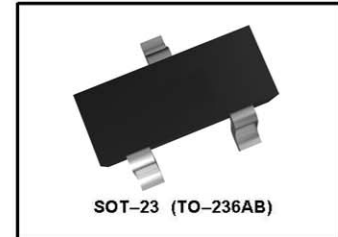
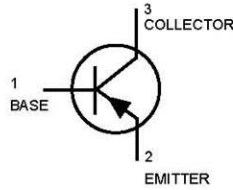


## PNP Silicon



### ● MAXIMUM RATINGS

| Rating                         | Symbol    | Value   |         | Unit |
|--------------------------------|-----------|---------|---------|------|
|                                |           | MMBTA55 | MMBTA56 |      |
| Collector–Emitter Voltage      | $V_{CE0}$ | -60     | -80     | Vdc  |
| Collector–Base Voltage         | $V_{CB0}$ | -60     | -80     | Vdc  |
| Emitter–Base Voltage           | $V_{EB0}$ | -4.0    |         | Vdc  |
| Collector Current — Continuous | $I_C$     | -500    |         | mAdc |

### ● THERMAL CHARACTERISTICS

| Characteristic  | Symbol          | Max         | Unit                      |
|---|-----------------|-------------|---------------------------|
| Total Device Dissipation FR-5 Board, (1)<br>$T_A = 25^\circ\text{C}$        | $P_D$           | 225         | mW                        |
| Derate above $25^\circ\text{C}$   |                 | 1.8         | mW/ $^\circ\text{C}$      |
| Thermal Resistance, Junction to Ambient                                     | $R_{\theta JA}$ | 556         | $^\circ\text{C}/\text{W}$ |
| Total Device Dissipation<br>Alumina Substrate, (2) $T_A = 25^\circ\text{C}$ | $P_D$           | 300         | mW                        |
| Derate above $25^\circ\text{C}$   |                 | 2.4         | mW/ $^\circ\text{C}$      |
| Thermal Resistance, Junction to Ambient                                     | $R_{\theta JA}$ | 417         | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature  | $T_J, T_{stg}$  | -55 to +150 | $^\circ\text{C}$          |

### ● DEVICE MARKING

MMBTA55LT1 = 2H; MMBTA56LT1 = 2GM

### ● ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted.)

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

#### OFF CHARACTERISTICS

|  |                    |               |            |        |                 |
|--|--------------------|---------------|------------|--------|-----------------|
| Collector–Emitter Breakdown Voltage (3)<br>( $I_C = -1.0\text{ mAdc}, I_E = 0$ ) | MMBTA55<br>MMBTA56 | $V_{(BR)CE0}$ | -60<br>-80 | —<br>— | Vdc             |
| Emitter–Base Breakdown Voltage<br>( $I_E = -100\ \mu\text{Adc}, I_C = 0$ )       |                    | $V_{(BR)EB0}$ | -4.0       | —      | Vdc             |
| Collector Cutoff Current<br>( $V_{CE} = -60\text{Vdc}, I_B = 0$ )                |                    | $I_{CE0}$     | —          | -0.1   | $\mu\text{Adc}$ |
| Collector Cutoff Current<br>( $V_{CB} = -60\text{Vdc}, I_E = 0$ )                | MMBTA55            | $I_{CB0}$     | —          | -0.1   | $\mu\text{Adc}$ |
| ( $V_{CB} = -80\text{Vdc}, I_E = 0$ )  | MMBTA56            |               | —          | -0.1   |                 |

1. FR-5 = 1.0 x 0.75 x 0.062 in.

2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

3. Pulse Test: Pulse Width  $\leq 300\ \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

SK MAKE CONSCIOUS PRODUCT

CONSCIOUS PRODUCTS BEGIN WITH CONSCIOUS PEOPLE



● **ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted) (Continued)

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

**ON CHARACTERISTICS**

|  |               |            |        |     |
|--|---------------|------------|--------|-----|
| DC Current Gain<br>( $I_C = -10\text{ mAdc}$ , $V_{CE} = -1.0\text{ Vdc}$ )<br>( $I_C = -100\text{ mAdc}$ , $V_{CE} = -1.0\text{ Vdc}$ ) | $h_{FE}$      | 100<br>100 | —<br>— | —   |
| Collector–Emitter Saturation Voltage<br>( $I_C = -100\text{ mAdc}$ , $I_B = -10\text{ mAdc}$ )   | $V_{CE(sat)}$ | —          | -0.25  | Vdc |
| Base–Emitter On Voltage<br>( $I_C = -100\text{ mAdc}$ , $V_{CE} = -1.0\text{ Vdc}$ )   | $V_{BE(on)}$  | —          | -1.2   | Vdc |

● **SMALL–SIGNAL CHARACTERISTICS**

|   |       |    |   |     |
|---|-------|----|---|-----|
| Current–Gain–Bandwidth Product(4)<br>( $V_{CE} = -1.0\text{ Vdc}$ , $I_C = -100\text{ mAdc}$ , $f = 100\text{ MHz}$ ) | $f_T$ | 50 | — | MHz |
|---|-------|----|---|-----|

4.  $f_T$  is defined as the frequency at which  $|h_{fe}|$  extrapolates to unity.

