

SANYO

No.1720A

2SA1415/2SC3645

PNP/NPN Epitaxial Planar Silicon Transistors

High-Voltage Switching,
Predriver Applications

Features

- Adoption of FBET process
- High breakdown voltage ($V_{CEO} = 160V$)
- Excellent linearity of h_{FE} and small c_{ob}
- Fast switching speed
- Very small size marking it easy to provide high-density, small-sized hybrid ICs

() : 2SA1415

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

| | | | unit |
|------------------------------|--|-------------|------------|
| Collector to Base Voltage | V_{CBO} | (-)180 | V |
| Collector to Emitter Voltage | V_{CEO} | (-)160 | V |
| Emitter to Base Voltage | V_{EBO} | (-)5 | V |
| Collector Current | I_C | (-)140 | mA |
| Collector Current(Pulse) | I_{CP} | (-)200 | mA |
| Collector Dissipation | $P_C(1)$ | 500 | mW |
| | $P_C(2)$ Mounted on ceramic board ($250mm^2 \times 0.8mm$) | 1.3 | W |
| Junction Temperature | T_j | 150 | $^\circ C$ |
| Storage Temperature | T_{stg} | -55 to +150 | $^\circ C$ |

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

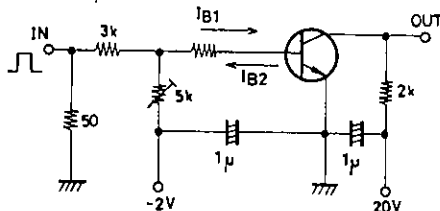
| | | | min | typ | max | unit |
|--------------------------|---------------|----------------------------------|---------|--------|---------|---------|
| Collector Cutoff Current | I_{CBO} | $V_{CB} = (-)80V, I_E = 0$ | | | (-)100 | nA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = (-)4V, I_C = 0$ | | | (-)100 | nA |
| DC Current Gain | h_{FE} | $V_{CE} = (-)5V, I_C = (-)10mA$ | 100* | | 400* | |
| Gain-Bandwidth Product | f_T | $V_{CE} = (-)10V, I_C = (-)10mA$ | | 150 | | MHz |
| Output Capacitance | c_{ob} | $V_{CB} = (-)10V, f = 1MHz$ | | (4.0) | | pF |
| | | | | 3.0 | | |
| C-E Saturation Voltage | $V_{CE(sat)}$ | $I_C = (-)50mA, I_B = (-)5mA$ | (-0.14) | (-0.4) | | V |
| | | | 0.07 | 0.3 | | |
| Turn-on Time | t_{on} | See specified Test Circuit. | | 0.1 | | μs |
| Storage Time | t_{stg} | " | | 1.5 | | μs |
| Fall Time | t_f | " | | 0.1 | | μs |

* : The 2SA1415/2SC3645 are classified by 10mA h_{FE} as follows :

| | | | | | | | | |
|-----|---|-----|-----|---|-----|-----|---|-----|
| 100 | R | 200 | 140 | S | 280 | 200 | T | 400 |
|-----|---|-----|-----|---|-----|-----|---|-----|

Marking 2SA1415 : AA h_{FE} rank : R,S,T
2SC3645 : CA

Switching Time Test Circuit

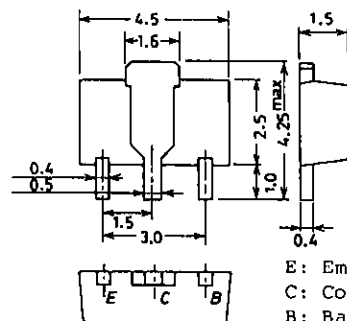


$I_C = 10I_{B1} = 10I_{B2} = 10mA$
(For PNP, the polarity is reversed.)

Unit (Resistance : Ω , Capacitance : F)

Package Dimensions 2038

(unit: mm)

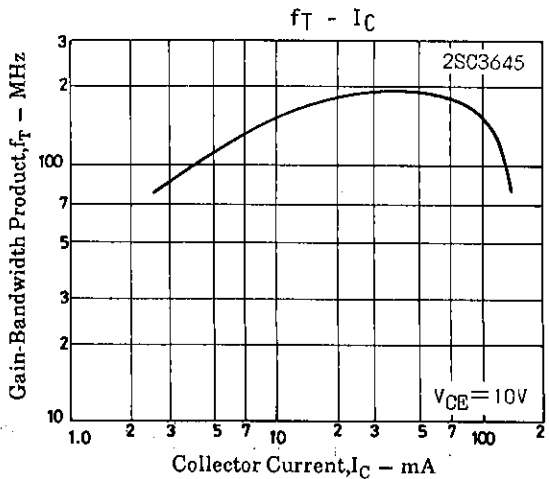
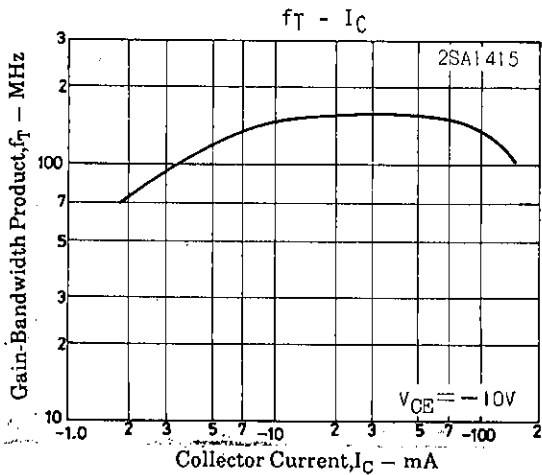
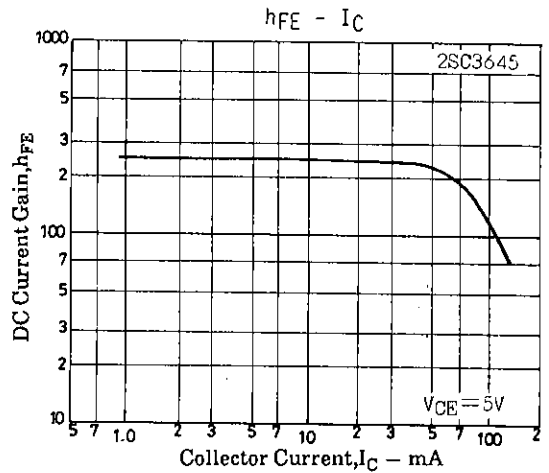
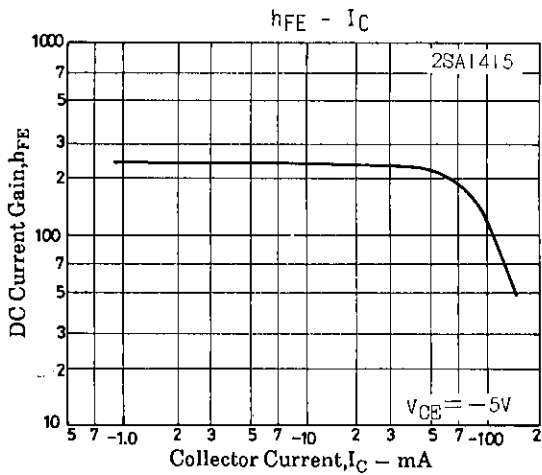
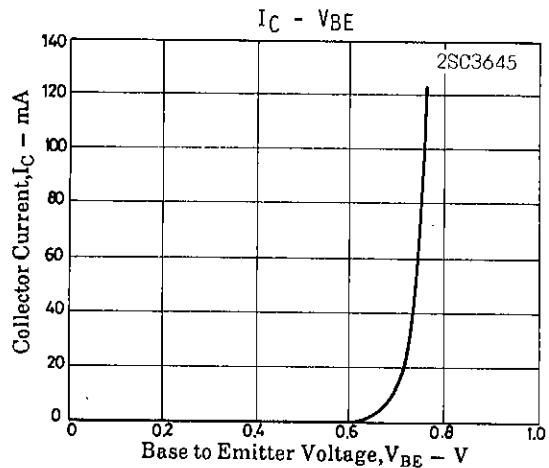
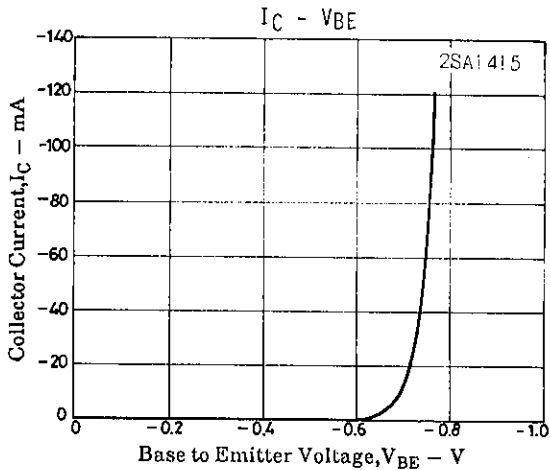
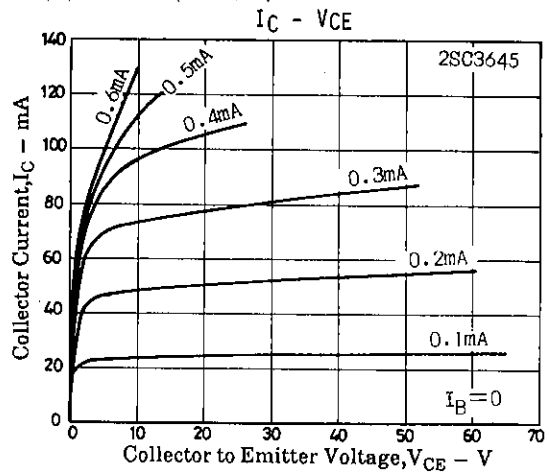
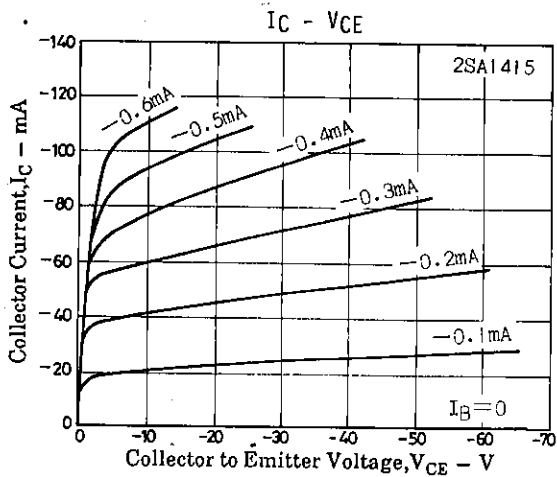


E: Emitter
C: Collector
B: Base

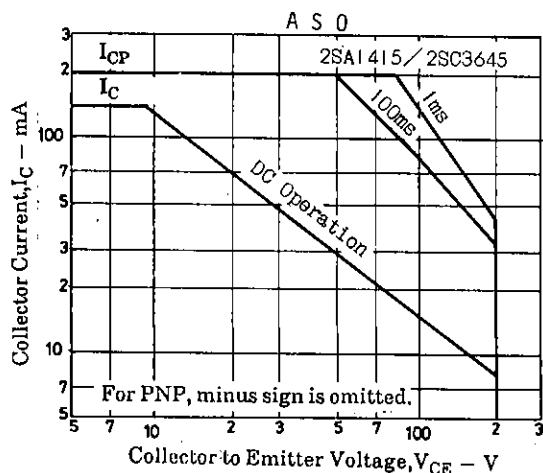
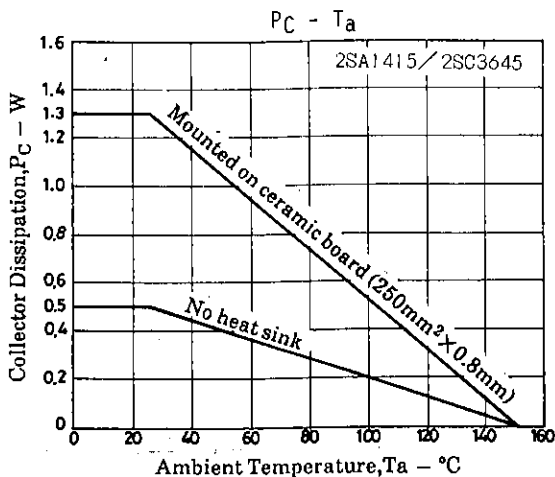
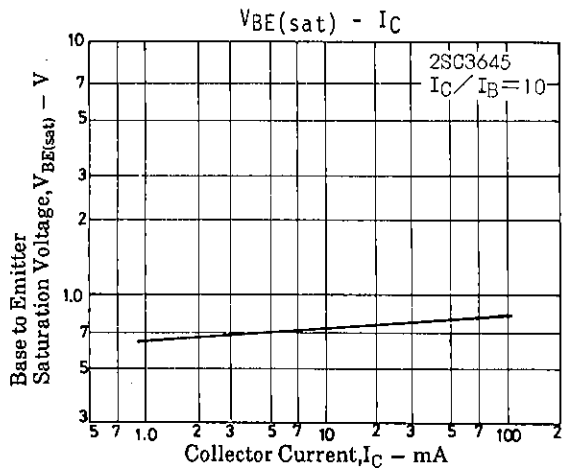
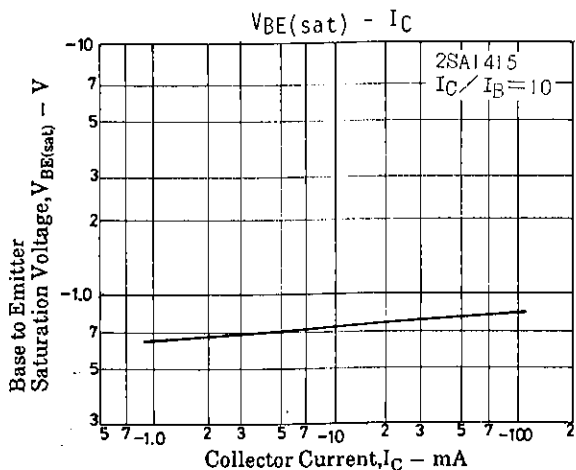
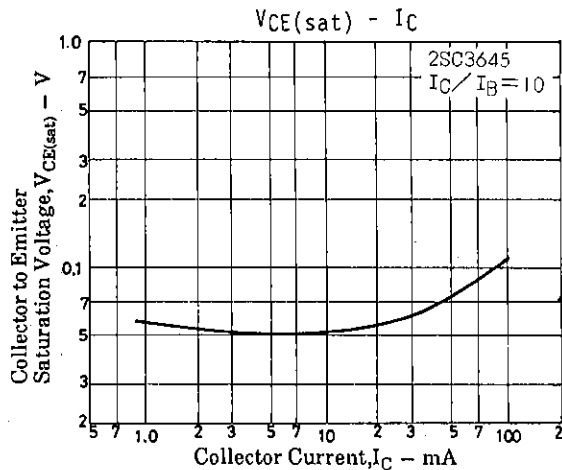
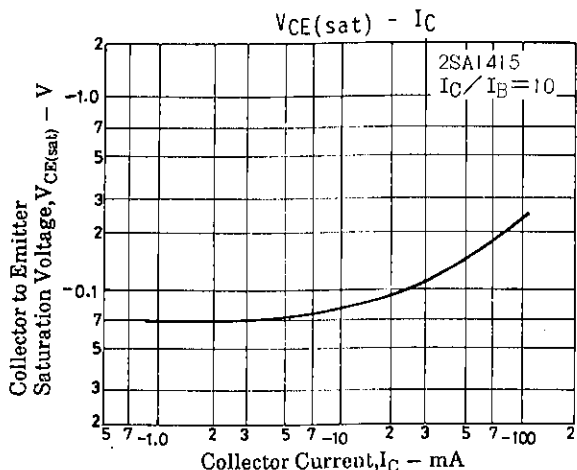
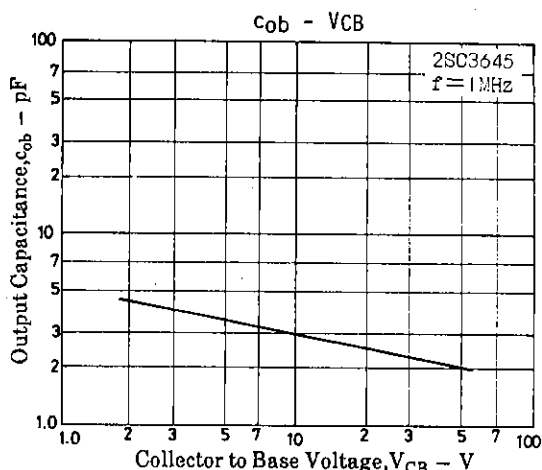
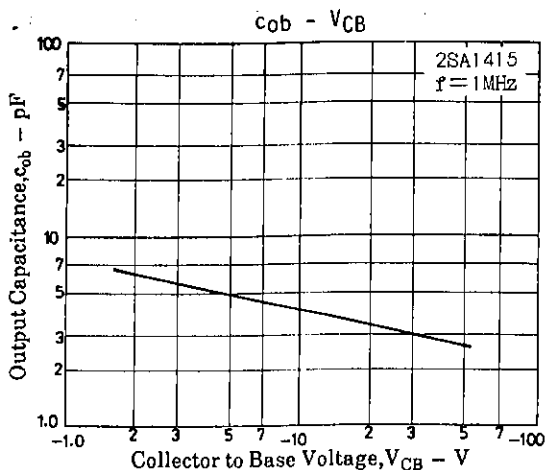
SANYO: PCP
(Bottom View)

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2SA1415/2SC3645



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