

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

# 2SA1012

HIGH CURRENT SWITCHING APPLICATIONS.

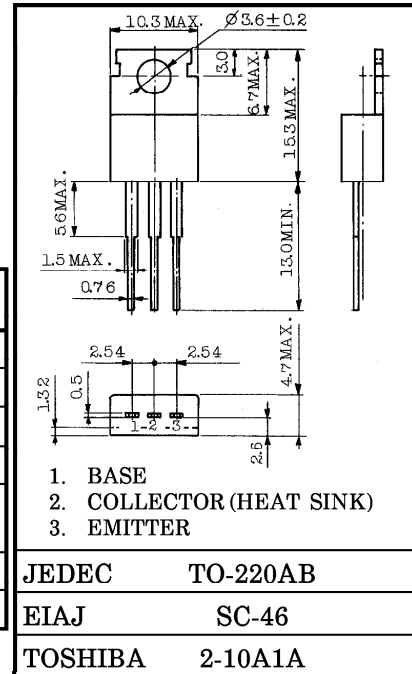
INDUSTRIAL APPLICATIONS

Unit in mm

- Low Collector Saturation Voltage  
:  $V_{CE(sat)} = -0.4V$  (Max.) at  $I_C = -3A$
- High Speed Switching Time :  $t_{stg} = 1.0\mu s$  (Typ.)
- Complementary to 2SC2562.

MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

| CHARACTERISTIC                                     | SYMBOL    | RATING  | UNIT       |
|--|-----------|---------|------------|
| Collector-Base Voltage                             | $V_{CBO}$ | -60     | V          |
| Collector-Emitter Voltage                          | $V_{CEO}$ | -50     | V          |
| Emitter-Base Voltage                               | $V_{EBO}$ | -5      | V          |
| Collector Current                                  | $I_C$     | -5      | A          |
| Collector Power Dissipation ( $T_c = 25^\circ C$ ) | $P_C$     | 25      | W          |
| Junction Temperature                               | $T_j$     | 150     | $^\circ C$ |
| Storage Temperature Range                          | $T_{stg}$ | -55~150 | $^\circ C$ |



Mounting Kit No. AC75

Weight : 1.9g

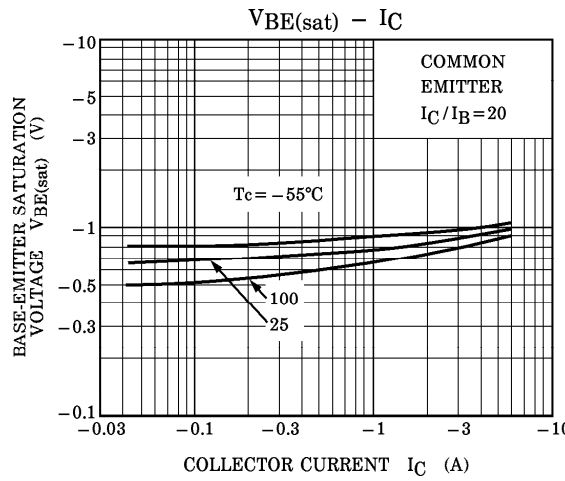
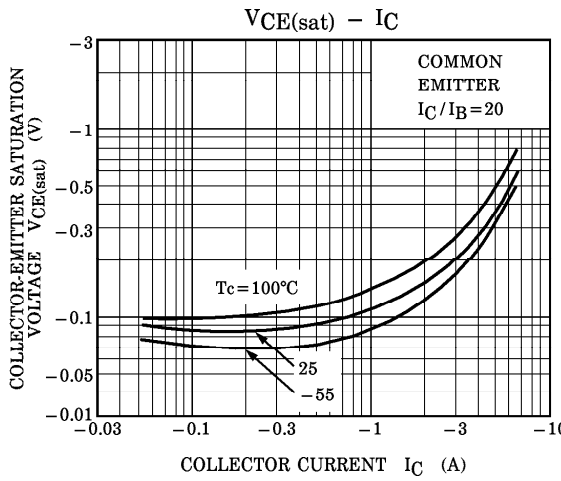
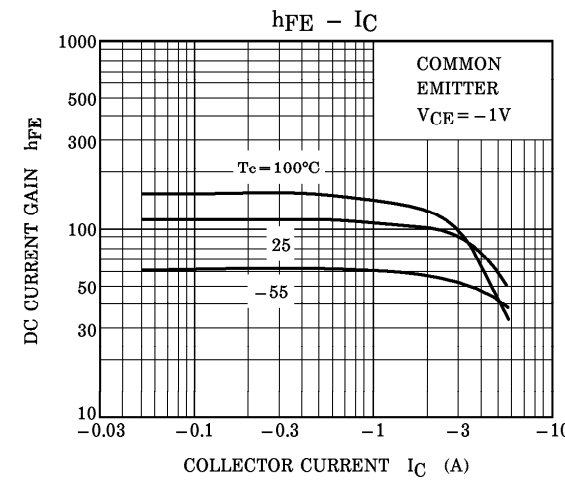
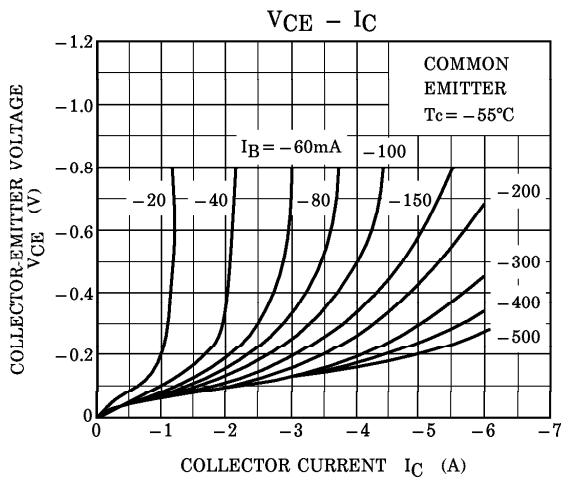
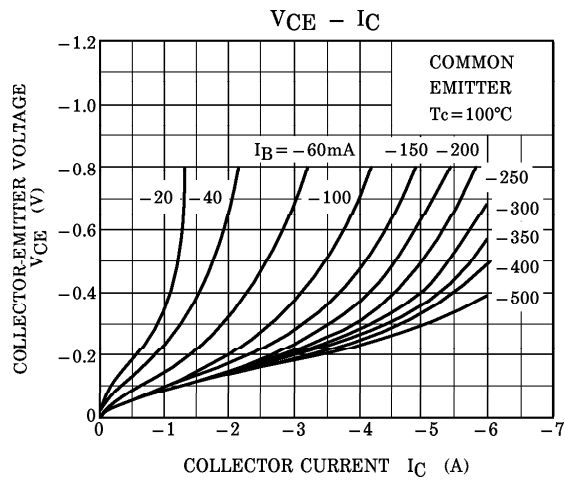
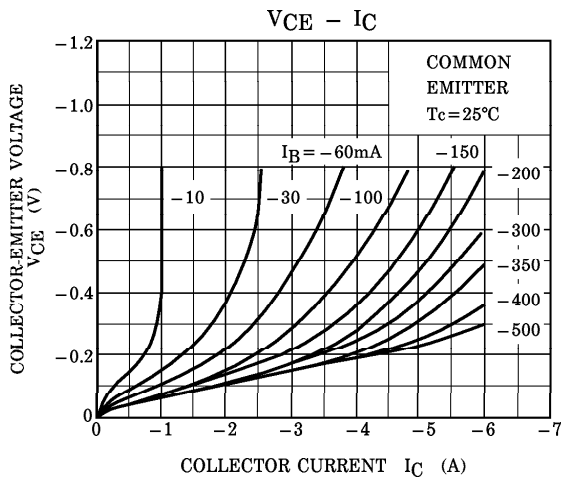
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

| CHARACTERISTIC                      |                   | SYMBOL                | TEST CONDITION  | MIN. | TYP. | MAX. | UNIT    |
|-------------------------------------|-------------------|-----------------------|---|------|------|------|---------|
| Collector Cut-off Current           |                   | $I_{CBO}$             | $V_{CB} = -50V, I_E = 0$  | —    | —    | -1   | $\mu A$ |
| Emitter Cut-off Current             |                   | $I_{EBO}$             | $V_{EB} = -5V, I_C = 0$   | —    | —    | -1   | $\mu A$ |
| Collector-Emitter Breakdown Voltage |                   | $V_{(BR)CEO}$         | $I_C = -10mA, I_B = 0$  | -50  | —    | —    | V       |
| DC Current Gain                     |                   | $h_{FE(1)}$<br>(Note) | $V_{CE} = -1V, I_C = -1A$   | 70   | —    | 240  |         |
|                                     |                   | $h_{FE(2)}$           | $V_{CE} = -1V, I_C = -3A$   | 30   | —    | —    |         |
| Saturation Voltage                  | Collector-Emitter | $V_{CE(sat)}$         | $I_C = -3A, I_B = -0.15A$   | —    | -0.2 | -0.4 | V       |
|                                     | Base-Emitter      | $V_{BE(sat)}$         | $I_C = -3A, I_B = -0.15A$   | —    | -0.9 | -1.2 |         |
| Transition Frequency                |                   | $f_T$                 | $V_{CE} = -4V, I_C = -1A$   | —    | 60   | —    | MHz     |
| Collector Output Capacitance        |                   | $C_{ob}$              | $V_{CB} = -10V, I_E = 0, f = 1MHz$  | —    | 170  | —    | pF      |
| Switching Time                      | Turn-on Time      | $t_{on}$              | <p>INPUT <math>I_{B2}</math> OUTPUT <math>I_{B1}</math></p> <p><math>20\mu s</math></p> <p><math>10\Omega</math></p> <p><math>V_{CC} = -30V</math></p> <p><math>-I_{B1} = I_{B2} = 0.15A</math></p> <p>DUTY CYCLE <math>\leq 2\%</math></p> | —    | 0.1  | —    | $\mu s$ |
|                                     | Storage Time      | $t_{stg}$             |   | —    | 1.0  | —    |         |
|                                     | Fall Time         | $t_f$                 |   | —    | 0.1  | —    |         |

Note :  $h_{FE(1)}$  Classification O : 70~140, Y : 120~240

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