

**2SC3807**

High h_{FE} , Low-Frequency General-Purpose Amplifier Applications

Applications

- Low frequency general-purpose amplifiers, drivers.

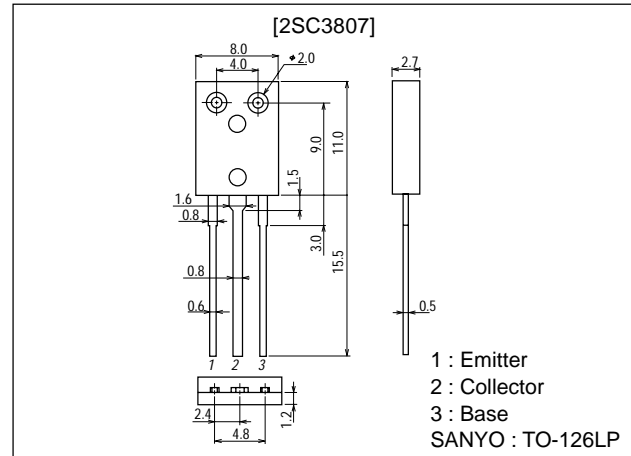
Features

- Large current capacity ($I_C=2A$).
- Adoption of MBIT process.
- High DC current gain ($h_{FE}=800$ to 3200).
- Low collector-to-emitter saturation voltage ($V_{CE(sat)} \leq 0.5V$).
- High V_{EBO} ($V_{EBO} \geq 15V$).

Package Dimensions

unit:mm

2043B



Specifications

Absolute Maximum Ratings at $T_a = 25^\circ C$

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------------|-------------|------------|
| Collector-to-Base Voltage | V_{CBO} | | 30 | V |
| Collector-to-Emitter Voltage | V_{CEO} | | 25 | V |
| Emitter-to-Base Voltage | V_{EBO} | | 15 | V |
| Collector Current | I_C | | 2 | A |
| Collector Current (Pulse) | I_{CP} | | 4 | A |
| Collector Dissipation | P_C | | 1.2 | W |
| | | $T_c=25^\circ C$ | 15 | W |
| Junction Temperature | T_J | | 150 | $^\circ C$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ C$ |

Electrical Characteristics at $T_a = 25^\circ C$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--------------------------|-----------|------------------------|---------|------|------|---------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=20V, I_E=0$ | | | 0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=10V, I_C=0$ | | | 0.1 | μA |
| DC Current Gain | h_{FE1} | $V_{CE}=5V, I_C=500mA$ | 800 | 1500 | 3200 | |
| | h_{FE2} | $V_{CE}=5V, I_C=1A$ | 600 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=10V, I_C=50mA$ | | 260 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=10V, f=1MHz$ | | 27 | | pF |

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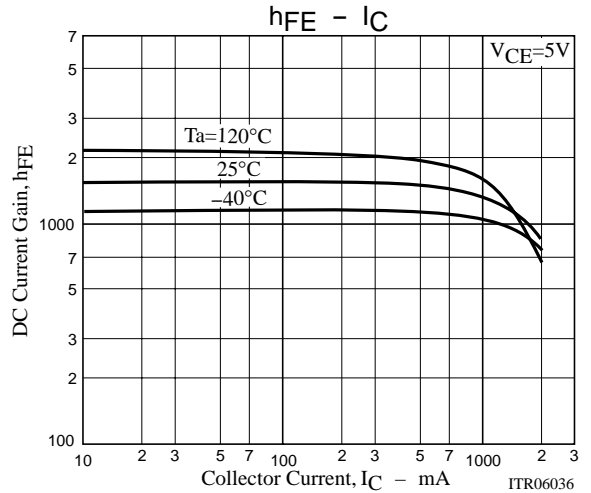
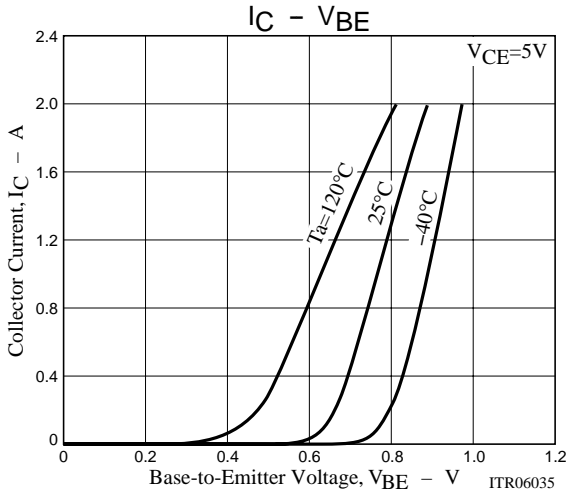
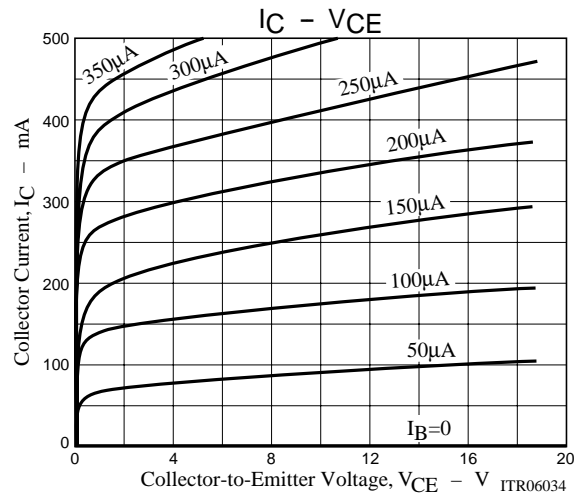
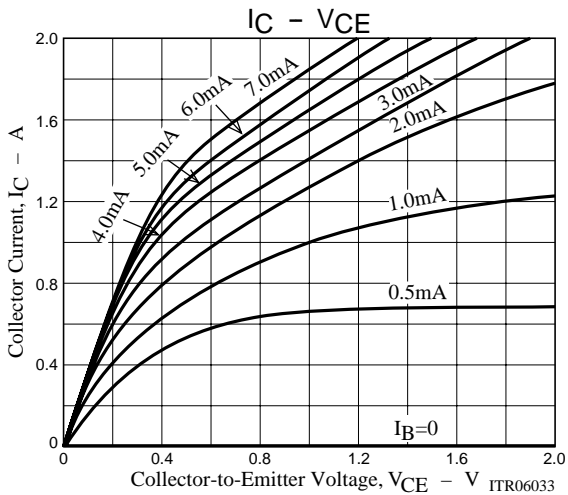
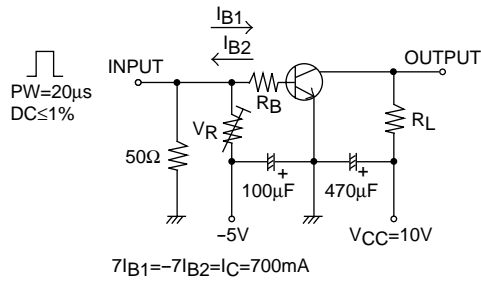
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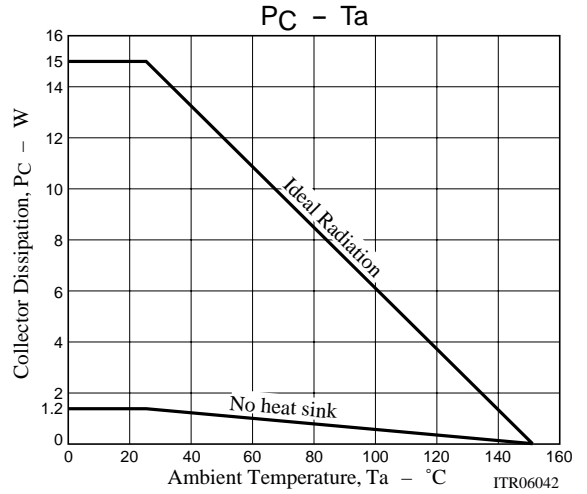
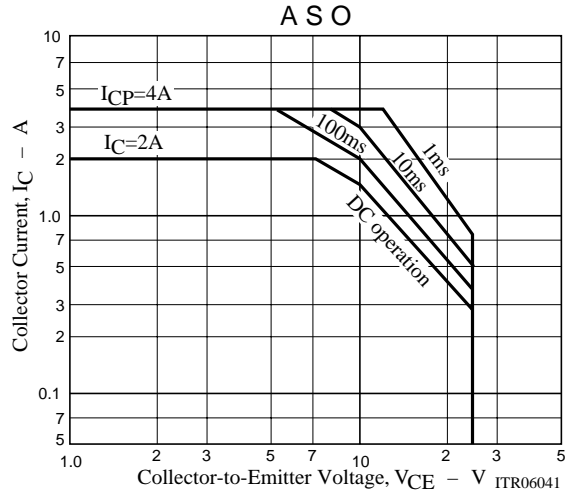
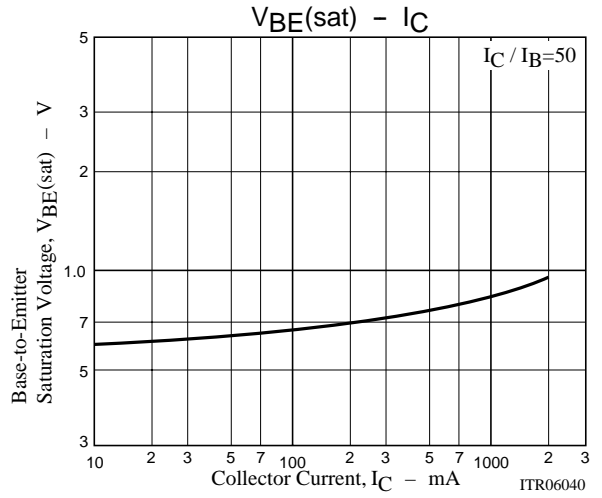
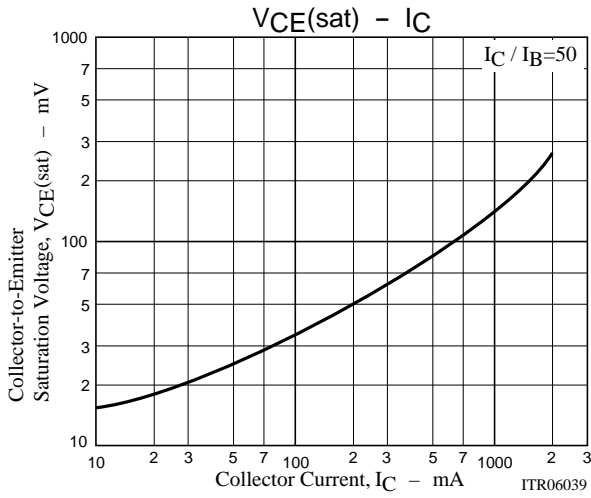
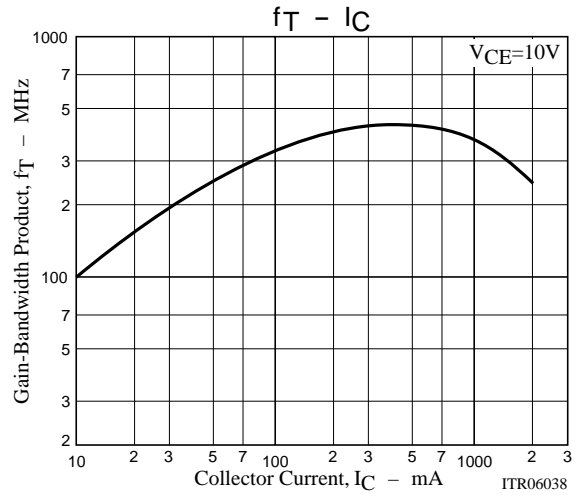
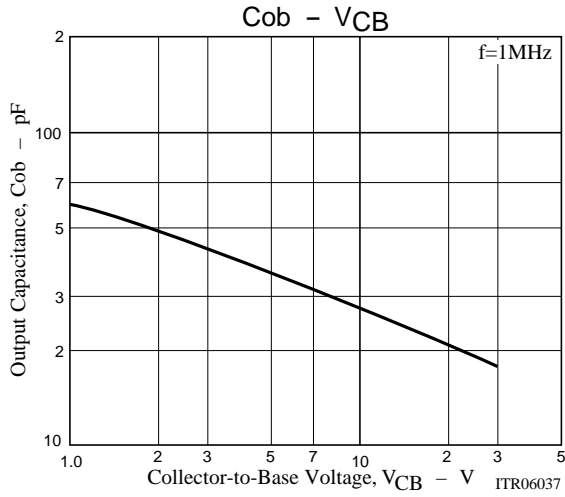
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|-----------------------------|---------|------|-----|---------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=1A, I_B=20mA$ | | 0.15 | 0.5 | V |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=1A, I_B=20mA$ | | 0.85 | 1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=10\mu A, I_E=0$ | 30 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=1mA, R_{BE}=\infty$ | 25 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=10\mu A, I_C=0$ | 15 | | | V |
| Turn-ON Time | t_{on} | See specified test circuit. | | 0.14 | | μs |
| Storage Time | t_{stg} | See specified test circuit. | | 1.35 | | μs |
| Fall Time | t_f | See specified test circuit. | | 0.1 | | μs |

Switching Time Test Circuit



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