



SANYO Semiconductors

DATA SHEET

2SA2099 / 2SC5888 — PNP / NPN Epitaxial Planar Silicon Transistors High-Current Switching Applications

Applications

- Relay drivers, lamp drivers, motor drivers.

Features

- Adoption of MBIT process.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.

Specifications () : 2SA2099

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|----------------------|-------------|------|
| Collector-to-Base Voltage | V _{CBO} | | (-50)60 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | (-)50 | V |
| Emitter-to-Base Voltage | V _{EBO} | | (-)6 | V |
| Collector Current | I _C | | (-)10 | A |
| Collector Current (Pulse) | I _{CP} | | (-)13 | A |
| Base Current | I _B | | (-)2 | A |
| Collector Dissipation | P _C | | 2 | W |
| | | T _c =25°C | 25 | W |
| Junction Temperature | T _J | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

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SANYO Semiconductor Co., Ltd.

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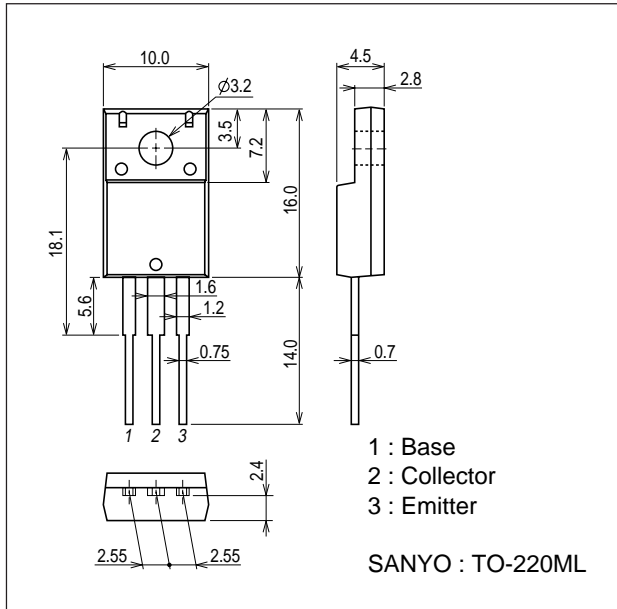
2SA2099 / 2SC5888

Electrical Characteristics at Ta=25°C

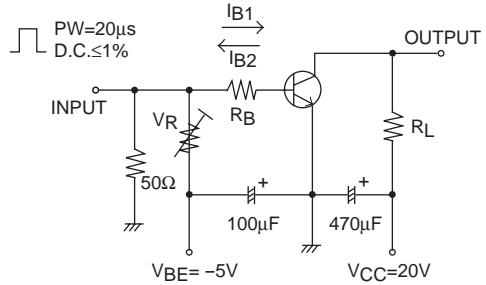
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|---------------------------------|---------|-----------|-----------|---------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB} = (-)40V, I_E = 0A$ | | | (-)10 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = (-)4V, I_C = 0A$ | | | (-)10 | μA |
| DC Current Gain | h_{FE} | $V_{CE} = (-)2V, I_C = (-)1A$ | 200 | | (560)700 | |
| Gain-Bandwidth Product | f_T | $V_{CE} = (-)5V, I_C = (-)1A$ | | (130)200 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB} = (-)10V, f = 1MHz$ | | (90)60 | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = (-)5A, I_B = (-)250mA$ | | (-250)180 | (-500)360 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = (-)5A, I_B = (-)250mA$ | | (-)0.93 | (-)1.4 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = (-)100\mu A, I_E = 0A$ | (-50)60 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = (-)1mA, R_{BE} = \infty$ | (-50) | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = (-)100\mu A, I_C = 0A$ | (-6) | | | V |
| Turn-ON Time | t_{on} | See specified Test Circuit. | | (70)40 | | ns |
| Storage Time | t_{stg} | See specified Test Circuit. | | (650)1000 | | ns |
| Fall Time | t_f | See specified Test Circuit. | | (60)80 | | ns |

Package Dimensions

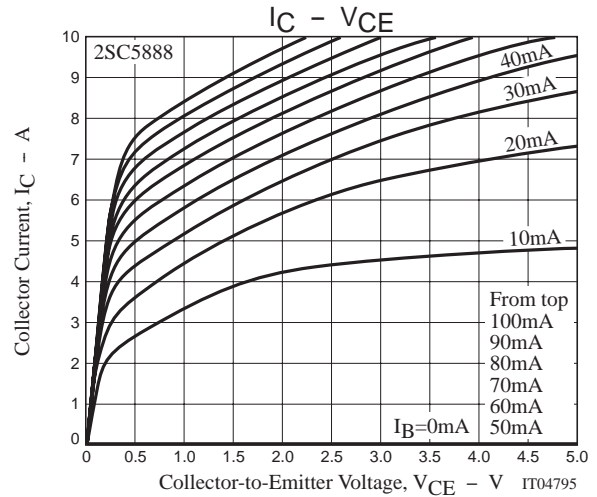
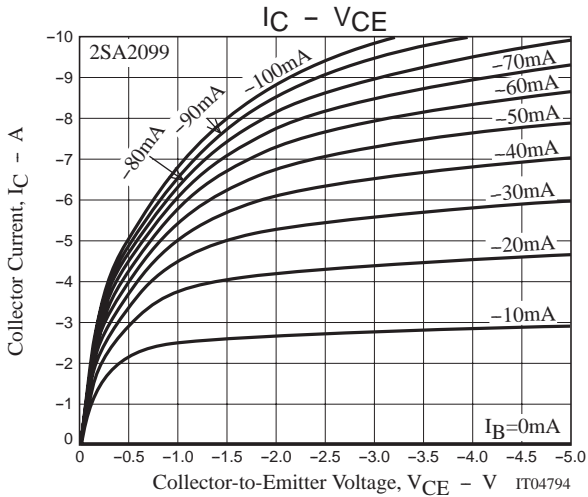
unit : mm (typ)
7508-002



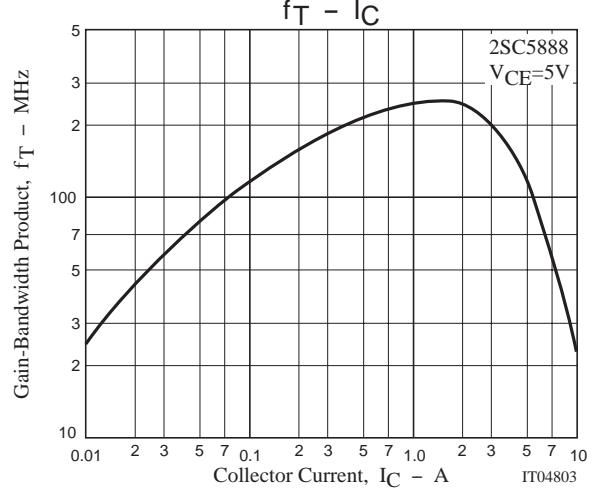
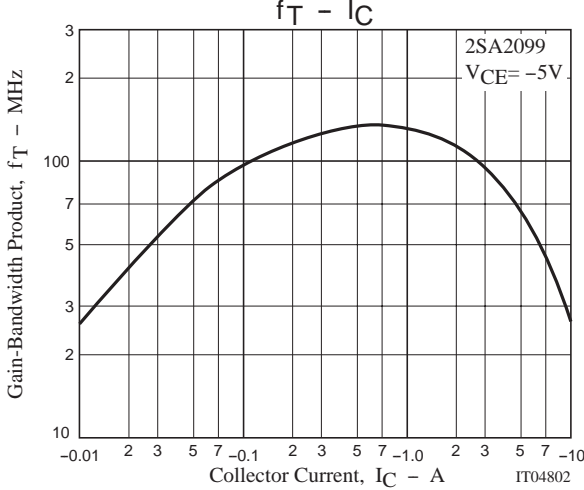
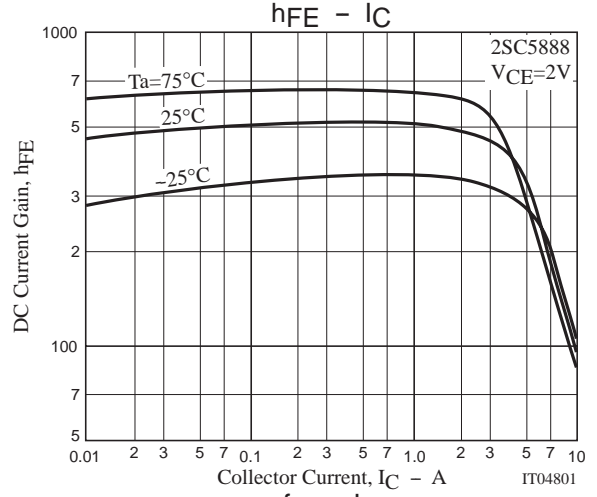
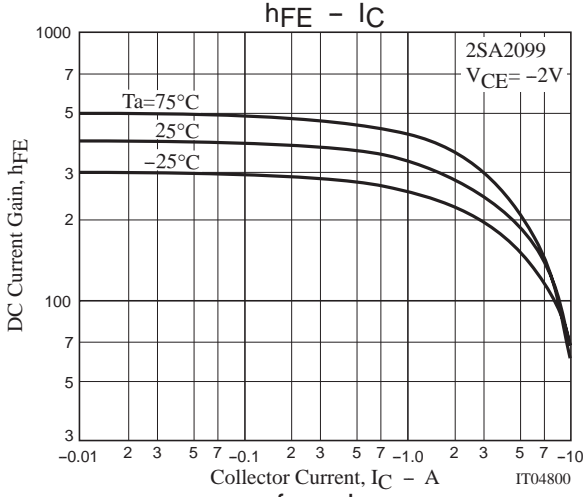
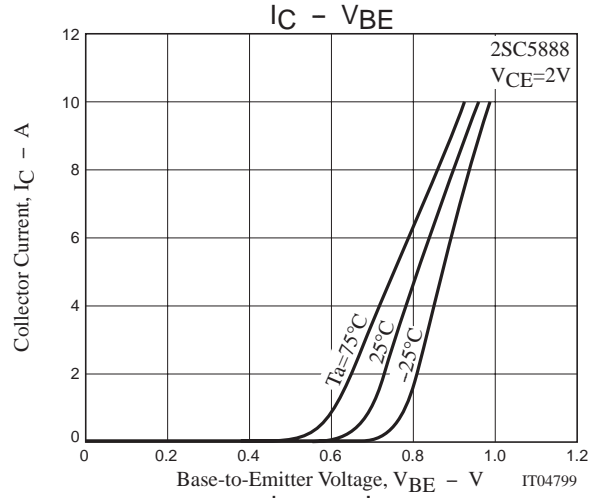
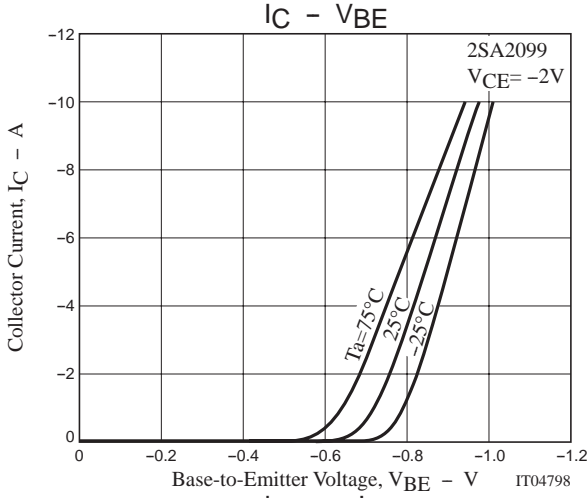
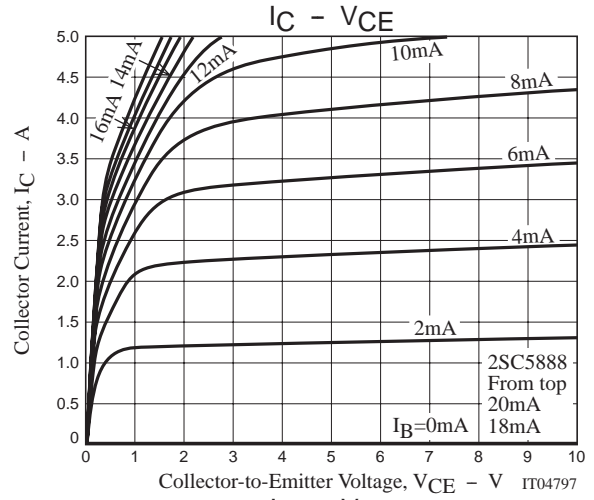
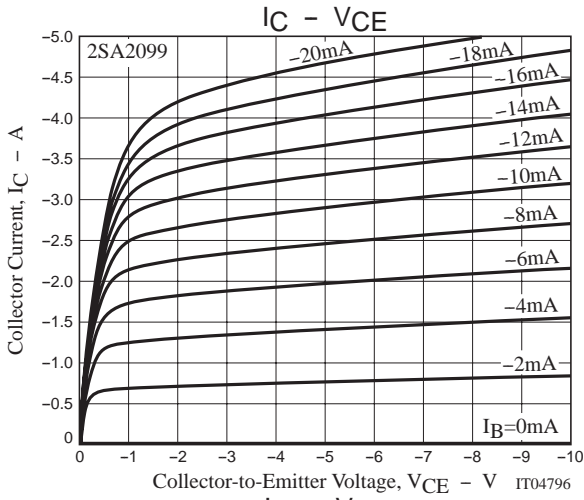
Switching Time Test Circuit

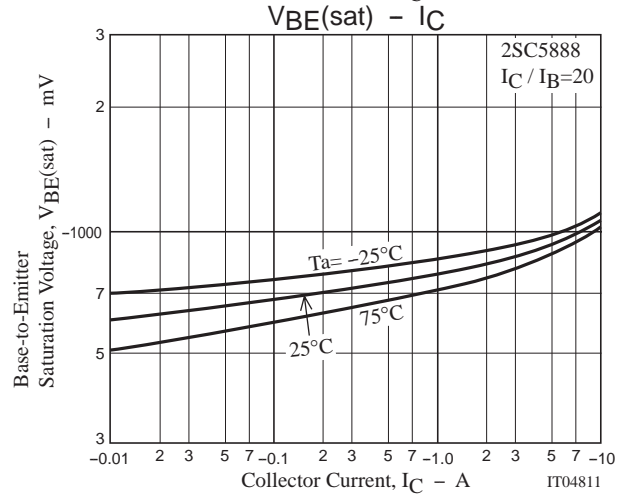
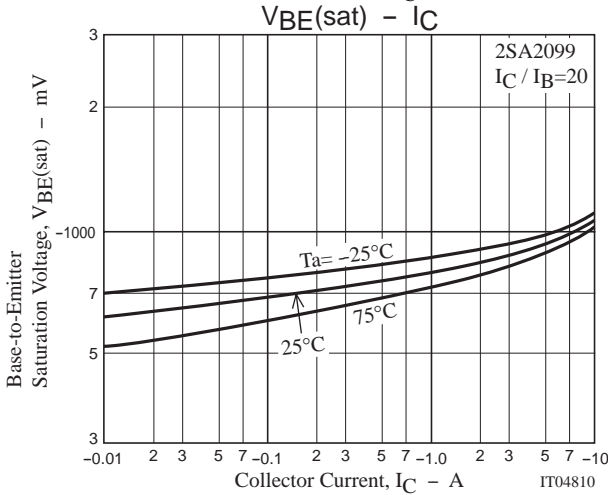
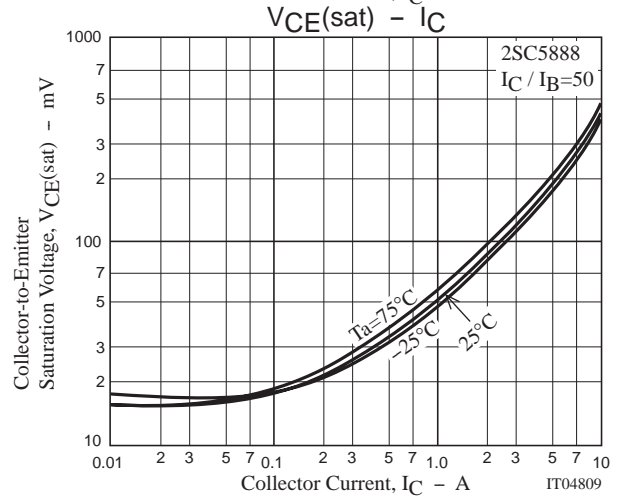
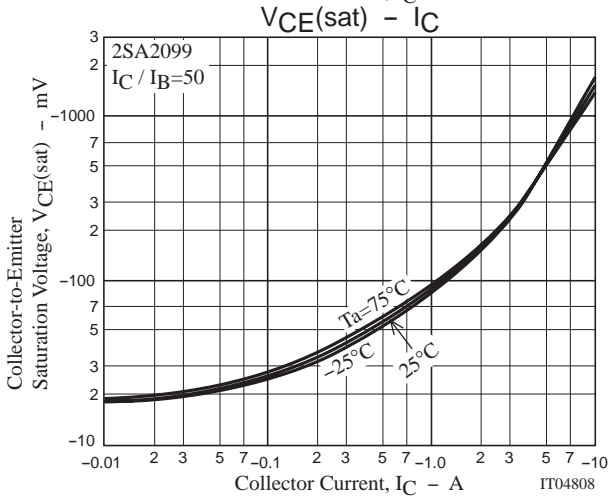
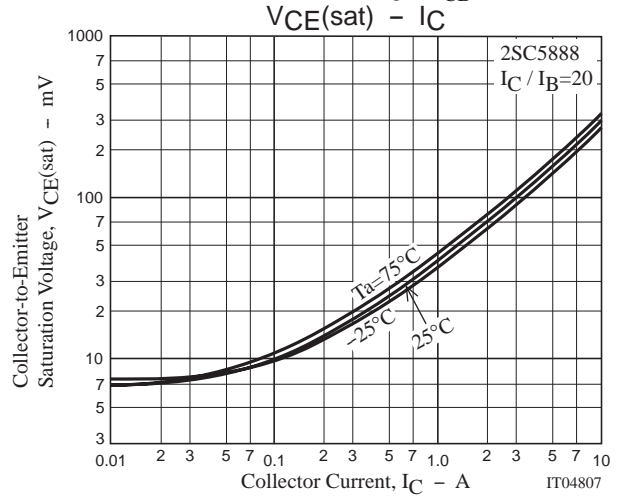
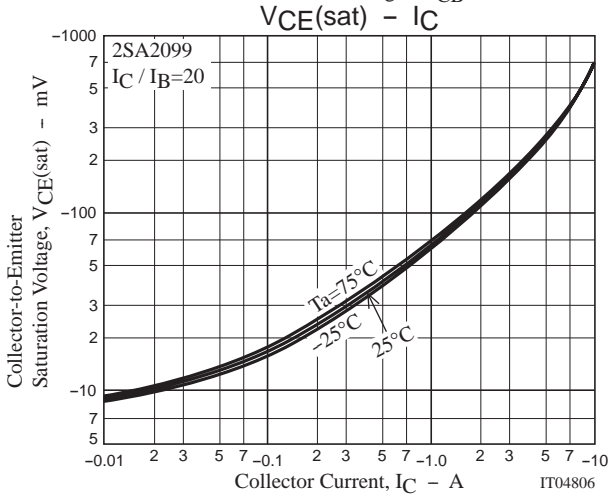
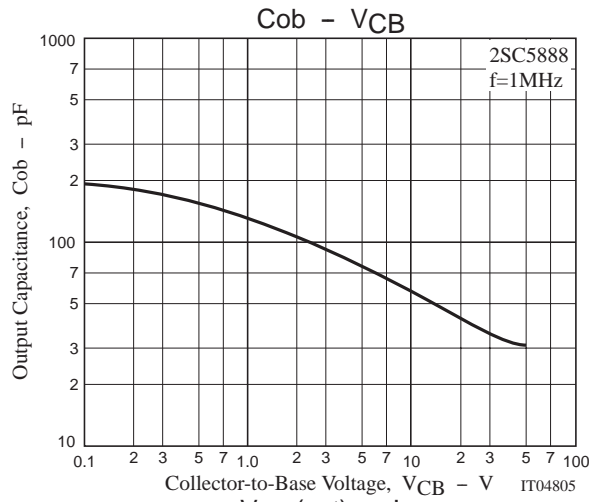
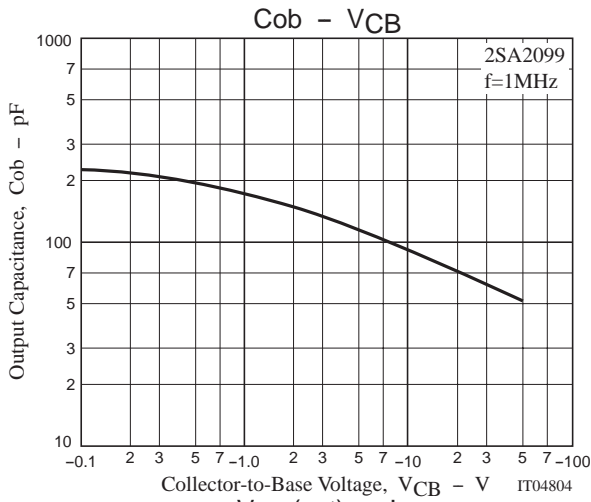


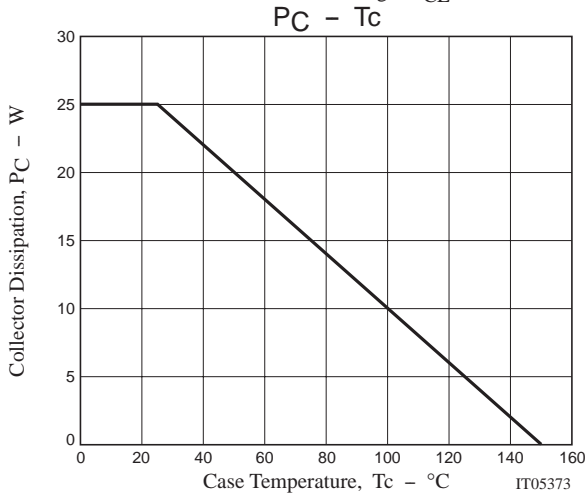
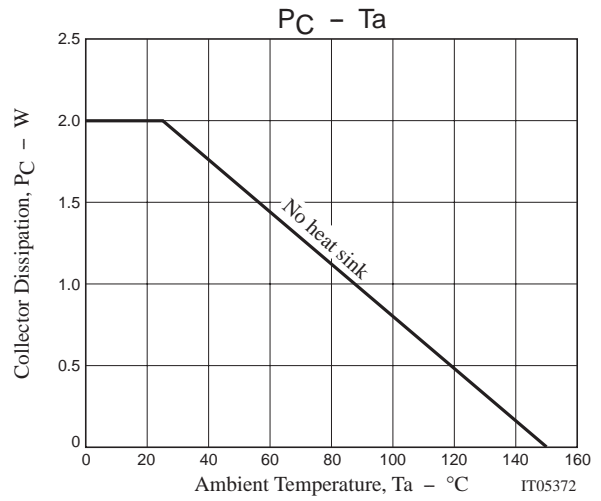
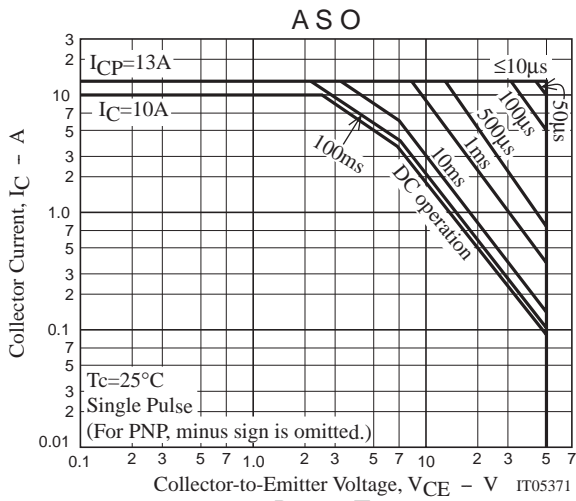
$I_C = 20I_{B1} = -20I_{B2} = 3A$
(For PNP, the polarity is reversed.)



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