

**15C02MH**

Low-Frequency General-Purpose Amplifier Applications

An ON Semiconductor Company

Applications

- Low-frequency amplifier, high-speed switching, small motor drive.

Features

- Large current capacitance.
- Low collector-to-emitter saturation voltage (resistance).
R_{CE(sat)} typ=300mΩ [I_C=1A, I_B=50mA].
- Ultrasmall package facilitates miniaturization in end products.
- Small ON-resistance (Ron).

Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|--|-------------|------|
| Collector-to-Base Voltage | V _{CB0} | | 20 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | 15 | V |
| Emitter-to-Base Voltage | V _{EB0} | | 5 | V |
| Collector Current | I _C | | 1 | A |
| Collector Current (Pulse) | I _{CP} | | 2 | A |
| Collector Dissipation | P _C | Mounted on a ceramic board (600mm ² X0.8mm) | 600 | mW |
| Junction Temperature | T _J | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

Electrical Characteristics at Ta=25°C

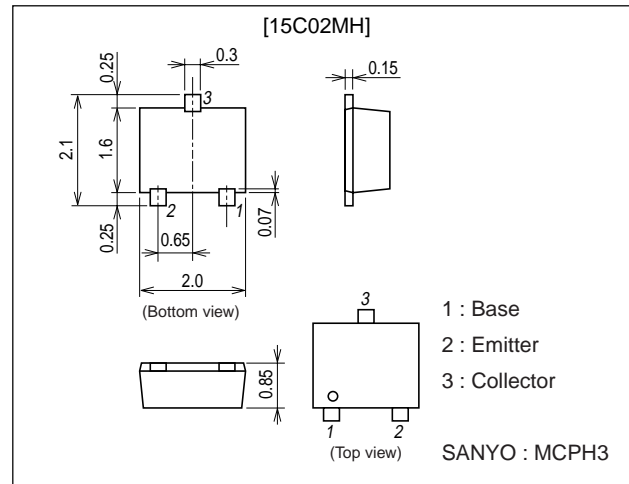
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|----------------------|---|---------|-----|-----|------|
| | | | min | typ | max | |
| Collector Cutoff Current | I _{CB0} | V _{CB} =12V, I _E =0 | | | 100 | nA |
| Emitter Cutoff Current | I _{EB0} | V _{EB} =4V, I _C =0 | | | 100 | nA |
| DC Current Gain | h _{FE} | V _{CE} =2V, I _C =50mA | 300 | | 800 | |
| Gain-Bandwidth Product | f _T | V _{CE} =2V, I _C =50mA | | 440 | | MHz |
| Output Capacitance | C _{ob} | V _{CB} =10V, f=1MHz | | 4 | | pF |
| Collector-to-Emitter Saturation Voltage | V _{CE(sat)} | I _C =400mA, I _B =20mA | | 140 | 280 | mV |
| Base-to-Emitter Saturation Voltage | V _{BE(sat)} | I _C =400mA, I _B =20mA | | 0.9 | 1.2 | V |

Marking : CK

Continued on next page.

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Package Dimensions

unit : mm
2194A

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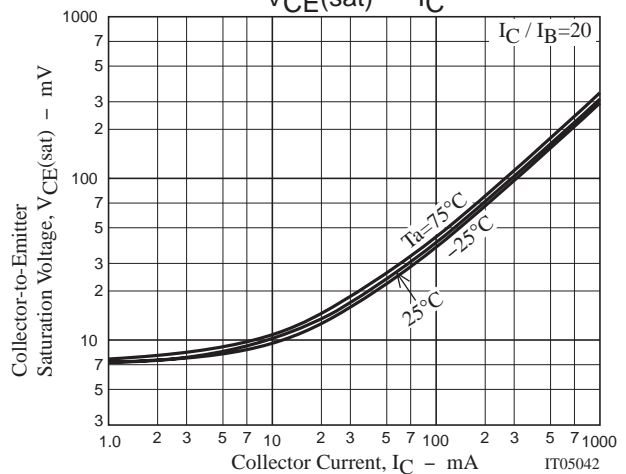
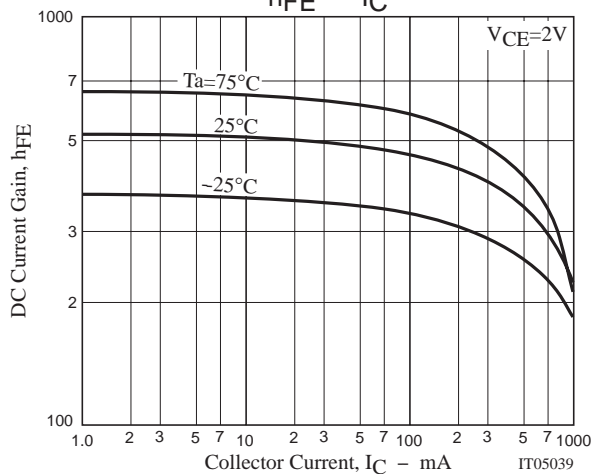
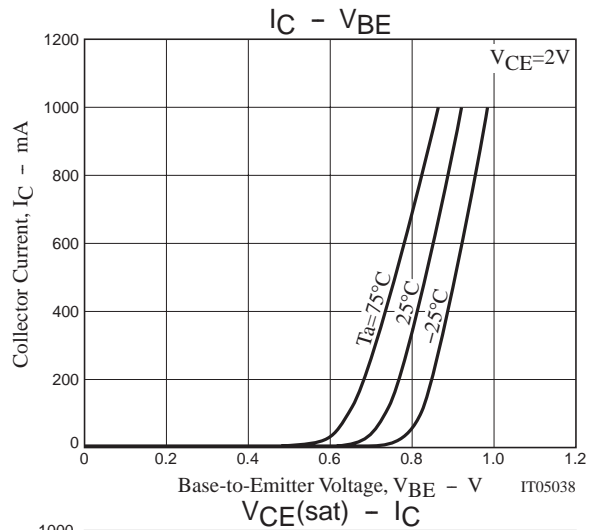
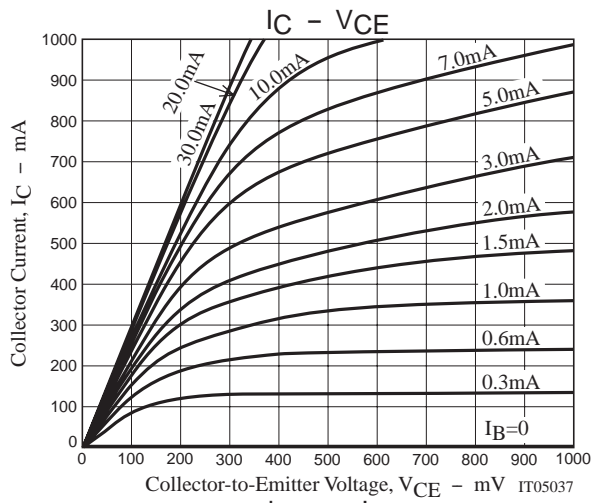
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|-----------------------------|---------|-----|-----|------|
| | | | min | typ | max | |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=10\mu A, I_E=0$ | 20 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=1mA, R_{BE}=\infty$ | 15 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=10\mu A, I_C=0$ | 5 | | | V |
| Turn-ON Delay Time | t_{on} | See specified Test Circuit. | | 30 | | ns |
| Storage Time | t_{stg} | See specified Test Circuit. | | 165 | | ns |
| Turn-OFF Delay Time | t_f | See specified Test Circuit. | | 25 | | ns |

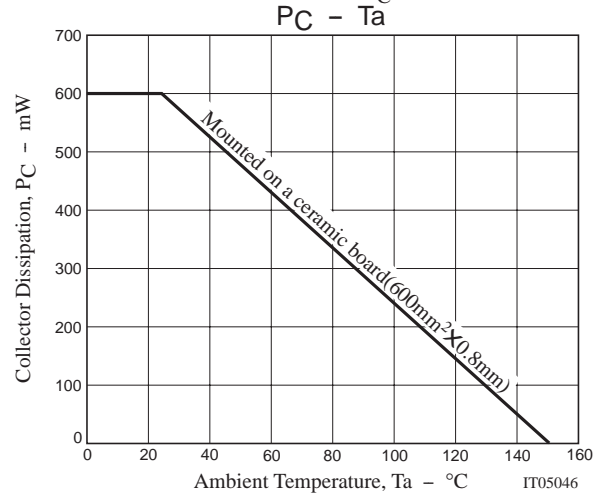
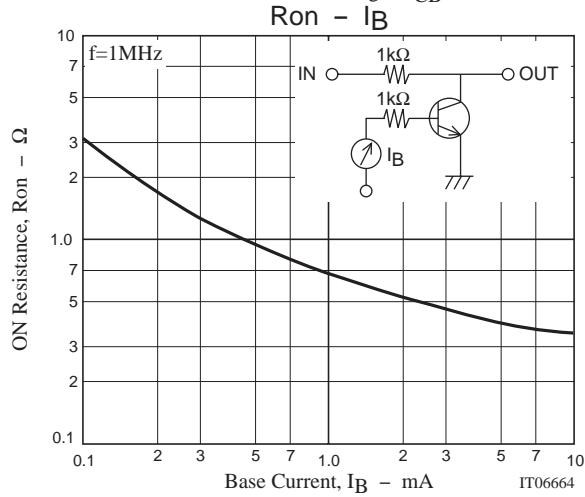
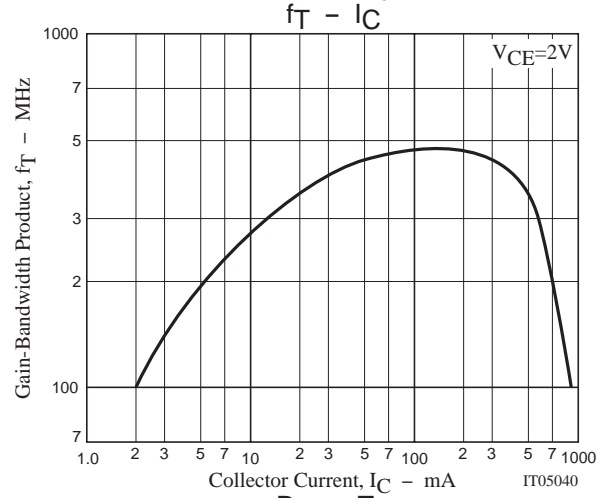
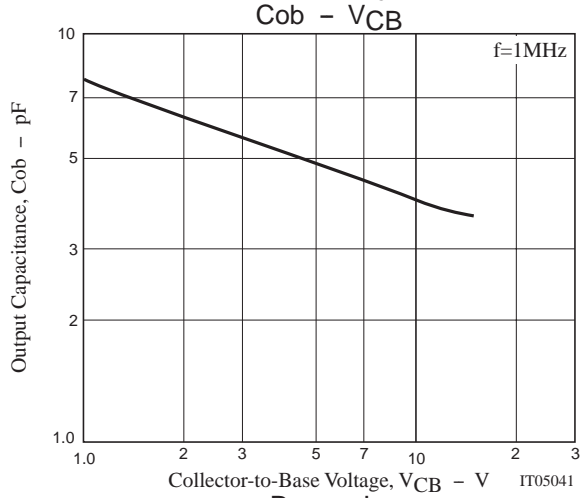
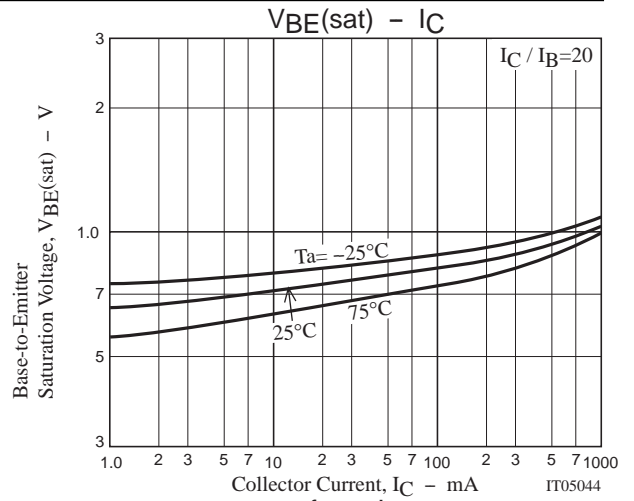
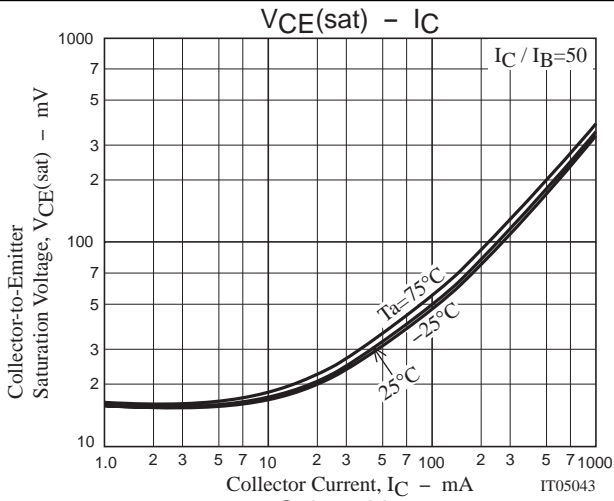
Switching Time Test Circuit



$$I_C=20I_{B1}=-20I_{B2}=400mA$$



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