

## PNP General Purpose Transistor

## MMST5401

### FEATURES

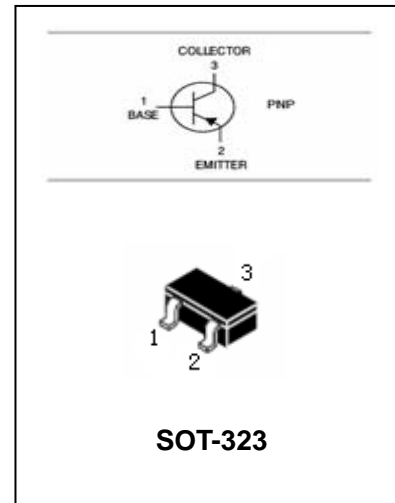
- Epitaxial planar die construction.
- Complementary NPN type available (MMST5551).
- Also available in lead free version.



Lead-free

### APPLICATIONS

- Ideal for medium power amplification and switching.



### ORDERING INFORMATION

| Type No. | Marking | Package Code |
|----------|---------|--------------|
| MMST5401 | K4M     | SOT-323      |

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol                            | Parameter                              | Value       | UNIT |
|-----------------------------------|--|-------------|------|
| V <sub>CBO</sub>                  | collector-base voltage                 | -160        | V    |
| V <sub>CEO</sub>                  | collector-emitter voltage              | -150        | V    |
| V <sub>EBO</sub>                  | emitter-base voltage                   | -5          | V    |
| I <sub>C</sub>                    | collector current (DC)                 | -0.6        | A    |
| P <sub>C</sub>                    | Collector dissipation                  | 0.2         | W    |
| R <sub>θJA</sub>                  | Thermal resistance junction to ambient | 625         | °C/W |
| T <sub>J</sub> , T <sub>stg</sub> | junction and storage temperature       | -55 to +150 | °C   |



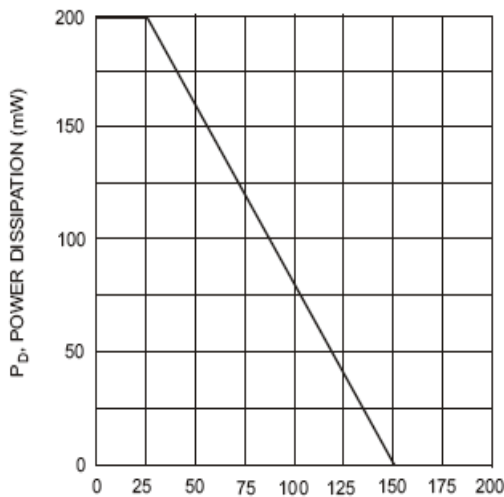
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**MMST5401**

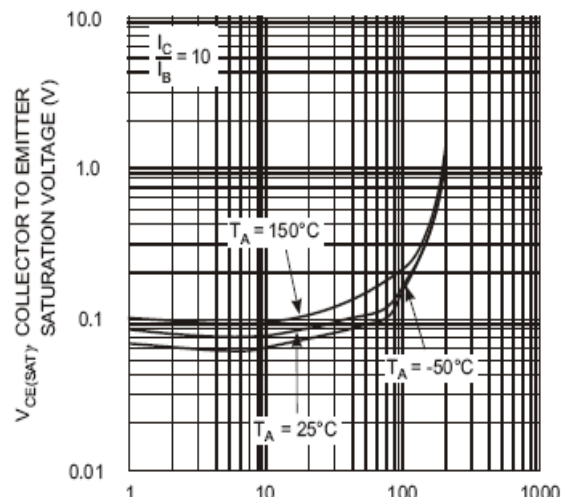
**ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

| Symbol        | Parameter                            | Test conditions  | MIN. | MAX.         | UNIT |
|---------------|--------------------------------------|--|------|--------------|------|
| $V_{(BR)CBO}$ | Collector-base breakdown voltage     | $I_C = -100\mu A, I_E = 0$                             | -160 |              |      |
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage  | $I_C = -1mA, I_B = 0$                                  | -150 |              |      |
| $V_{(BR)EBO}$ | Emitter-base breakdown voltage       | $I_E = -10\mu A, I_C = 0$                              | -5   |              |      |
| $I_{CBO}$     | collector cut-off current            | $I_E = 0; V_{CB} = -120V$                              | -    | -50          | nA   |
| $I_{EBO}$     | emitter cut-off current              | $I_C = 0; V_{EB} = -3V$                                | -    | -50          | nA   |
| $h_{FE}$      | DC current gain                      | $V_{CE} = -5V; I_C = -1mA$                             | 50   | -            |      |
|               |                                      | $V_{CE} = -5V; I_C = -10mA$                            | 60   | 240          |      |
|               |                                      | $V_{CE} = -5V; I_C = -50mA$                            | 50   | -            |      |
| $V_{CE(sat)}$ | collector-emitter saturation voltage | $I_C = -50mA; I_B = -5mA$<br>$I_C = -10mA; I_B = -1mA$ | -    | -0.5<br>-0.2 | V    |
| $V_{BE(sat)}$ | base-emitter saturation voltage      | $I_C = -50mA; I_B = -5mA$<br>$I_C = -10mA; I_B = -1mA$ | -    | -1<br>-1     | V    |
| $f_T$         | transition frequency                 | $I_C = -10mA; V_{CE} = -10V,$<br>$f = 100MHz$          | 100  | 300          | MHz  |
| NF            | Noise figure                         | $I_C = -200mA, V_{CE} = -5.0V,$<br>$f = 100MHz$        |      | 8            | dB   |

**TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**



T<sub>A</sub>, AMBIENT TEMPERATURE (°C)  
Fig. 1, Max Power Dissipation vs Ambient Temperature



I<sub>C</sub>, COLLECTOR CURRENT (mA)  
Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current



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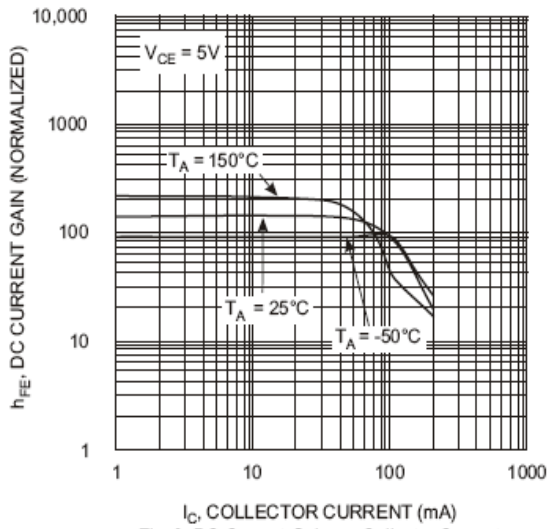


Fig. 3, DC Current Gain vs. Collector Current

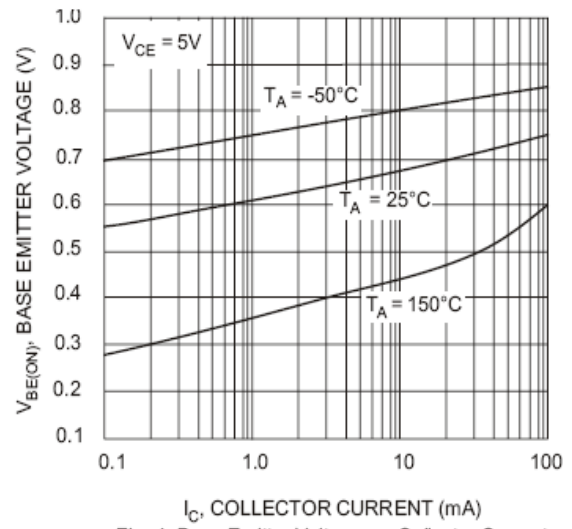


Fig. 4, Base Emitter Voltage vs. Collector Current

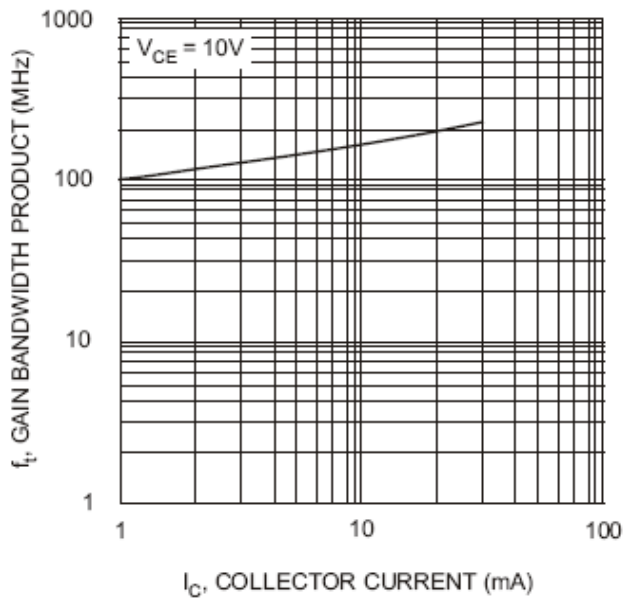


Fig. 5, Gain Bandwidth Product vs Collector Current



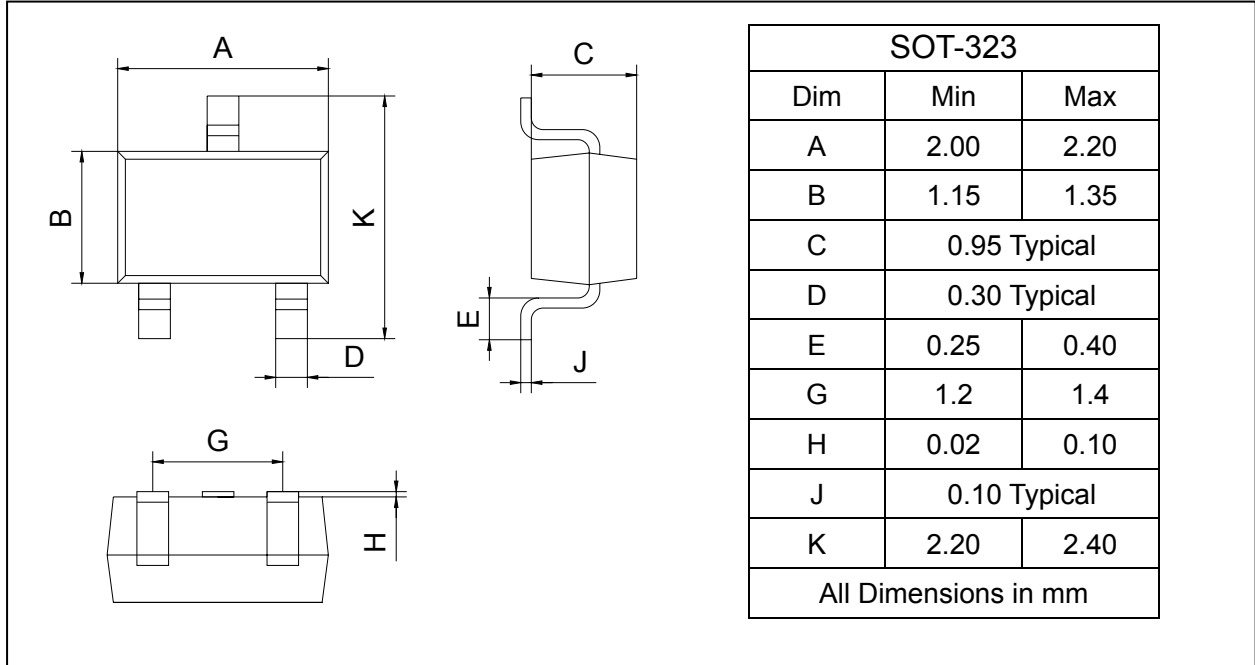
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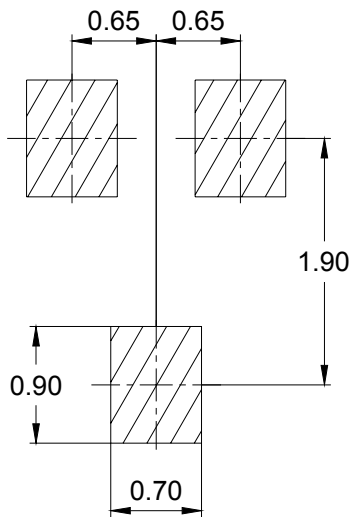
**PACKAGE OUTLINE**

Plastic surface mounted package

SOT-323



**SOLDERING FOOTPRINT**



**PACKAGE INFORMATION**

| Device   | Package | Shipping       |
|----------|---------|----------------|
| MMST5401 | SOT-323 | 3000/Tape&Reel |