



2SA1606/2SC4159

High-Voltage Switching, AF 100W Driver Applications

Applications

- High-voltage switching, AF power amplifier, 100W output predrivers.

Features

- Micaless package facilitating mounting.

() : 2SA1606

Specifications

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

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------------------|-------------|------------------|
| Collector-to-Base Voltage | V_{CB0} | | (-)180 | V |
| Collector-to-Emitter Voltage | V_{CEO} | | (-)160 | V |
| Emitter-to-Base Voltage | V_{EBO} | | (-)6 | V |
| Collector Current | I_C | | (-)1.5 | A |
| Collector Current (Pulse) | I_{CP} | $T_c=25^\circ\text{C}$ | (-)3 | A |
| Collector Dissipation | P_C | | 15 | 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_{CBO} | $V_{CB}=(-)120\text{V}, I_E=0$ | | | (-)10 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=(-)4\text{V}, I_C=0$ | | | (-)10 | μA |
| DC Current Gain | h_{FE} | $V_{CE}=(-)5\text{V}, I_C=(-)300\text{mA}$ | 60* | | 200* | |
| Gain-Bandwidth Product | f_T | $V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$ | | 100 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=(-)10\text{V}, f=1\text{MHz}$ | | (30)23 | | pF |
| Base-to-Emitter Voltage | V_{BE} | $V_{CE}=(-)5\text{V}, I_C=(-)10\text{mA}$ | | | (-)1.5 | V |

* : The 2SA1606/2SC4159 are classified by 300mA h_{FE} as follows :

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| Rank | D | E |
|----------|-----------|------------|
| h_{FE} | 60 to 120 | 100 to 200 |

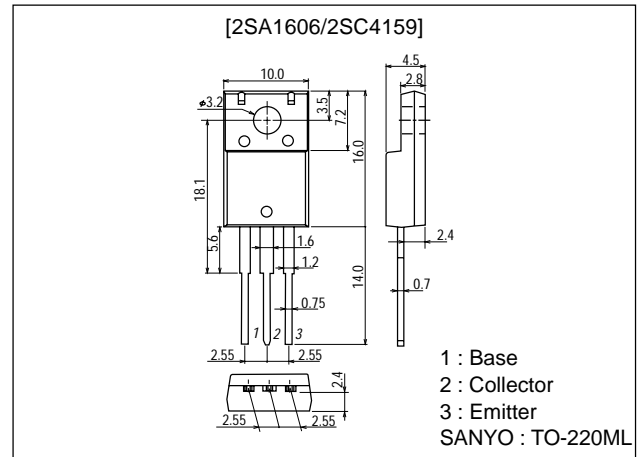
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Package Dimensions

unit:mm

2041A

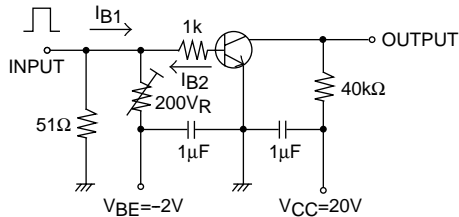


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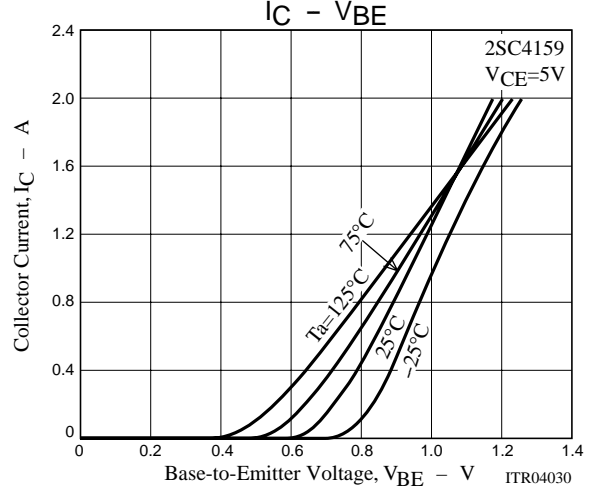
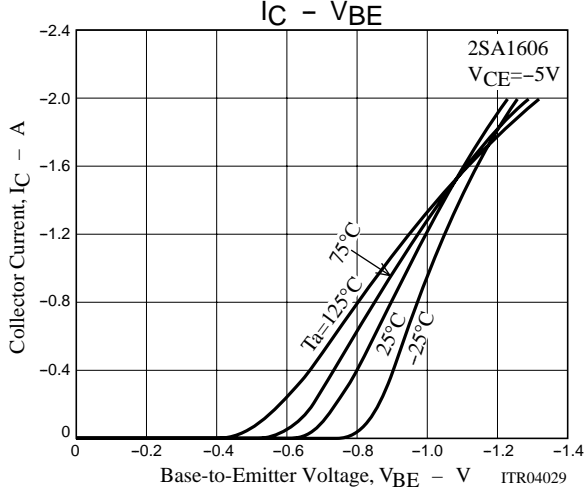
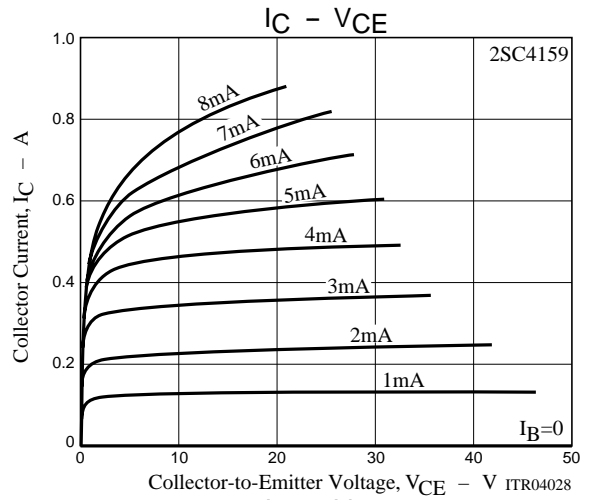
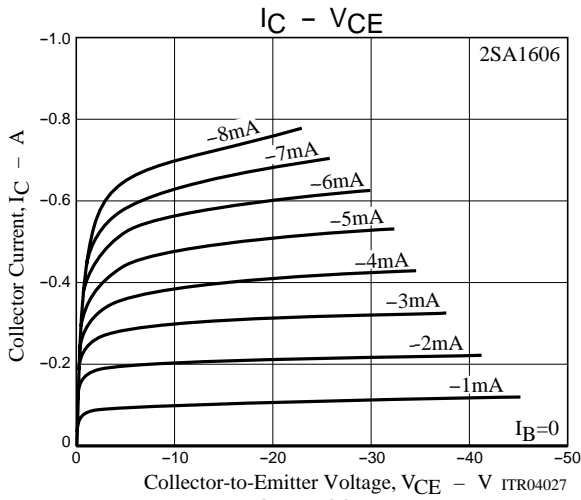
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|-----------------------------|---------|--------|-----|---------|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)500mA, I_B=(-)50mA$ | | (-0.5) | | V |
| | | | | 0.3 | | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-)1mA, I_E=0$ | (-) | 180 | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-)1mA, R_{BE}=\infty$ | (-) | 160 | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=(-)1mA, I_C=0$ | | (-) | 6 | V |
| Turn-ON Time | t_{on} | See specified test circuit. | | (0.29) | | μs |
| | | See specified test circuit. | | 0.15 | | μs |
| Fall Time | t_f | See specified test circuit. | | (0.19) | | μs |
| | | See specified test circuit. | | 0.48 | | μs |
| Storage Time | t_{stg} | See specified test circuit. | | (0.48) | | μs |
| | | See specified test circuit. | | 0.81 | | μs |

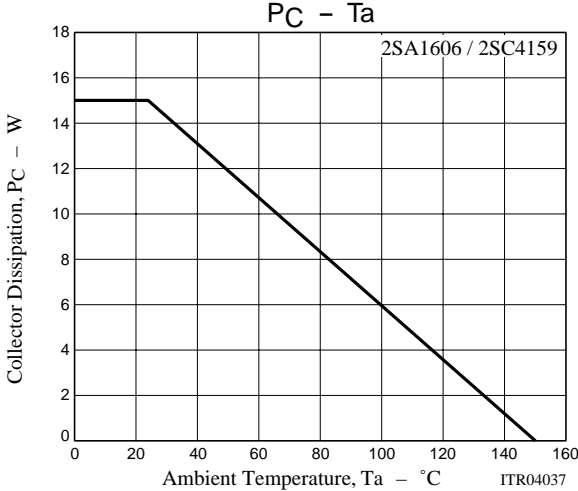
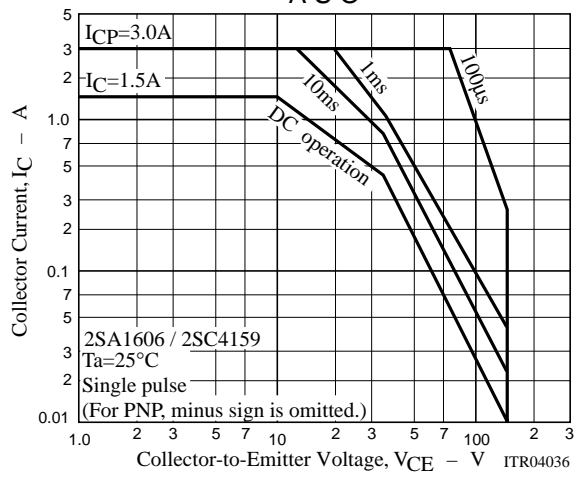
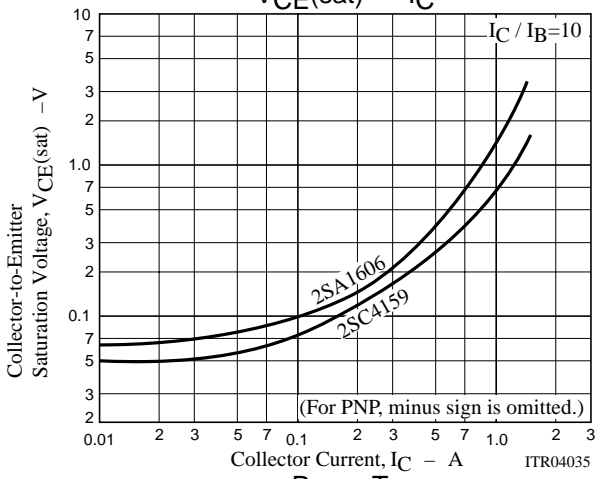
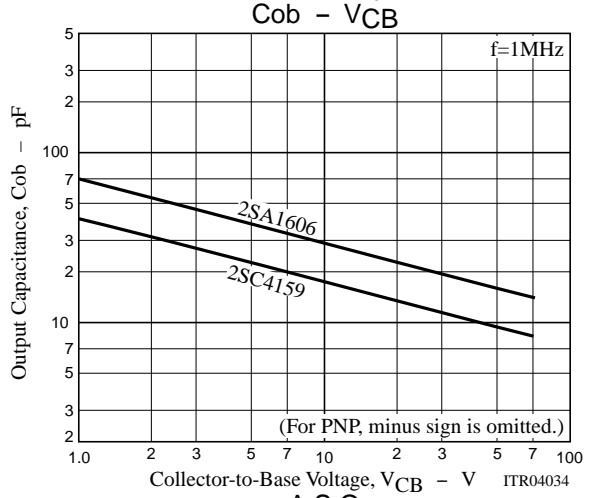
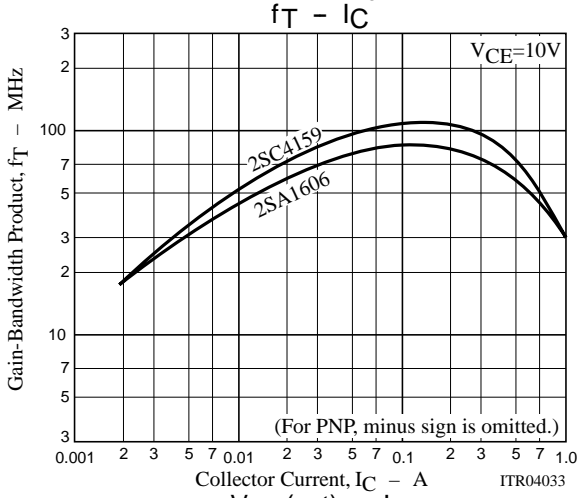
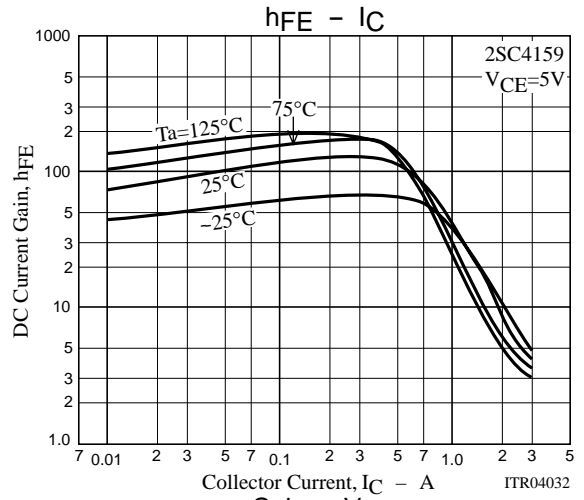
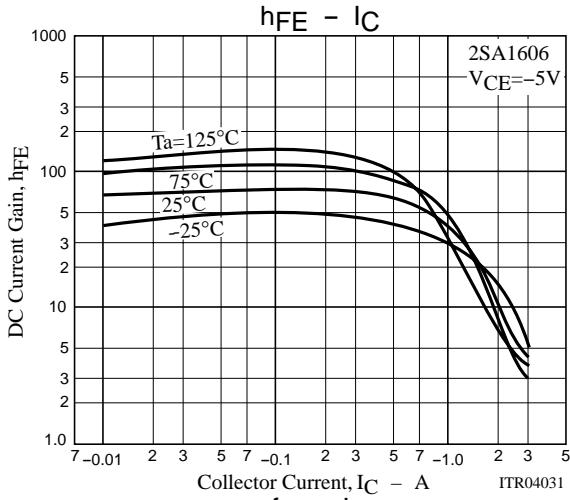
Switching Time Test Circuit



$10I_{B1} = -10I_{B2} = I_C = 0.5A$
 $PW = 20\mu s$
 For PNP, the polarity is reversed.



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