

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE

2SC5376

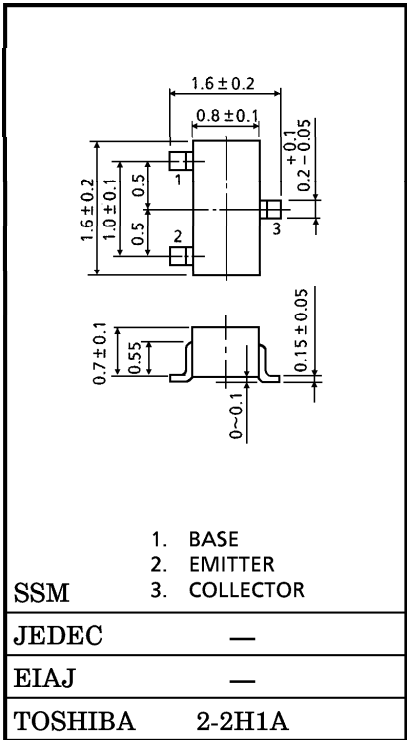
AUDIO FREQUENCY GENERAL PURPOSE AMPLIFIER APPLICATIONS  
FOR MUTING AND SWITCHING APPLICATIONS

Unit in mm

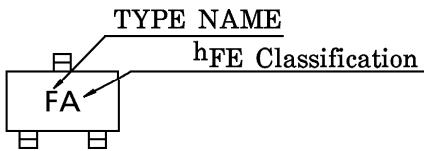
- Low Collector Saturation Voltage :  $V_{CE(sat)}(1) = 15mV$  (Typ.)  
@  $I_C = 10mA$  /  $I_B = 0.5mA$
- High Collector Current :  $I_C = 400mA$  (Max.)

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

| CHARACTERISTIC              | SYMBOL    | RATING         | UNIT        |
|-----------------------------|-----------|----------------|-------------|
| Collector-Base Voltage      | $V_{CBO}$ | 15             | V           |
| Collector-Emitter Voltage   | $V_{CEO}$ | 12             | V           |
| Emitter-Base Voltage        | $V_{EBO}$ | 5              | V           |
| Collector Current           | $I_C$     | 400            | mA          |
| Base Current                | $I_B$     | 50             | mA          |
| Collector Power Dissipation | $P_C$     | 100            | mW          |
| Junction Temperature        | $T_j$     | 125            | $^{\circ}C$ |
| Storage Temperature Range   | $T_{stg}$ | $-55 \sim 125$ | $^{\circ}C$ |



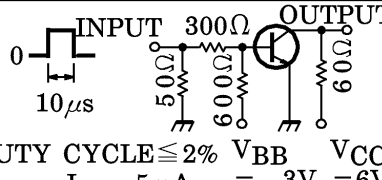
MARKING



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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC                       |              | SYMBOL            | TEST CONDITION                                                                                                                                                                                                         | MIN. | TYP. | MAX. | UNIT     |
|--------------------------------------|--------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|----------|
| Collector Cut-off Current            |              | $I_{CBO}$         | $V_{CB}=15V, I_E=0$                                                                                                                                                                                                    | —    | —    | 0.1  | $\mu A$  |
| Emitter Cut-off Current              |              | $I_{EBO}$         | $V_{EB}=5V, I_C=0$                                                                                                                                                                                                     | —    | —    | 0.1  | $\mu A$  |
| DC Current Gain                      |              | $h_{FE}$ (Note)   | $V_{CE}=2V, I_C=10mA$                                                                                                                                                                                                  | 300  | —    | 1000 |          |
| Collector-Emitter Saturation Voltage | Turn-on      | $V_{CE(sat)} (1)$ | $I_C=10mA, I_B=0.5mA$                                                                                                                                                                                                  | —    | 15   | 30   | mV       |
|                                      | Storage      | $V_{CE(sat)} (2)$ | $I_C=200mA, I_B=10mA$                                                                                                                                                                                                  | —    | 110  | 250  |          |
| Base-Emitter Voltage                 |              | $V_{BE(sat)}$     | $I_C=200mA, I_B=10mA$                                                                                                                                                                                                  | —    | 0.87 | 1.2  | V        |
| Transition Frequency                 |              | $f_T$             | $V_{CE}=2V, I_C=10mA$                                                                                                                                                                                                  | 80   | 130  | —    | MHz      |
| Collector Output Capacitance         |              | $C_{ob}$          | $V_{CB}=10V, I_E=0, f=1MHz$                                                                                                                                                                                            | —    | 4.2  | —    | pF       |
| Collector-Emitter On Resistance      |              | $R_{on}$          | $I_B=1mA, V_{in}=1V_{rms}, f=1kHz$                                                                                                                                                                                     | —    | 0.9  | —    | $\Omega$ |
| Switching Time                       | Turn-on Time | $t_{on}$          |  <p>DUTY CYCLE <math>\leq 2\%</math> <math>V_{BB} = -3V</math> <math>V_{CC} = 6V</math><br/> <math>I_{B1} = -I_{B2} = 5mA</math></p> | —    | 85   | —    | ns       |
|                                      | Storage Time | $t_{stg}$         |                                                                                                                                                                                                                        | —    | 170  | —    |          |
|                                      | Fall Time    | $t_f$             |                                                                                                                                                                                                                        | —    | 40   | —    |          |

(Note)  $h_{FE}$  Classification     A : 300~600,   B : 500~1000

