TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

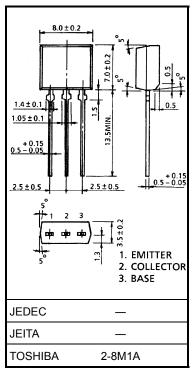
2SA1893

Strobe Flash Applications Audio Power Amplifier Applications

- $h_{FE(1)} = 100$ to 320 ($V_{CE} = -2$ V, $I_C = -0.5$ A)
- $h_{FE(2)} = 70 \text{ (min)} (V_{CE} = -2 \text{ V}, I_C = -4 \text{ A})$
- Low saturation voltage: $V_{CE (sat)} = -1.0 V (max)$
 - $(I_{C} = -4 \text{ V}, I_{B} = -0.1 \text{ A})$
- High-power dissipation: $P_C = 1.3 \text{ W}$

Absolute Maximum Ratings (Ta = 25°C)

| Characteristics | | Symbol | Rating | Unit | |
|-----------------------------|--------------------|------------------|------------|------|--|
| Collector-base voltage | | V _{CBO} | -35 | V | |
| Collector-emitter voltage | | V _{CEO} | -20 | V | |
| Emitter-base voltage | | V _{EBO} | -8 | V | |
| Collector current | DC | Ι _C | -5 | A | |
| | Pulsed (Note 1) | I _{CP} | -8 | | |
| Base current | | Ι _Β | -0.5 | Α | |
| Collector power dissipation | | P _C | 1.3 | W | |
| Junction temperature | | Тj | 150 | °C | |
| Storage temperature range | | T _{stg} | -55 to 150 | °C | |



Weight: 0.55 g (typ.)

Note 1: Conditions: Pulse width = 10 ms (max), duty cycle = 30% (max)

Note 2: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

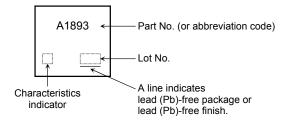
Unit: mm

Electrical Characteristics (Ta = 25°C)

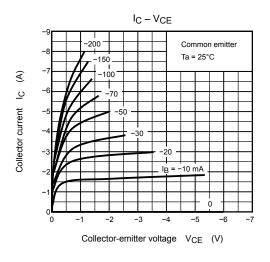
| Characteristics | Symbol | Test Condition | Min | Тур. | Max | Unit |
|--------------------------------------|---------------------------------|--|-----|------|------|------|
| Collector cut-off current | I _{CBO} | $V_{CB} = -35 \text{ V}, \text{ I}_{E} = 0$ | _ | _ | -100 | nA |
| Emitter cut-off current | I _{EBO} | $V_{EB} = -8 V, I_C = 0$ | _ | _ | -100 | nA |
| Collector-emitter breakdown voltage | V (BR) CEO | I _C = -10 mA, I _B = 0 | -20 | — | — | V |
| DC current gain | h _{FE (1)} (Note 3) | V _{CE} = -2 V, I _C = -0.5 A | 100 | _ | 320 | |
| | h _{FE (2)} | $V_{CE} = -2 V, I_C = -4 A$ | 70 | _ | _ | |
| Collector-emitter saturation voltage | V _{CE (sat)} | I _C = -4 A, I _B = -0.1 A | _ | — | -1.0 | V |
| Base-emitter voltage | V _{BE} | $V_{CE} = -2 V, I_C = -4 A$ | _ | _ | -1.5 | V |
| Transition frequency | f _T | V _{CE} = -2 V, I _C = -0.5 A | — | 170 | _ | MHz |
| Collector output capacitance | C _{ob} | V _{CB} = −10 V, I _E = 0, f = 1 MHz | _ | 62 | — | pF |

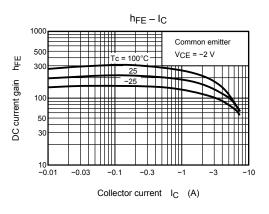
Note 3: h_{FE (1)} classification O: 100 to 200, Y: 160 to 320

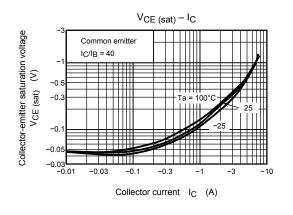
Marking

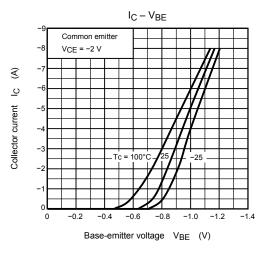


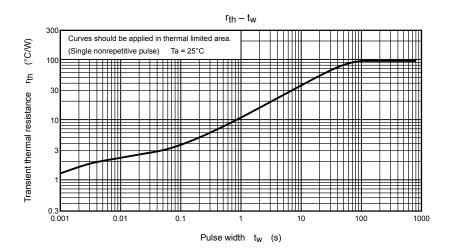
TOSHIBA

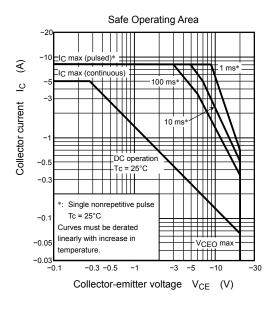


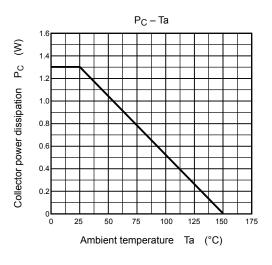












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