



2SA1257/2SC3143

High-Voltage Switching, AF Power Amp, 100W Output Predriver Applications

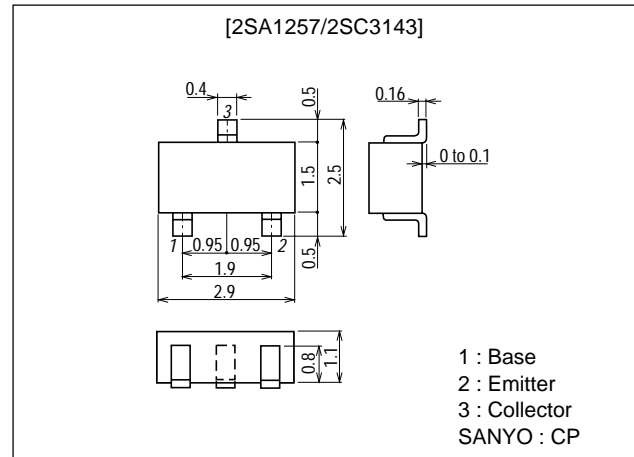
Features

- Very small-sized package permitting the 2SA1257/2SC3143-applied sets to be made small and slim.
- High breakdown voltage ($V_{CEO} \geq 160V$).
- Small output capacitance.

Package Dimensions

unit:mm

2018B



() : 2SA1257

Specifications

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

| 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} | | (-)5 | V |
| Collector Current | I_C | | (-)80 | mA |
| Collector Current Pulse | I_{CP} | | (-)150 | mA |
| Collector Dissipation | P_C | | 200 | mW |
| Junction Temperature | T_J | | 125 | $^\circ C$ |
| Storage Temperature | T_{stg} | | -55 to +125 | $^\circ C$ |

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

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--------------------------|-----------|---------------------------------|---------|-----|--------|---------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CB0} | $V_{CB} = (-)120V, I_E = 0$ | | | (-)0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = (-)4V, I_C = 0$ | | | (-)0.1 | μA |
| DC Current Gain | h_{FE} | $V_{CE} = (-)5V, I_C = (-)10mA$ | 60* | | 270* | |

* : The 2SA1257/2SC3143 are classified by 10mA h_{FE} as follows :

Continued on next page.

Marking 2SA1257 : G, 2SC3143 : K, h_{FE} rank : 3, 4, 5

| Rank | G3 | G4 | G5 | 2SA1257 |
|----------|-----------|-----------|------------|---------|
| h_{FE} | 60 to 120 | 90 to 180 | 135 to 270 | |

| Rank | K3 | K4 | K5 | 2SC3143 |
|----------|-----------|-----------|------------|---------|
| h_{FE} | 60 to 120 | 90 to 180 | 135 to 270 | |

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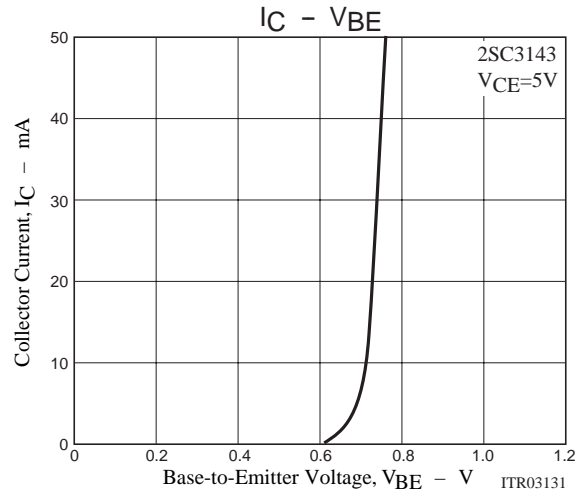
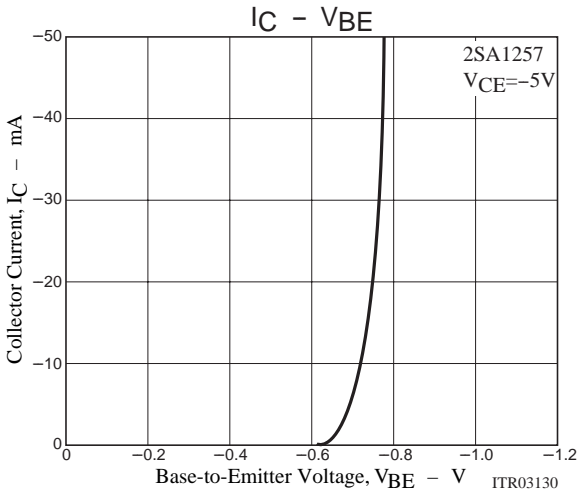
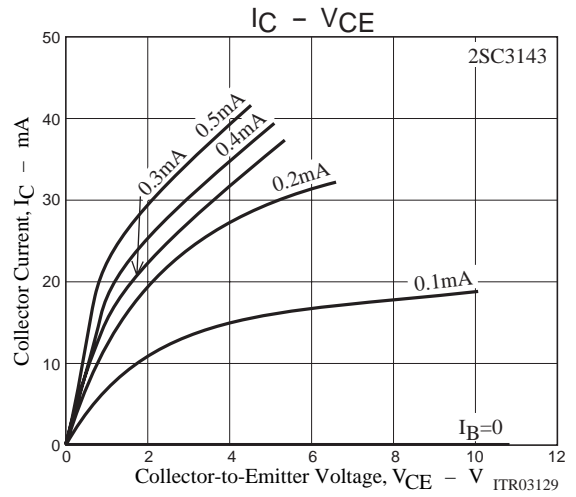
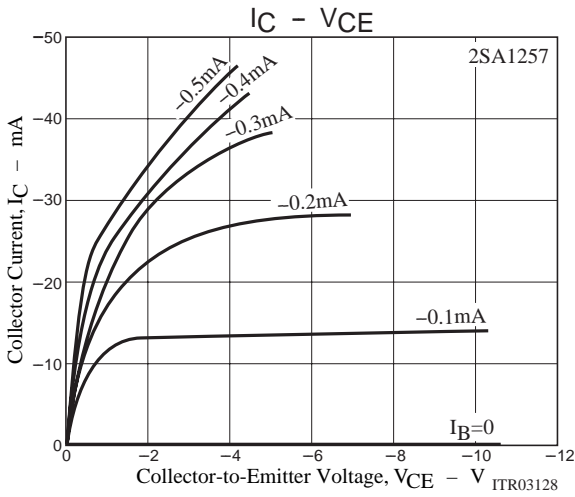
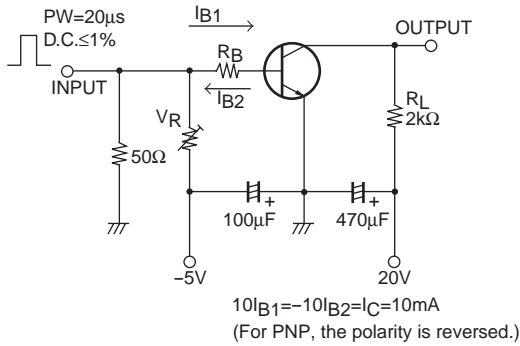
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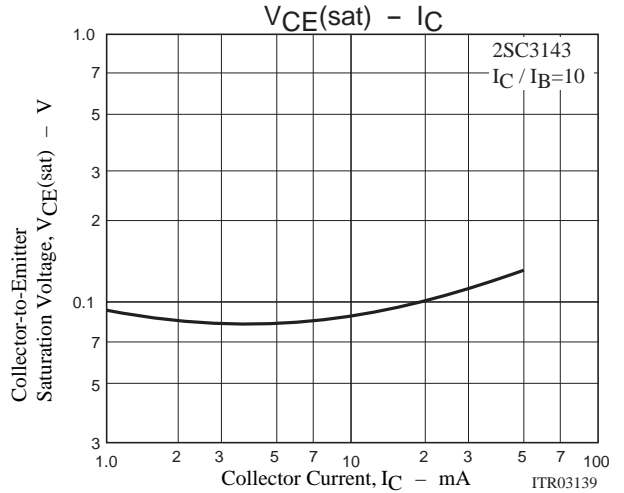
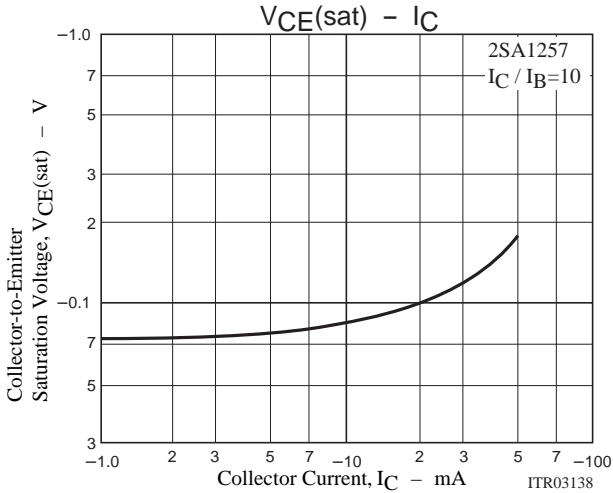
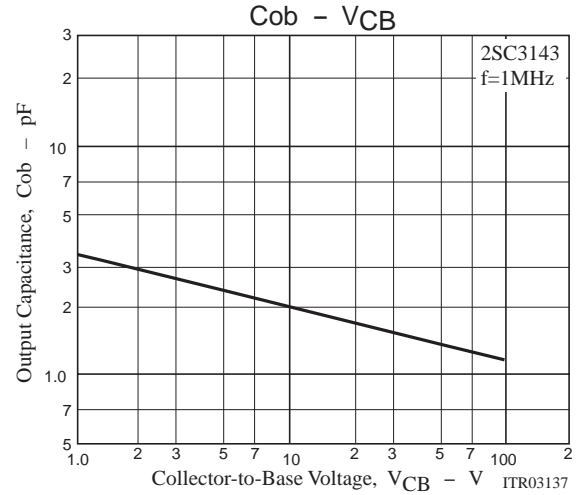
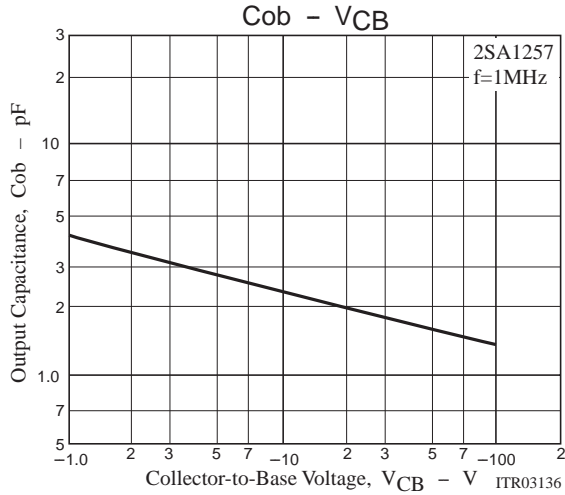
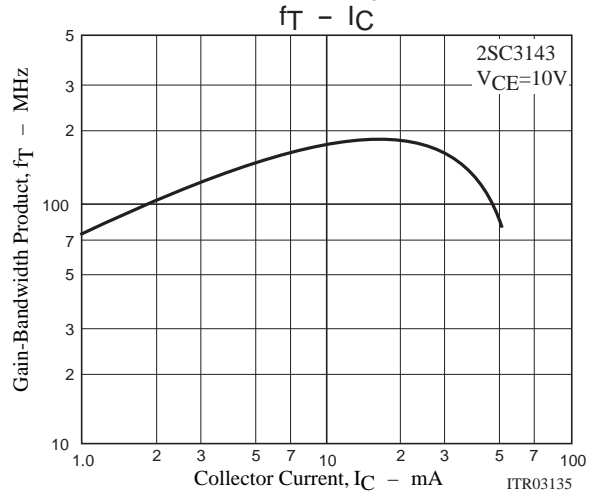
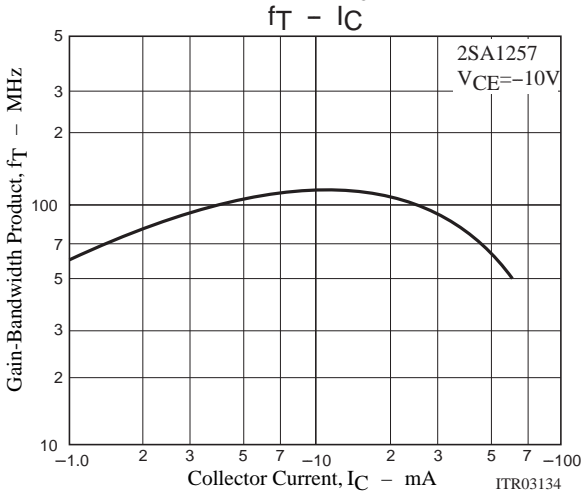
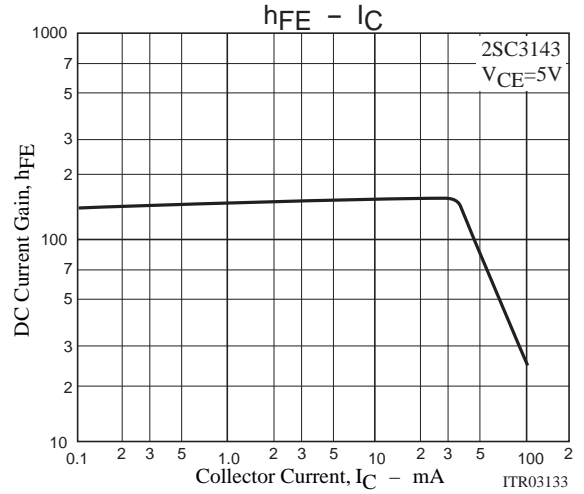
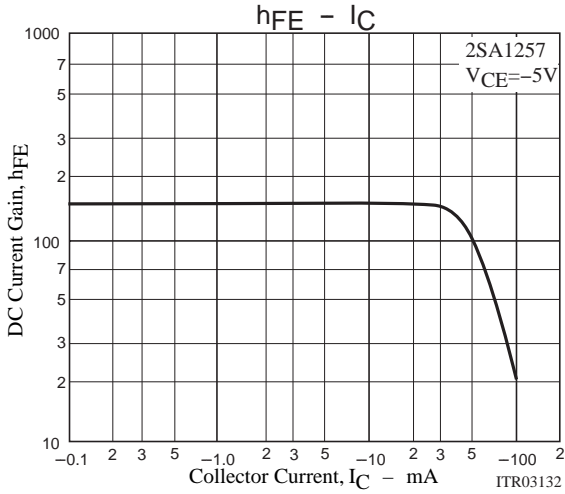
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|------------------------------|---------|----------------|--------------|---------|
| | | | min | typ | max | |
| Gain-Bandwidth Product | f_T | $V_{CE}=(-)10V, I_C=(-)10mA$ | | (130) 150 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=(-)10V, f=1MHz$ | | (2.4) 2.0 | (3.2) 2.8 | pF |
| Base-to-Emitter Voltage | V_{BE} | $V_{CE}=(-)5V, I_C=(-)10mA$ | | | (-1.5) | V |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=(-)30mA, I_B=(-)3mA$ | | | (-0.7) | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=(-)10\mu A, I_E=0$ | (-180) | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=(-)1mA, R_{BE}=\infty$ | (-160) | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E=(-)10\mu A, I_C=0$ | (-5) | | | V |
| Turn-ON Time | t_{on} | See specified Test Circuit | | (0.15) 0.18 | | μs |
| Storage Time | t_{stg} | See specified Test Circuit | | (0.95) 1.00 | | μs |
| Fall Time | t_f | See specified Test Circuit | | (0.15) 0.20 | | μs |

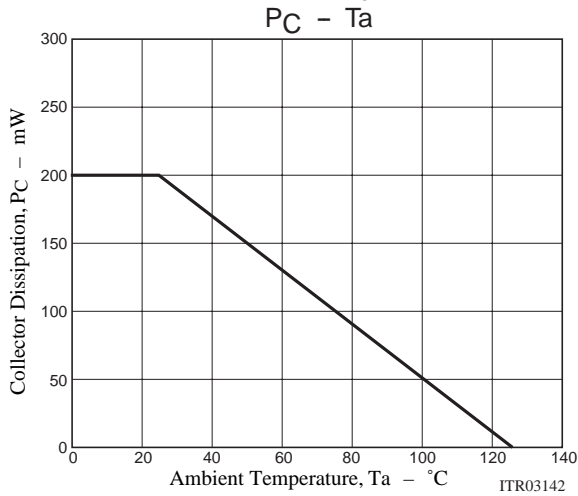
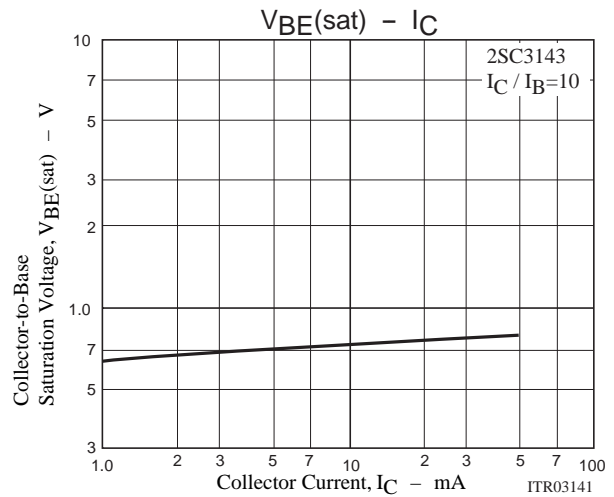
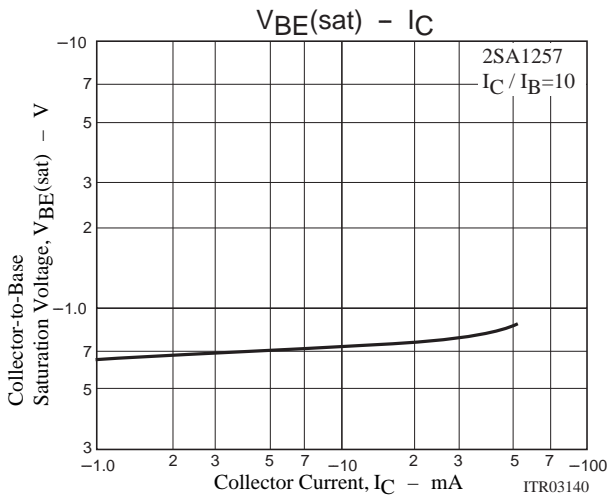
Switching Time Test Circuit



2SA1257/2SC3143



2SA1257/2SC3143



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