

| Product ID   | Pack   | Marking | Qty(PCS) |
|--------------|--------|---------|----------|
| PMBT4403,215 | SOT-23 | 2T      | 3000     |

## Maximum Ratings (Ta=25 unless otherwise noted)

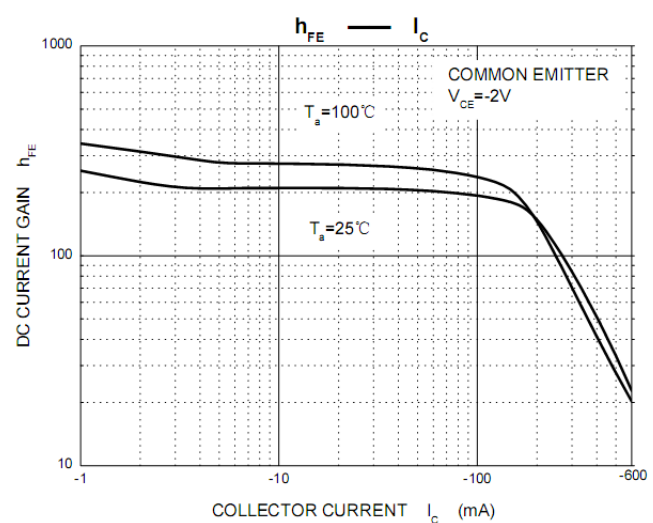
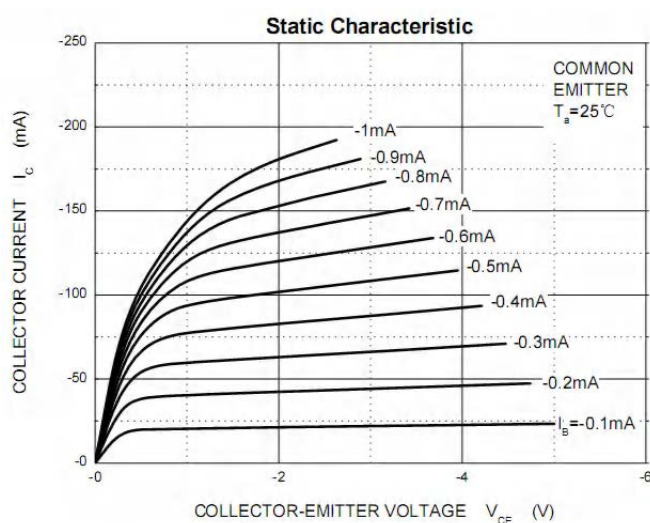
| Parameter                                   | Symbol          | Limit    | Unit |
|---------------------------------------------|-----------------|----------|------|
| Collector-Base Voltage                      | $V_{CBO}$       | -40      | V    |
| Collector-Emitter Voltage                   | $V_{CEO}$       | -40      | V    |
| Emitter-Base Voltage                        | $V_{EBO}$       | -5       | V    |
| Collector Current                           | $I_C$           | -600     | mA   |
| Collector Power Dissipation                 | $P_C$           | 300      | mW   |
| Thermal Resistance From Junction To Ambient | $R_{\theta JA}$ | 417      | °C/W |
| Junction Temperature                        | $T_j$           | 150      | °C   |
| Storage Temperature                         | $T_{stg}$       | -55~+150 | °C   |

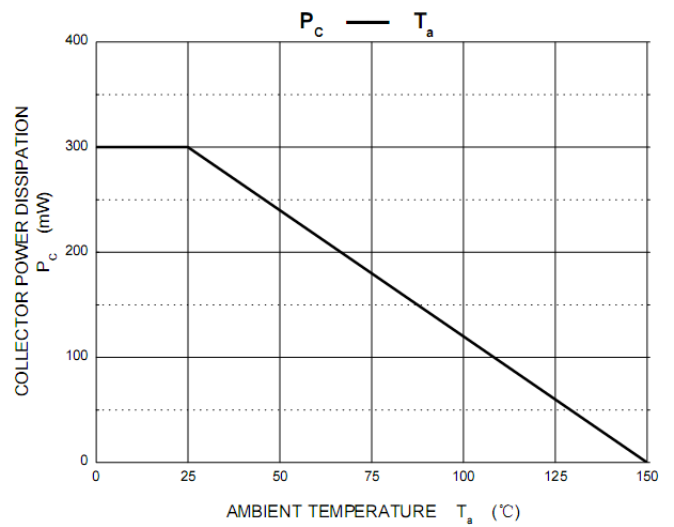
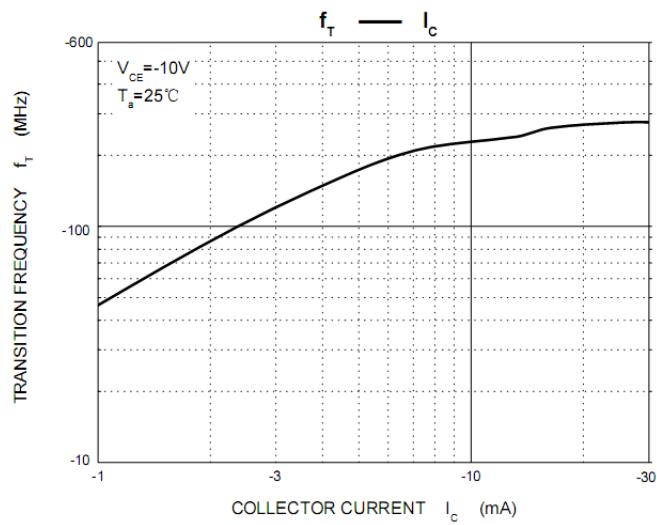
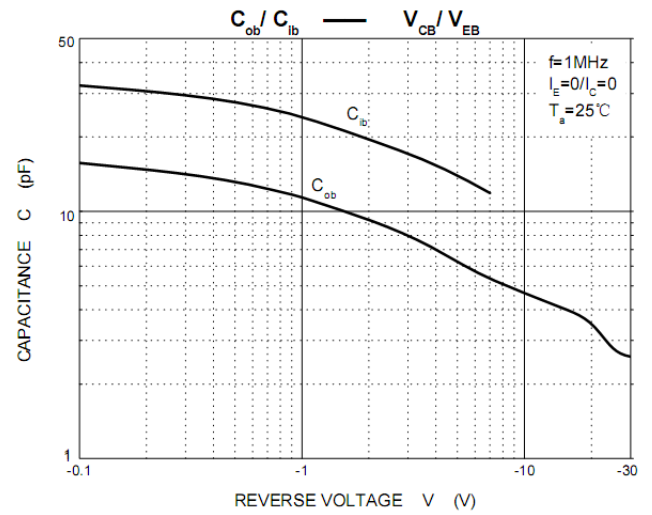
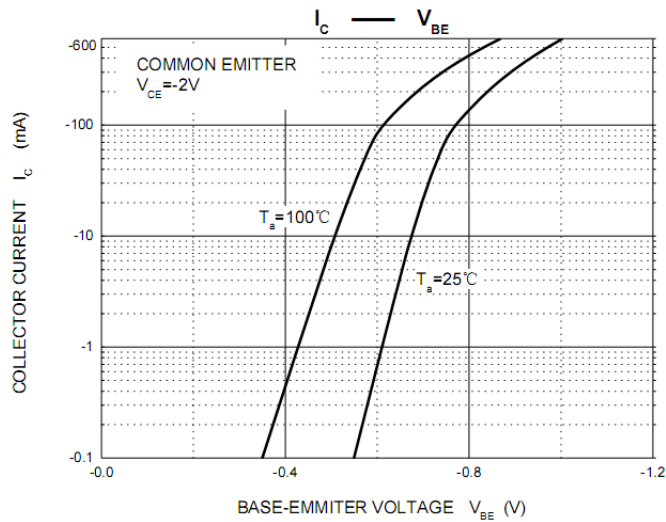
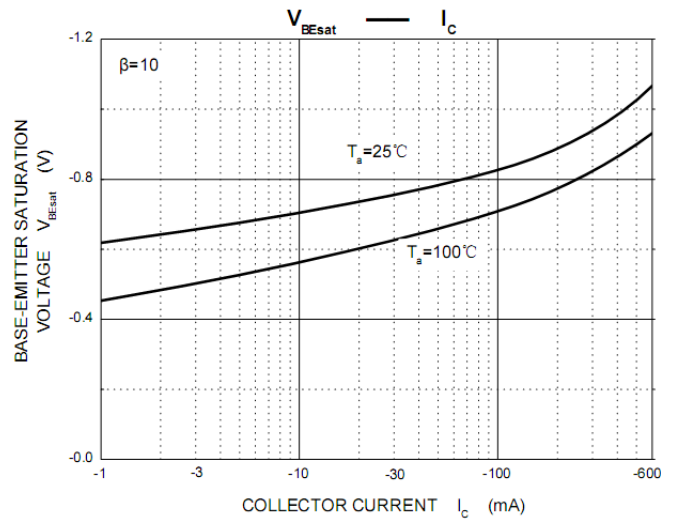
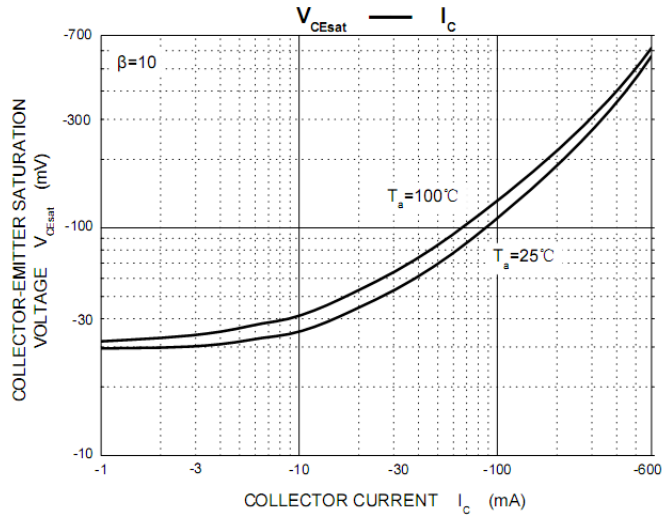


### Electrical Characteristics ( $T_a=25$ unless otherwise specified)

| Parameter                            | Symbol        | Test Conditions                                                | Min | Typ | Max   | Unit    |
|--------------------------------------|---------------|----------------------------------------------------------------|-----|-----|-------|---------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C=-100\mu A, I_E=0$                                         | -40 |     |       | V       |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=-1mA, I_B=0$                                              | -40 |     |       | V       |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=-100\mu A, I_C=0$                                         | -5  |     |       | V       |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=-35V, I_E=0$                                           |     |     | -0.1  | $\mu A$ |
| Collector cut-off current            | $I_{CEX}$     | $V_{CE}=-35V, V_{BE}=0.4V$                                     |     |     | -0.1  | $\mu A$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=-4V, I_C=0$                                            |     |     | -0.1  | $\mu A$ |
| DC current gain                      | $h_{FE1}$     | $V_{CE}=-1V, I_C=-0.1mA$                                       | 30  |     |       |         |
|                                      | $h_{FE2}$     | $V_{CE}=-1V, I_C=-1mA$                                         | 60  |     |       |         |
|                                      | $h_{FE3}$     | $V_{CE}=-1V, I_C=-10mA$                                        | 100 |     |       |         |
|                                      | $h_{FE4}$     | $V_{CE}=-2V, I_C=-150mA$                                       | 100 |     | 300   |         |
|                                      | $h_{FE5}$     | $V_{CE}=-2V, I_C=-500mA$                                       | 20  |     |       |         |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=-150mA, I_B=-15mA$                                        |     |     | -0.4  | V       |
|                                      |               | $I_C=-500mA, I_B=-50mA$                                        |     |     | -0.75 | V       |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C=-150mA, I_B=-15mA$                                        |     |     | -0.95 | V       |
|                                      |               | $I_C=-500mA, I_B=-50mA$                                        |     |     | -1.3  | V       |
| Transition frequency                 | $f_T$         | $V_{CE}=-10V, I_C=-20mA, f=100MHz$                             | 200 |     |       | MHz     |
| Delay time                           | $t_d$         | $V_{CC}=-30V, V_{BE(off)}=-0.5V$<br>$I_C=-150mA, I_{B1}=-15mA$ |     |     | 15    | ns      |
| Rise time                            | $t_r$         |                                                                |     |     | 20    | ns      |
| Storage time                         | $t_s$         | $V_{CC}=-30V, I_C=-150mA$                                      |     |     | 225   | ns      |
| Fall time                            | $t_f$         | $I_{B1}=I_{B2}=-15mA$                                          |     |     | 60    | ns      |

### Typical Characteristics







## SOT-23 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.050 | 0.035                | 0.041 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 2.800                     | 3.000 | 0.110                | 0.118 |
| E      | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1     | 2.250                     | 2.550 | 0.089                | 0.100 |
| e      | 0.950 TYP                 |       | 0.037 TYP            |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.550 REF                 |       | 0.022 REF            |       |
| L1     | 0.300                     | 0.500 | 0.012                | 0.020 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

## SOT-23 Suggested Pad Layout



### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.



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