



# 50A02MH

## Low-Frequency General-Purpose Amplifier Applications

### Applications

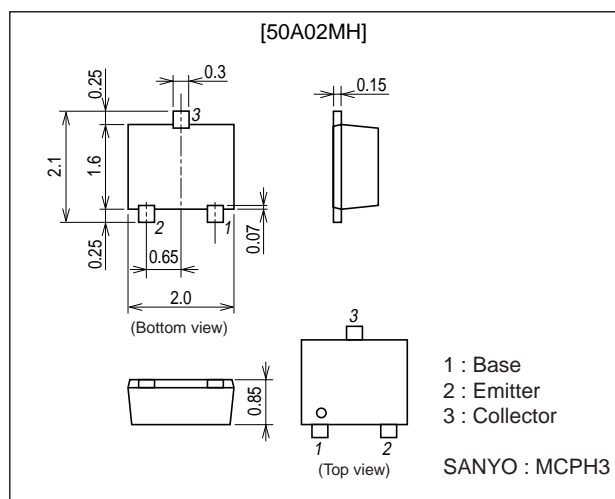
- Low-frequency Amplifier, high-speed switching, small motor drive, muting circuit.

### Features

- Large current capacitance.
- Low collector-to-emitter saturation voltage (resistance).  
R<sub>CE(sat)</sub> typ=210mΩ [I<sub>C</sub>=0.5A, I<sub>B</sub>=50mA].
- Small ON-resistance (Ron).

### Package Dimensions

unit : mm  
2194A



### Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter                    | Symbol           | Conditions   | Ratings     | Unit |
|------------------------------|------------------|--|-------------|------|
| Collector-to-Base Voltage    | V <sub>CB0</sub> |  | -50         | V    |
| Collector-to-Emitter Voltage | V <sub>CEO</sub> |  | -50         | V    |
| Emitter-to-Base Voltage      | V <sub>EB0</sub> |  | -5          | V    |
| Collector Current            | I <sub>C</sub>   |  | -500        | mA   |
| Collector Current (Pulse)    | I <sub>CP</sub>  |  | -1.0        | A    |
| Collector Dissipation        | P <sub>C</sub>   | Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm) | 600         | mW   |
| Junction Temperature         | T <sub>J</sub>   |  | 150         | °C   |
| Storage Temperature          | T <sub>stg</sub> |  | -55 to +150 | °C   |

### Electrical Characteristics at Ta=25°C

| Parameter                               | Symbol               | Conditions                                    | Ratings |      |      | Unit |
|---|----------------------|---|---------|------|------|------|
|   |                      |   | min     | typ  | max  |      |
| Collector Cutoff Current                | I <sub>CB0</sub>     | V <sub>CB</sub> =-40V, I <sub>E</sub> =0      |         |      | -100 | nA   |
| Emitter Cutoff Current                  | I <sub>EB0</sub>     | V <sub>EB</sub> =-4V, I <sub>C</sub> =0       |         |      | -100 | nA   |
| DC Current Gain                         | h <sub>FE</sub>      | V <sub>CE</sub> =-2V, I <sub>C</sub> =-10mA   | 200     |      | 500  |      |
| Gain-Bandwidth Product                  | f <sub>T</sub>       | V <sub>CE</sub> =-10V, I <sub>C</sub> =-50mA  |         | 690  |      | MHz  |
| Output Capacitance                      | C <sub>ob</sub>      | V <sub>CB</sub> =-10V, f=1MHz                 |         | 3.8  |      | pF   |
| Collector-to-Emitter Saturation Voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =-100mA, I <sub>B</sub> =-10mA |         | -60  | -120 | mV   |
| Base-to-Emitter Saturation Voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> =-100mA, I <sub>B</sub> =-10mA |         | -0.9 | -1.2 | V    |

Marking : AM

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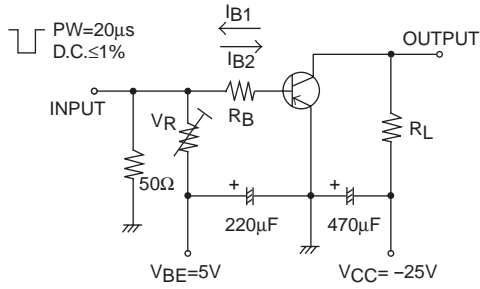
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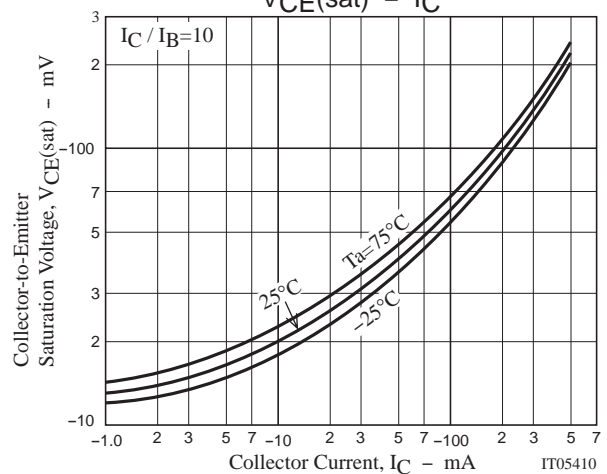
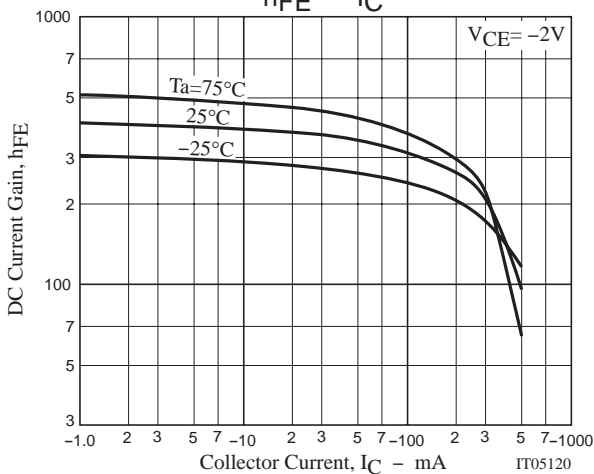
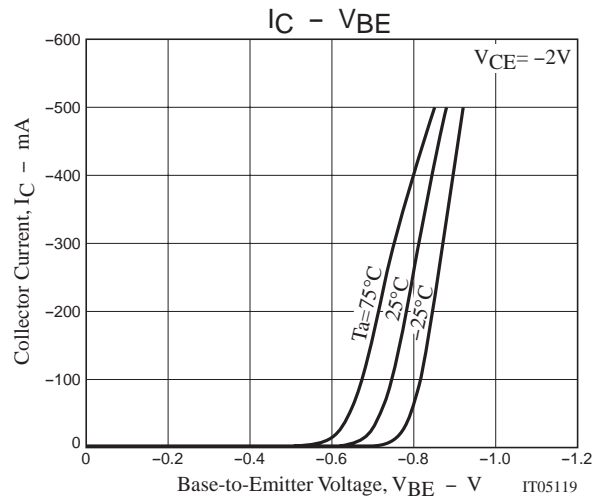
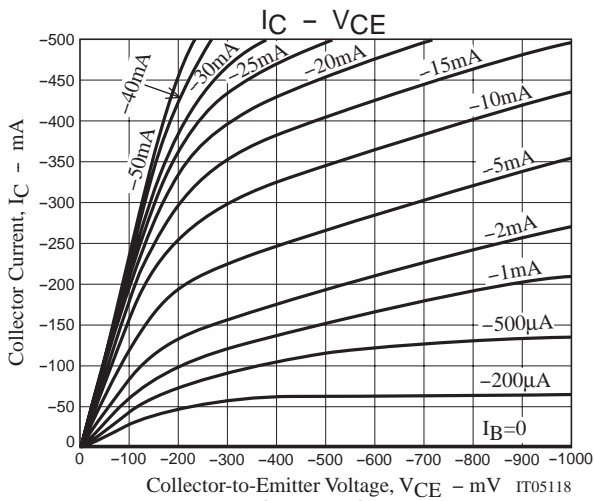
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| Parameter                              | Symbol        | Conditions                    | Ratings |     |     | Unit |
|--|---------------|-------------------------------|---------|-----|-----|------|
|  |               |                               | min     | typ | max |      |
| Collector-to-Base Breakdown Voltage    | $V_{(BR)CBO}$ | $I_C = -10\mu A, I_E = 0$     | -50     |     |     | V    |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = -1mA, R_{BE} = \infty$ | -50     |     |     | V    |
| Emitter-to-Base Breakdown Voltage      | $V_{(BR)EBO}$ | $I_E = -10\mu A, I_C = 0$     | -5      |     |     | V    |
| Turn-ON Time                           | $t_{on}$      | See specified Test Circuit.   |         | 30  |     | ns   |
| Storage Time                           | $t_{stg}$     | See specified Test Circuit.   |         | 170 |     | ns   |
| Fall Time                              | $t_f$         | See specified Test Circuit.   |         | 30  |     | ns   |

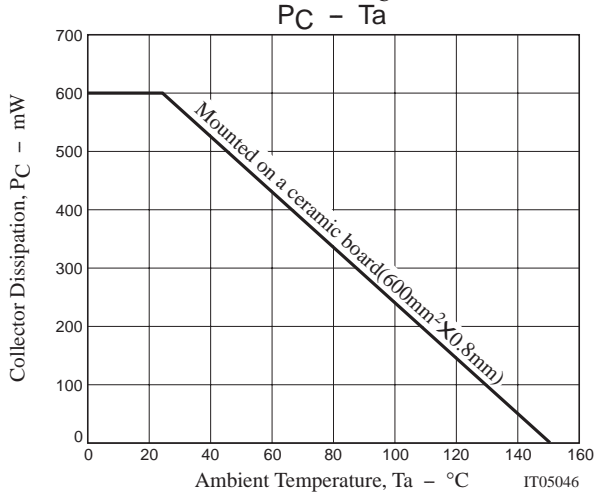
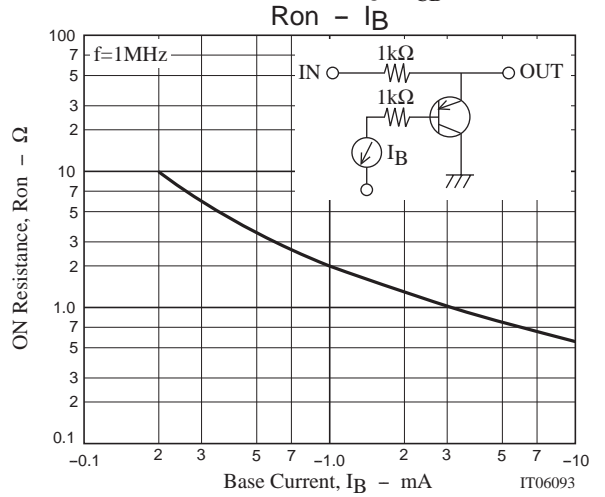
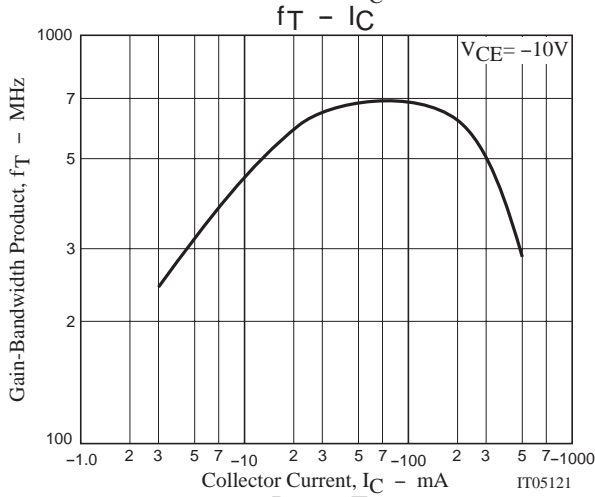
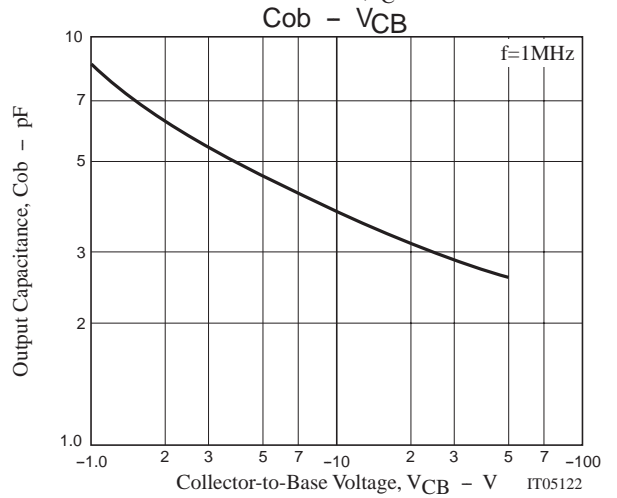
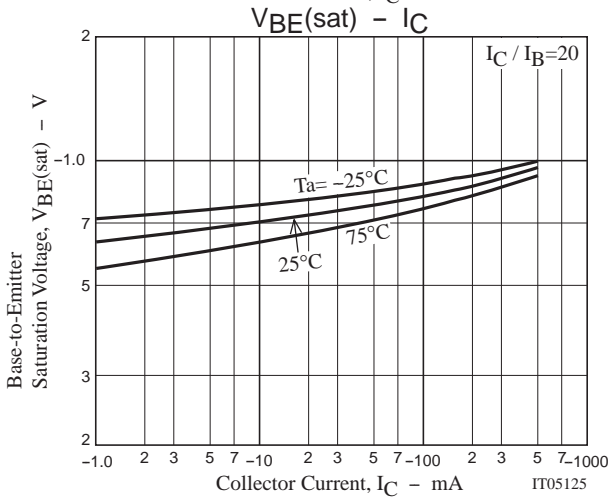
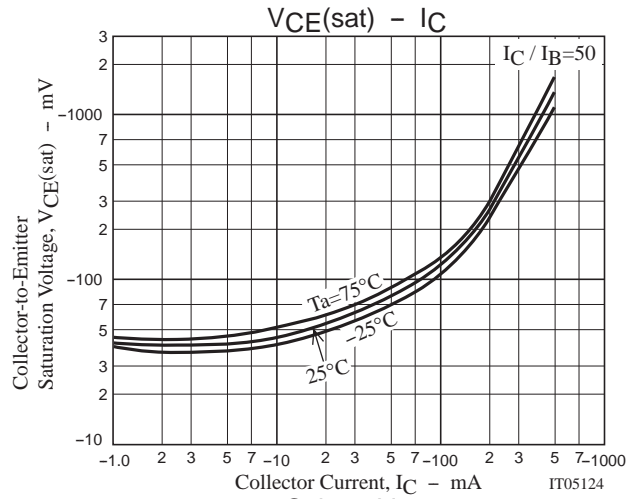
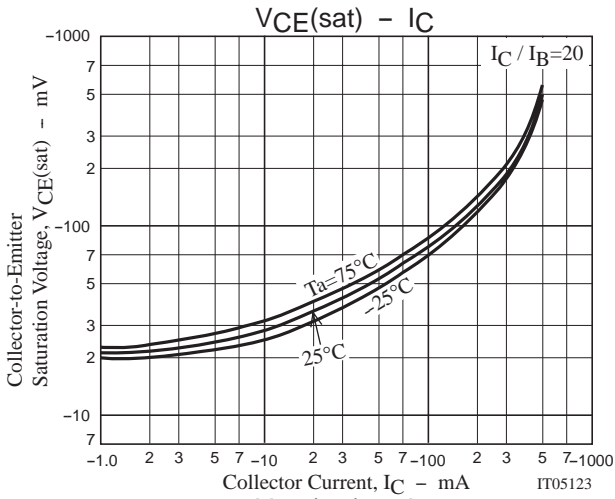
## Switching Time Test Circuit



$$I_C = 20I_{B1} = -20I_{B2} = -200mA$$



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