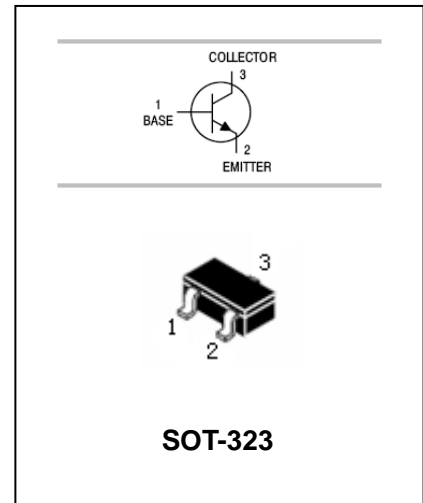


NPN Silicon Epitaxial Planar Transistor

MMST4401

FEATURES

- Epitaxial planar die construction.
- Complementary PNP type available (MMST4403).
- Ultra-small surface mount package.
- Also available in lead free version.



APPLICATIONS

- Audio frequency general purpose amplifier.

ORDERING INFORMATION

| Type No. | Marking | Package Code |
|----------|---------|--------------|
| MMST4401 | K3X | SOT-323 |

MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol | Parameter | Value | Units |
|-----------------|---|---------|-------|
| V_{CBO} | Collector-Base Voltage | 60 | V |
| V_{CEO} | Collector-Emitter Voltage | 40 | V |
| V_{EBO} | Emitter-Base Voltage | 6 | V |
| I_C | Collector Current -Continuous | 600 | mA |
| P_C | Collector Dissipation | 200 | mW |
| $R_{\theta JA}$ | Thermal resistance ,Junction to ambient | 625 | °C/W |
| T_j, T_{stg} | Junction and Storage Temperature | -55~150 | °C |

NPN Silicon Epitaxial Planar Transistor**MMST4401****ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

| Parameter | Symbol | Test conditions | MIN | MAX | UNIT |
|--------------------------------------|---------------|---|-----|-------------|---------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=100\mu A, I_E=0$ | 60 | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=1mA, I_B=0$ | 40 | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=100\mu A, I_C=0$ | 6 | | V |
| Collector cut-off current | I_{CEX} | $V_{CE}=35V, V_{EB(OFF)}=0.4V$ | | 0.1 | μA |
| Base cut-off current | I_{BL} | $V_{CE}=35V, V_{EB(OFF)}=0.4V$ | | 0.1 | μA |
| DC current gain | h_{FE} | $V_{CE}=1V, I_C=0.1mA$ | 20 | | |
| | | $V_{CE}=1V, I_C=1.0mA$ | 40 | | |
| | | $V_{CE}=1V, I_C=10mA$ | 80 | | |
| | | $V_{CE}=1V, I_C=150mA$ | 100 | 300 | |
| | | $V_{CE}=2V, I_C=500mA$ | 40 | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=150mA, I_B=15mA$ $I_C=500mA, I_B=50mA$ | | 0.4 0.75 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=150mA, I_B=15mA$ $I_C=500mA, I_B=50mA$ | | 0.95 1.2 | V |
| Transition frequency | f_T | $V_{CE}=10V, I_E=20mA$ $f=100MHz$ | 250 | | MHz |
| Collector output capacitance | C_{ob} | $V_{CB}=5V, I_E=0, f=1MHz$ | | 6.5 | pF |
| Delay time | t_d | $V_{CC}=30V, V_{BE}=2V,$ $I_C=150mA, I_B=15mA$ | | 15 | nS |
| Rise time | t_r | | | 20 | nS |
| Storage time | t_s | $V_{CC}=30V, I_C=150mA,$ $I_{B1}=I_{B2}=15mA$ | | 225 | nS |
| Fall time | t_f | | | 30 | nS |

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

NPN Silicon Epitaxial Planar Transistor

MMST4401

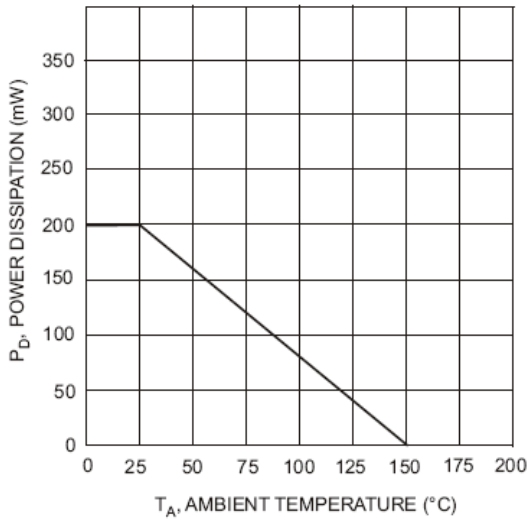


Fig. 1, Max Power Dissipation vs Ambient Temperature

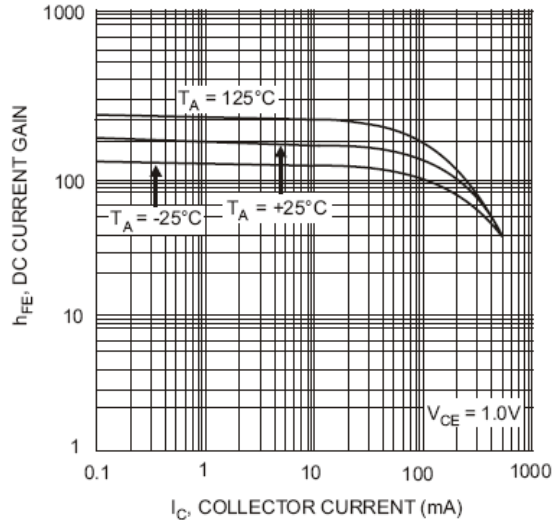


Fig. 2 Typical DC Current Gain vs Collector Current

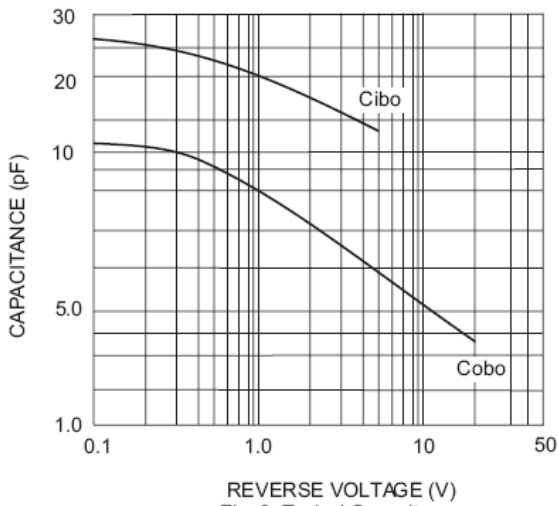


Fig. 3 Typical Capacitance

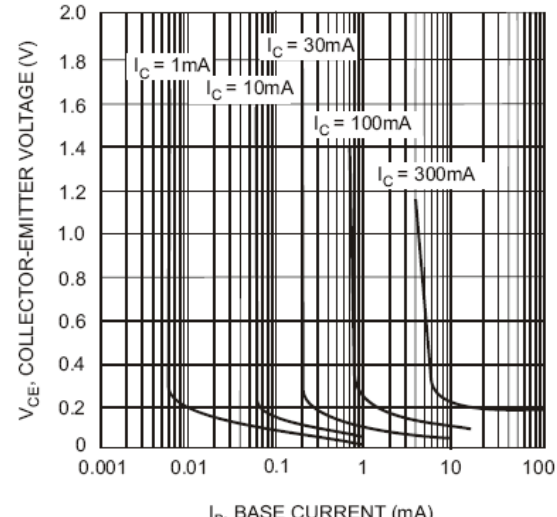


Fig. 4 Typical Collector Saturation Region

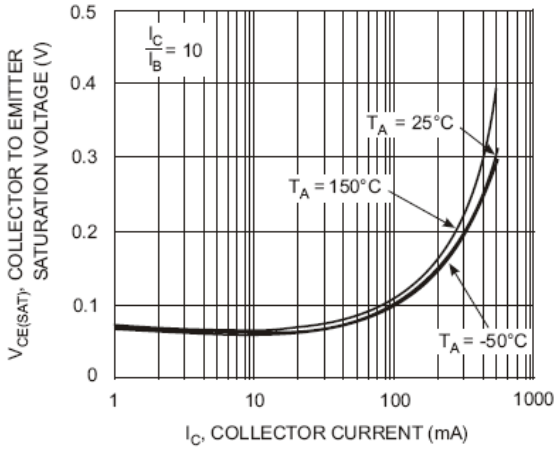


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

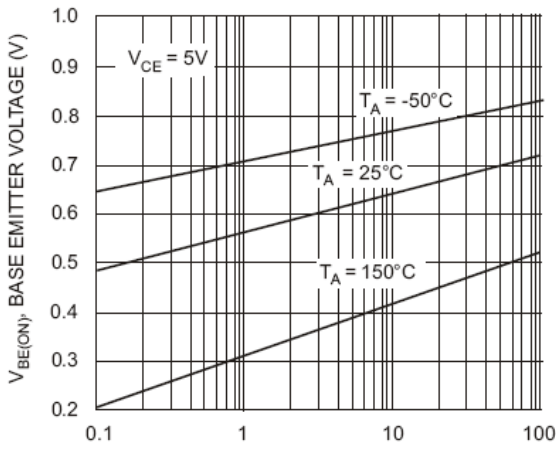


Fig. 6 Base Emitter Voltage vs. Collector Current

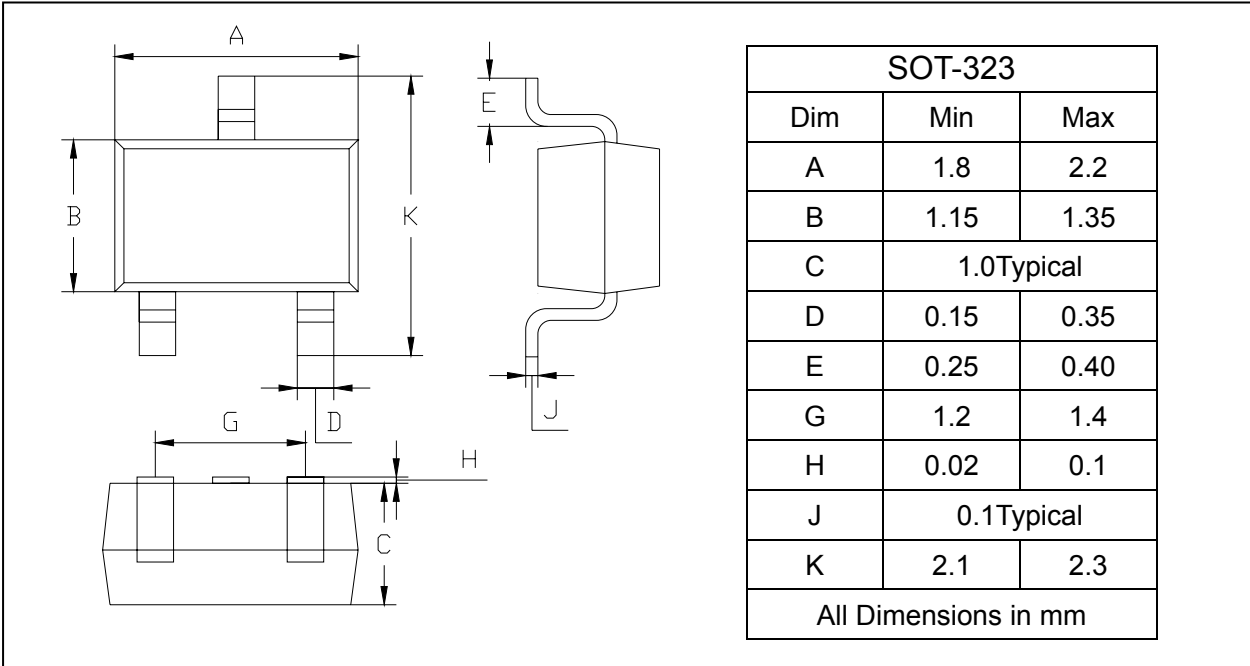
NPN Silicon Epitaxial Planar Transistor

MMST4401

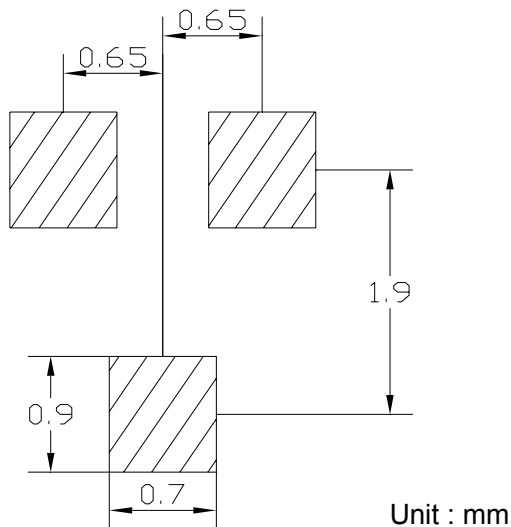
PACKAGE OUTLINE

Plastic surface mounted package

SOT-323



SOLDERING FOOTPRINT



PACKAGE INFORMATION

| Device | Package | Shipping |
|----------|---------|----------------|
| MMST4401 | SOT-323 | 3000/Tape&Reel |