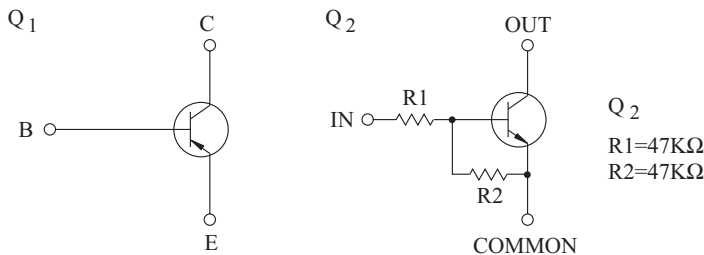


SWITCHING APPLICATION.
INTERFACE CIRCUIT AND DRIVER CIRCUIT APPLICATION.

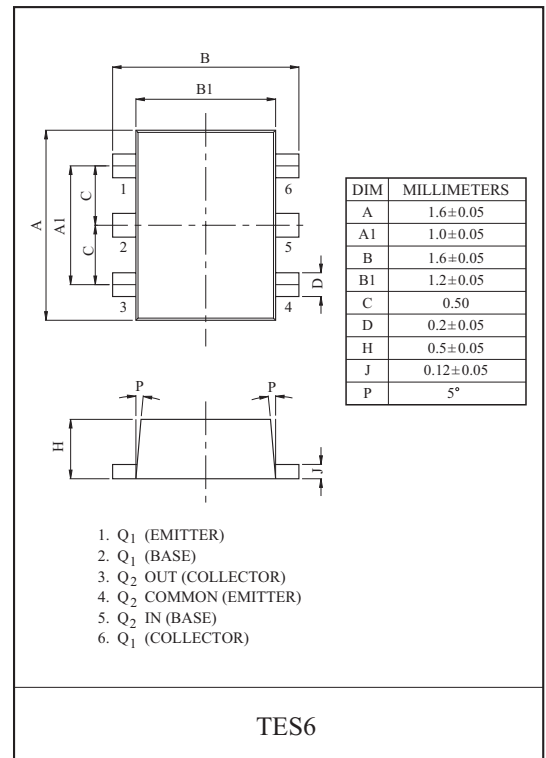
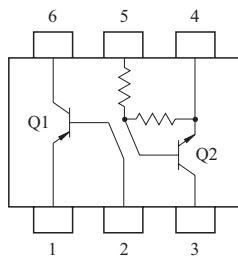
FEATURES

- Including two devices in TES6.
(Thin Extreme Super mini type with 6 leads.)
- With Built-in bias resistors.
- Simplify circuit design.
- Reduce a quantity of parts and manufacturing process.

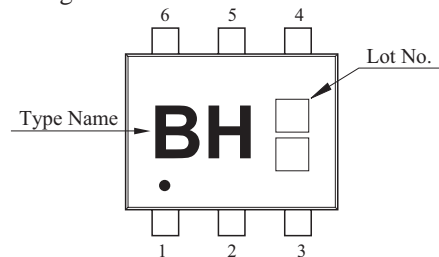
EQUIVALENT CIRCUIT



EQUIVALENT CIRCUIT (TOP VIEW)



Marking



Q1 MAXIMUM RATING (Ta=25 °C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---------------------------|-------------------|--------|------|
| Collector-Base Voltage | V _{CBO} | -15 | V |
| Collector-Emitter Voltage | V _{CEO} | -12 | V |
| Emitter-Base Voltage | V _{EBO} | -6 | V |
| Collector Current | I _C | -500 | mA |
| | I _{CP} * | -1 | A |

* Single pulse Pw=1mS.

Q2 MAXIMUM RATING (Ta=25 °C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|----------------|----------------|---------|------|
| Output Voltage | V _O | 50 | V |
| Input Voltage | V _I | 40, -10 | V |
| Output Current | I _O | 100 | mA |

Q1, Q2 MAXIMUM RATING (Ta=25 °C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---------------------------|------------------|-----------|------|
| Power Dissipation | P _D * | 200 | mW |
| Junction Temperature | T _j | 150 | °C |
| Storage Temperature Range | T _{stg} | -55 ~ 150 | °C |

* Total Raing.

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Q1 ELECTRICAL CHARACTERISTICS (Ta=25 °C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--------------------------------------|---------------|-------------------------------------|------|------|------|------|
| Collector Cut-off Current | I_{CBO} | $V_{CB}=-15V, I_E=0$ | - | - | -100 | nA |
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_E=-10\mu A$ | -15 | - | - | V |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=-1mA$ | -12 | - | - | V |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=-10\mu A$ | -6 | - | - | V |
| DC Current Gain | h_{FE} | $V_{CE}=-2V, I_C=-10mA$ | 270 | - | 680 | - |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=-200mA, I_B=-10mA$ | - | -100 | -250 | mV |
| Transition Frequency | f_T | $V_{CE}=-2V, I_C=-10mA, f_T=100MHz$ | - | 260 | - | MHz |
| Collector Output Capacitance | C_{ob} | $V_{CB}=-10V, I_E=0, f=1MHz$ | - | 6.5 | - | pF |

Q2 ELECTRICAL CHARACTERISTICS (Ta=25 °C)

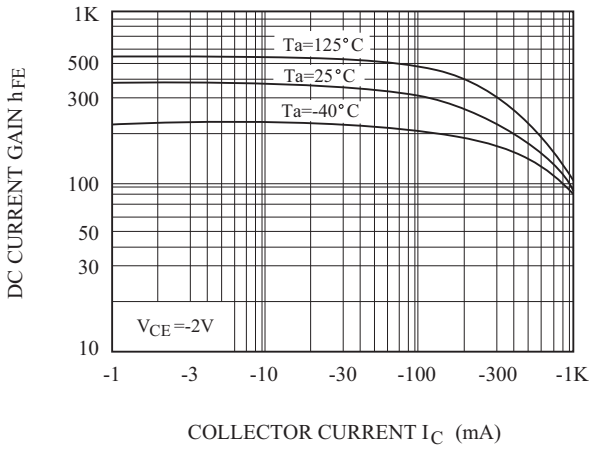
| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT. |
|------------------------|--------------|-----------------------|------|------|------|-------|
| Output Cut-off Current | $I_{O(OFF)}$ | $V_O=50V, V_I=0$ | - | - | 500 | nA |
| DC Current Gain | G_I | $V_O=5V, I_O=10mA$ | 20 | - | - | |
| Output Voltage | $V_{O(ON)}$ | $I_O=10mA, I_I=0.5mA$ | - | 0.1 | 0.3 | V |
| Input Voltage (ON) | $V_{I(ON)}$ | $V_O=0.2V, I_O=5mA$ | - | 2.8 | 5.0 | V |
| Input Voltage (OFF) | $V_{I(OFF)}$ | $V_O=5V, I_O=0.1mA$ | 1.0 | 1.2 | - | V |
| Transition Frequency | f_T^* | $V_O=10V, I_O=5mA$ | - | 200 | - | MHz |
| Input Current | I_I | $V_I=5V$ | - | - | 0.18 | mA |

Note : * Characteristic of Transistor Only.

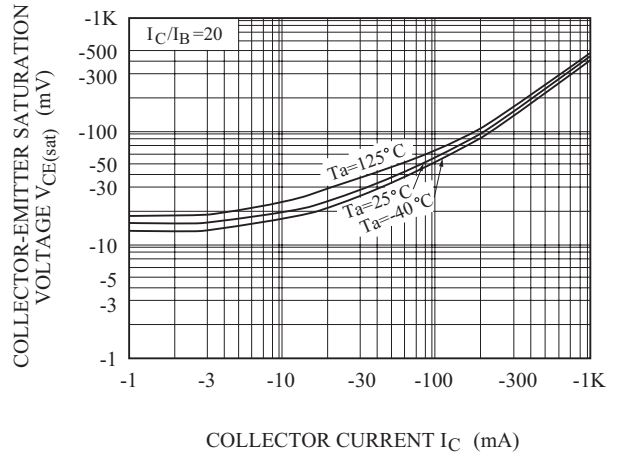
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Q₁ (PNP TRANSISTOR)

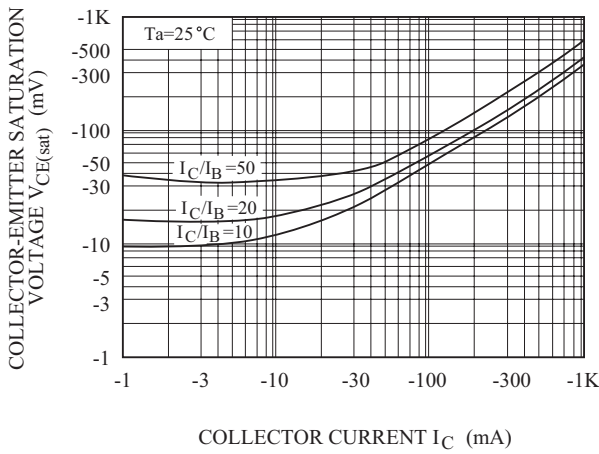
$h_{FE} - I_C$



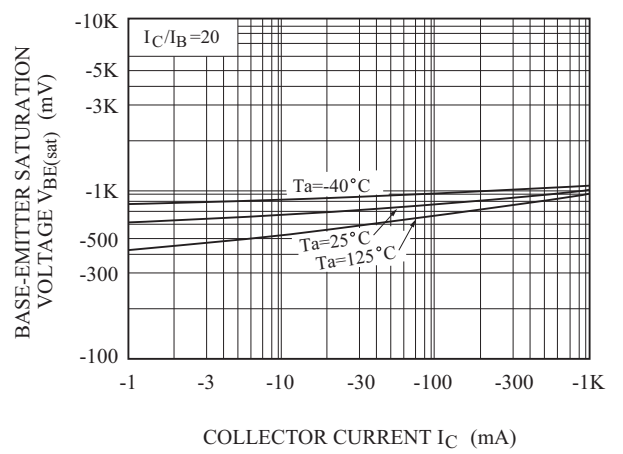
$V_{CE(sat)} - I_C$



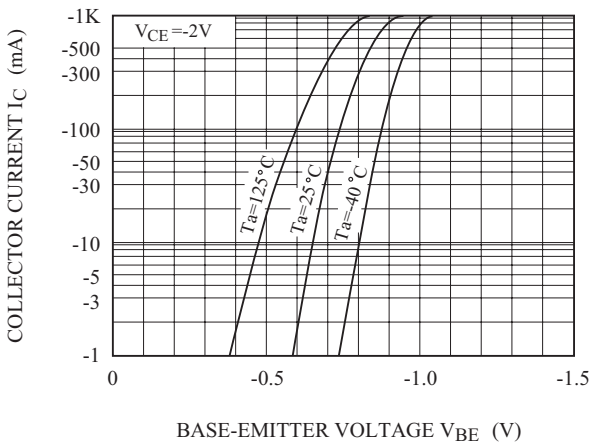
$V_{CE(sat)} - I_C$



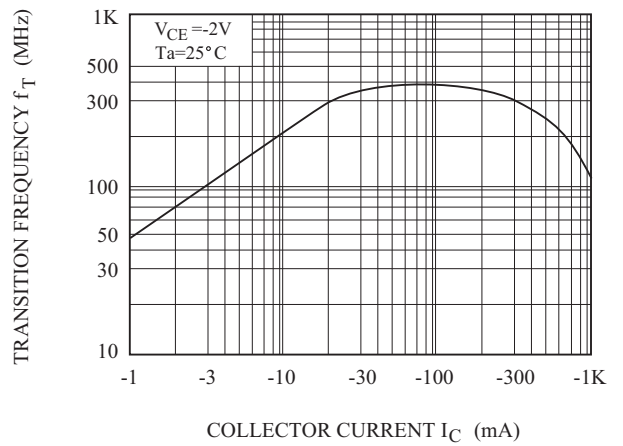
$V_{BE(sat)} - I_C$



$I_C - V_{BE}$



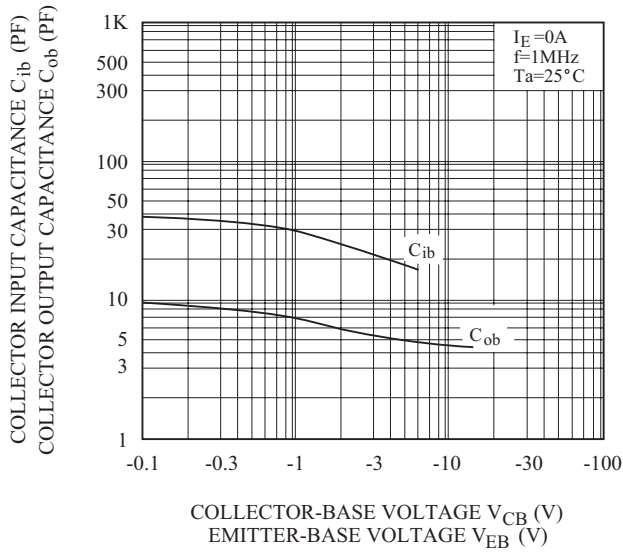
$f_T - I_C$



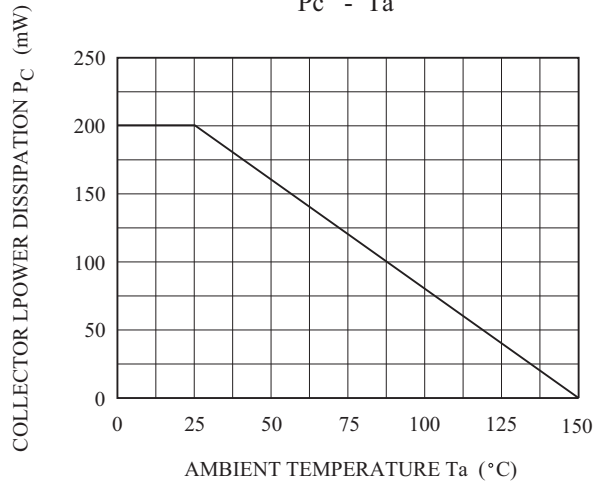
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Q₁ (PNP TRANSISTOR)

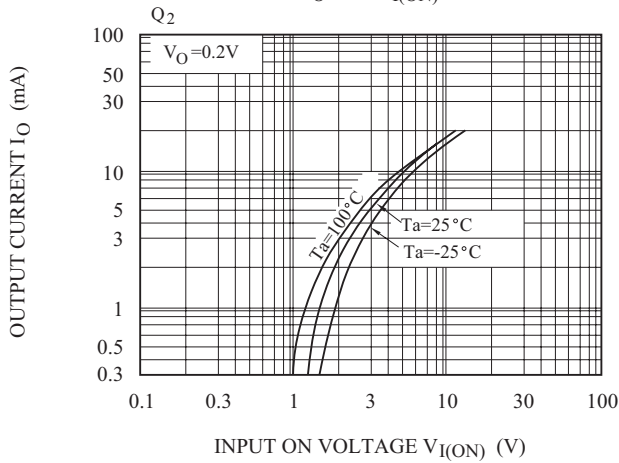
$C_{ob} - V_{CB}$, $C_{ib} - V_{EB}$



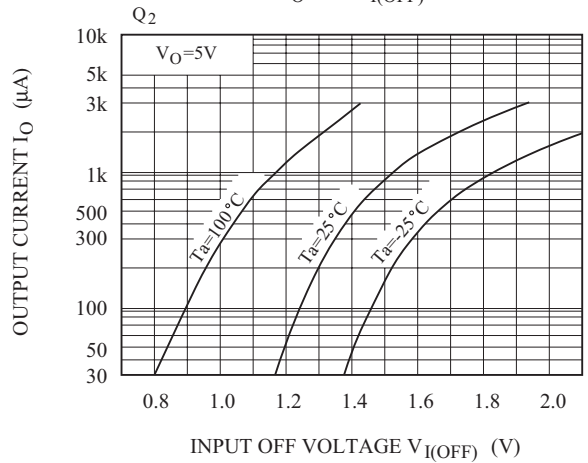
$P_c - T_a$



$I_O - V_{I(ON)}$



$I_O - V_{I(OFF)}$



$G_I - I_O$

