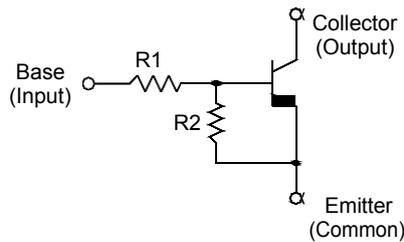


PNP Silicon Epitaxial Planar Transistor

for switching and interface circuit and drive circuit applications



| Type | Marking | R1 (KΩ) | R2 (KΩ) |
|-------------|---------|---------|---------|
| MMBTRA101SS | 101 | 4.7 | 4.7 |
| MMBTRA102SS | 102 | 10 | 10 |
| MMBTRA103SS | 103 | 22 | 22 |
| MMBTRA104SS | 104 | 47 | 47 |
| MMBTRA105SS | 105 | 2.2 | 47 |
| MMBTRA106SS | 106 | 4.7 | 47 |

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

| Parameter | | Symbol | Value | Unit |
|---------------------------|-------------|-----------|---------------|------------------|
| Output Voltage | | $-V_o$ | 50 | V |
| Input Voltage | MMBTRA101SS | $-V_i$ | 20, -10 | V |
| | MMBTRA102SS | | 30, -10 | |
| | MMBTRA103SS | | 40, -10 | |
| | MMBTRA104SS | | 40, -10 | |
| | MMBTRA105SS | | 12, -5 | |
| | MMBTRA106SS | | 20, -5 | |
| Output Current | | $-I_o$ | 100 | mA |
| Total Power Dissipation | | P_{tot} | 200 | mW |
| Junction Temperature | | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | | T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | |
|--|--|---------------------|----------------------------------|----------------------------|---|----------------------------|
| DC Current Gain at $-V_o = 5\text{ V}$, $-I_o = 10\text{ mA}$ | MMBTRA101SS MMBTRA102SS MMBTRA103SS MMBTRA104SS MMBTRA105SS MMBTRA106SS | G_i | 30 50 70 80 80 80 | - - - - - - | - - - - - - | - - - - - - |
| Output Cutoff Current at $-V_o = 50\text{ V}$ | | $-I_{O(OFF)}$ | - | - | 500 | nA |
| Input Current at $-V_i = 5\text{ V}$ | MMBTRA101SS MMBTRA102SS MMBTRA103SS MMBTRA104SS MMBTRA105SS MMBTRA106SS | $-I_i$ | - - - - - - | - - - - - - | 1.8 0.88 0.36 0.18 3.6 1.8 | mA |
| Output Voltage at $-I_o = 10\text{ mA}$, $-I_i = 0.5\text{ mA}$ | | $-V_{O(ON)}$ | - | - | 0.3 | V |
| Input Voltage (ON) at $-V_o = 0.2\text{ V}$, $-I_o = 5\text{ mA}$ | MMBTRA101SS MMBTRA102SS MMBTRA103SS MMBTRA104SS MMBTRA105SS MMBTRA106SS | $-V_{I(ON)}$ | - - - - - - | - - - - - - | 2 2.4 3 5 1.1 1.3 | V |
| Input Voltage (OFF) at $-V_o = 5\text{ V}$, $-I_o = 0.1\text{ mA}$ | MMBTRA101SS~104SS MMBTRA105SS~106SS | $-V_{I(OFF)}$ | 1 0.5 | - - | - - | V |
| Transition Frequency at $-V_o = 10\text{ V}$, $-I_o = 5\text{ mA}$ | | f_T ¹⁾ | - | 200 | - | MHz |

¹⁾ Characteristic of transistor only.

