

2SA1471/2SC3748**60V/10A High-Speed Switching Applications****Applications**

- Car-use inductance drivers, lamp drivers.
- Inverters drivers, converters (strobos, flashes, FLT lighting circuits).
- Power amplifiers (high-power car stereos, motor control).
- High-speed switching (switching regulators, drivers).

Features

- Low saturation voltage.
- Excellent dependence of h_{FE} on current.
- Fast switching speed.
- Micaless package facilitating mounting.

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Specifications**Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$**

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------------------|-------------|------------------|
| Collector-to-Base Voltage | V_{CB0} | | (-)-80 | V |
| Collector-to-Emitter Voltage | V_{CE0} | | (-)-60 | V |
| Emitter-to-Base Voltage | V_{EB0} | | (-)-5 | V |
| Collector Current | I_C | | (-)-10 | A |
| Collector Current (Pulse) | I_{CP} | | (-)-12 | A |
| Collector Dissipation | P_C | | 2 | W |
| | | $T_c=25^\circ\text{C}$ | 30 | W |
| Junction Temperature | T_J | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ\text{C}$ |

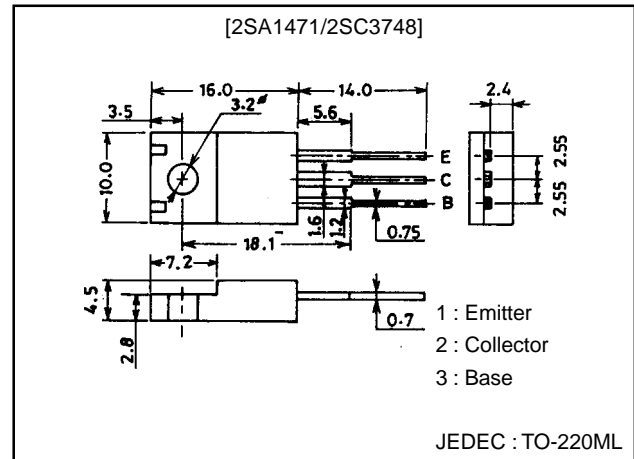
Electrical Characteristics at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|---|---------|-----|---------|---------------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CB0} | $V_{CB} = (-)40\text{V}, I_E = 0$ | | | (-)-0.1 | mA |
| Emitter Cutoff Current | I_{EB0} | $V_{EB} = (-)4\text{V}, I_C = 0$ | | | (-)-0.1 | mA |
| DC Current Gain | h_{FE} | $V_{CE} = (-)2\text{V}, I_C = (-)1\text{A}$ | 70* | | 280* | |
| Gain-Bandwidth Product | f_T | $V_{CE} = (-)5\text{V}, I_C = (-)1\text{A}$ | | 100 | | MHz |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = (-)5\text{A}, I_B = (-)0.25\text{A}$ | | | (-)-0.4 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = (-)1\text{mA}, I_E = 0$ | (-)-80 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = (-)1\text{mA}, R_{BE} = \infty$ | (-)-60 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = (-)1\text{mA}, I_C = 0$ | (-)-5 | | | V |
| Turn-ON Time | t_{on} | See specified Test Circuit | | 0.1 | | μs |
| Storage Time | t_{stg} | See specified Test Circuit | | 0.5 | | μs |
| Fall Time | t_f | See specified Test Circuit | | 0.1 | | μs |

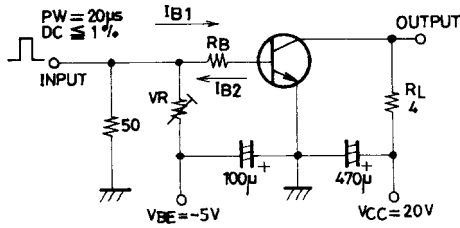
Package Dimensions

unit:mm

2041



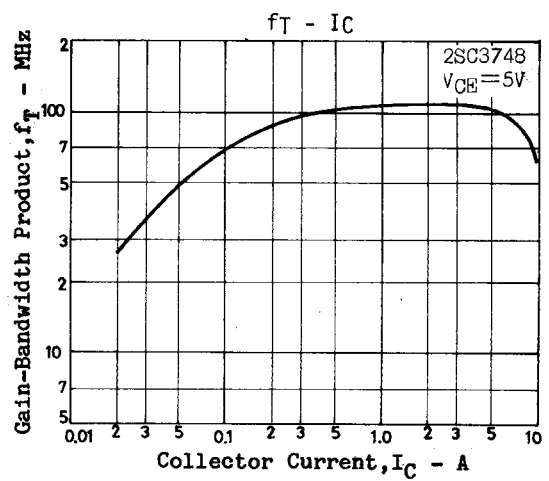
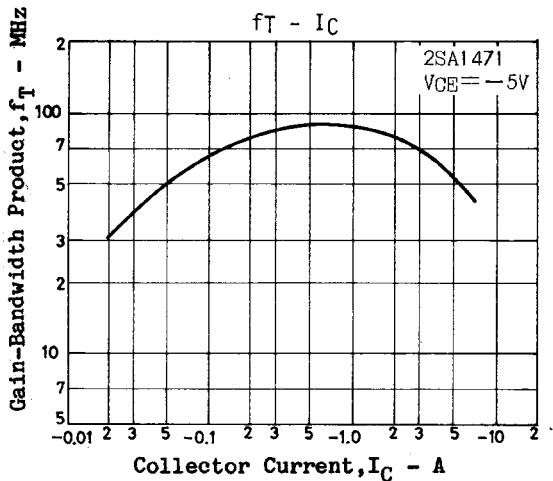
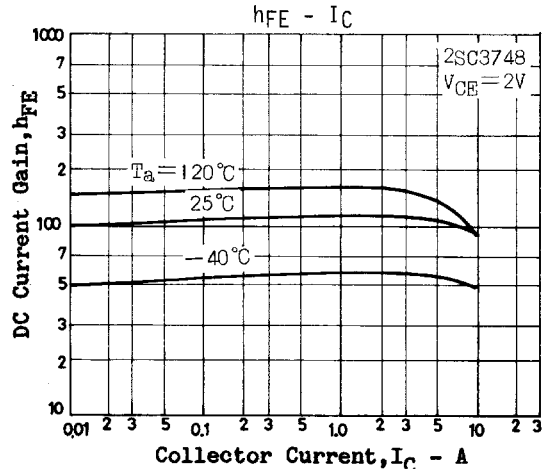
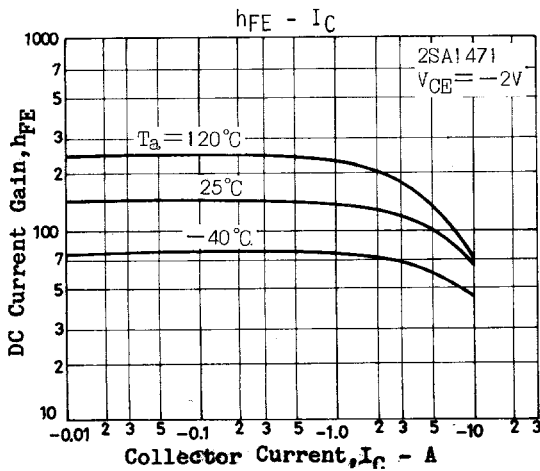
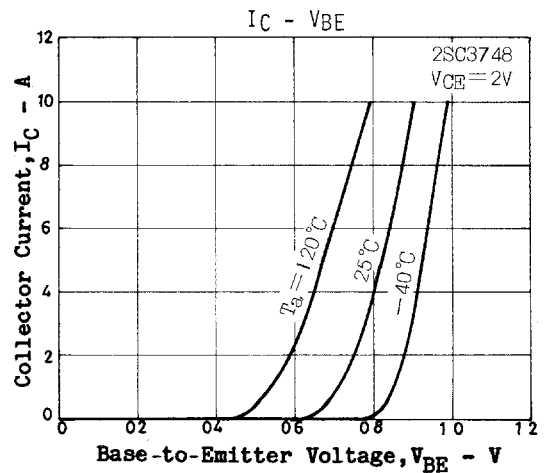
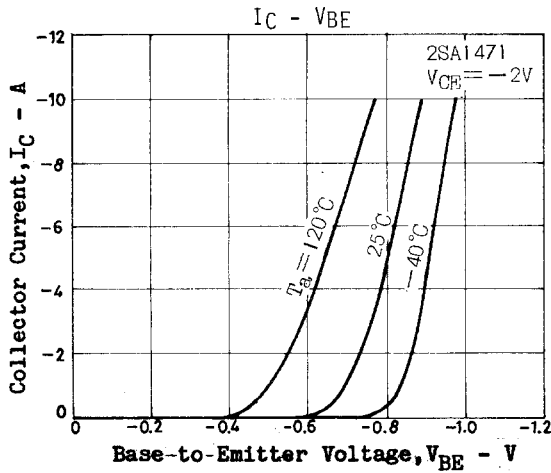
Switching Time Test Circuit



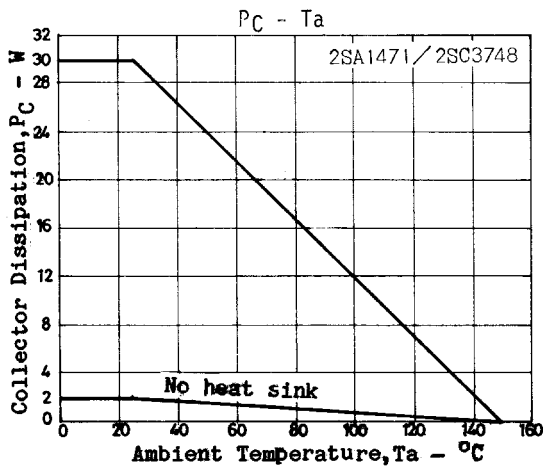
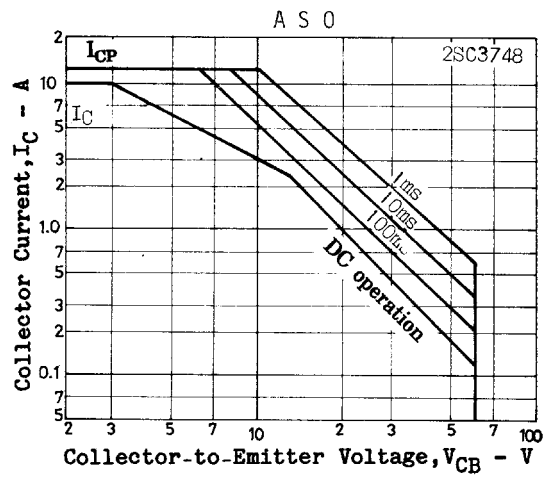
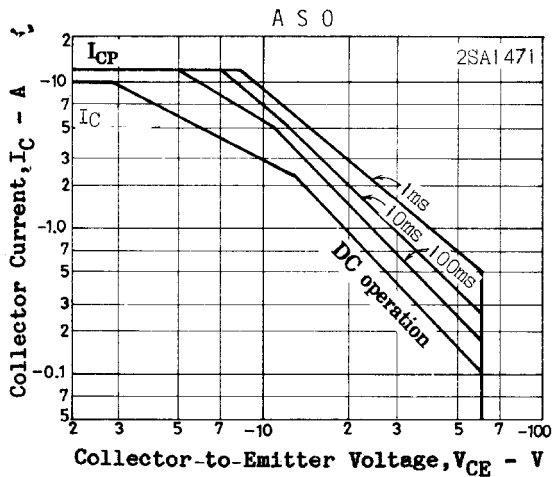
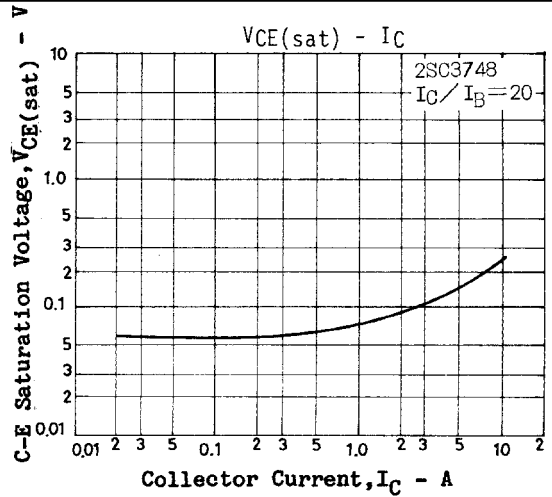
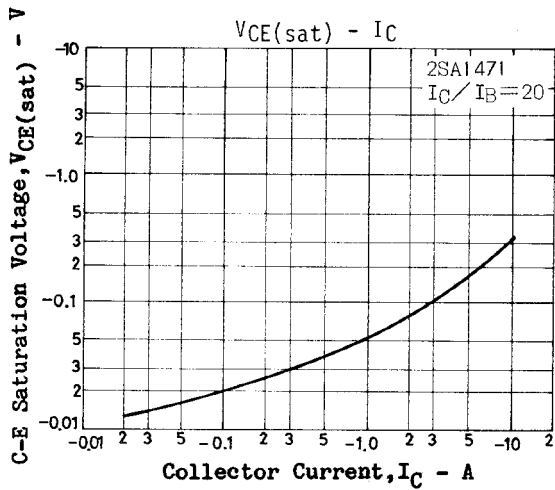
$20I_{B1} = -20I_{B2} = I_C = 5A$

(For PNP, the polarity is reversed.)

Unit (resistance : Ω, capacitance : F)



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