Ordering number:ENN3179A

**Discontinued**

PNP Epitaxial Planar Silicon Transistor

# 2SA1763

## High-Speed Switching Applications

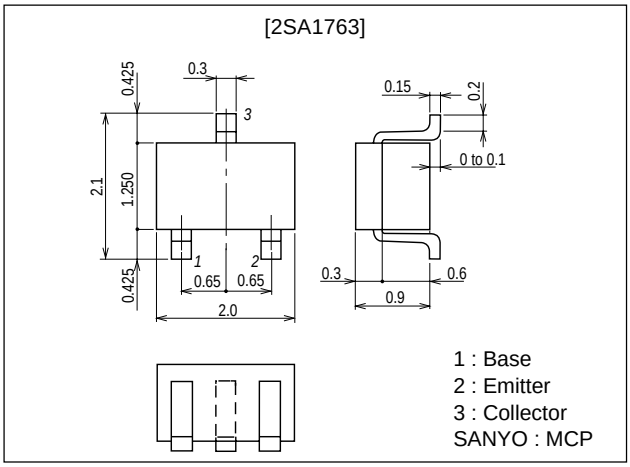
## Features

- Fast switching speed.
- Low collector saturation voltage.
- High gain-bandwidth product.
- Small collector capacitance.
- Ultrasmall-sized package permitting the 2SA1763-applied sets to be made small and slim.
- Complementary pair with the 2SC4452.

## Package Dimensions

unit:mm

2059B




## Specifications

### Absolute Maximum Ratings at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Collector-to-Base Voltage | $V_{CBO}$ | | –15 | V |
| Collector-to-Emitter Voltage | $V_{CEO}$ | | –15 | V |
| Emitter-to-Base Voltage | $V_{EBO}$ | | –5 | V |
| Collector Current | $I_C$ | | –200 | mA |
| Collector Current (Pulse) | $I_{CP}$ | | –500 | mA |
| Base Current | $I_B$ | | –40 | mA |
| Collector Dissipation | $P_C$ | | 150 | mW |
| Junction Temperature | Tj | | 150 | ˚C |
| Storage Temperature | Tstg | | –55 to +150 | ˚C |

### Electrical Characteristics at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=–8V, $I_E$=0 | | | –0.1 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=–3V, $I_C$=0 | | | –0.1 | μA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=–1V, $I_C$=–10mA | 50 | 80 | 140 | |
| Gain-Bandwidth Product | $f_T$ | $V_{CE}$=–10V, $I_C$=–10mA | 450 | 1000 | | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=–5V, f=1MHz | | 1.8 | 3.0 | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$=–10mA, $I_B$=–1mA | | –0.07 | –0.20 | V |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C$=–10mA, $I_B$=–1mA | | –0.80 | –0.85 | V |

Marking : FS

Continued on next page.




**SANYO Electric Co.,Ltd. Semiconductor Company**

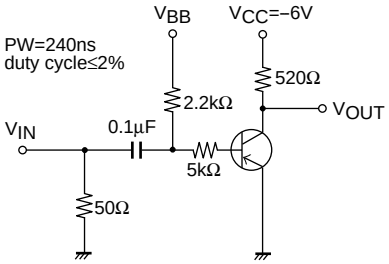
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Continued from preceding page.

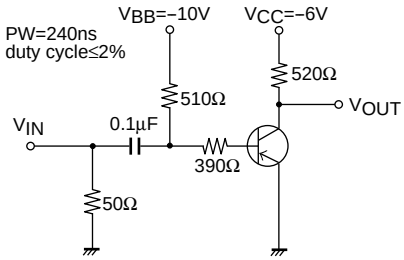
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$=–10μA, $I_E$=0 | –15 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$=–1mA, $R_{BE}$=∞ | –15 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$=–10μA, $I_C$=0 | –5 | | | V |
| Turn-ON Time | $t_{on}$ | See specified Test Circuit | | 11 | | ns |
| Storage Time | $t_{stg}$ | See specified Test Circuit | | 21 | | ns |
| Turn-OFF Time | $t_{off}$ | See specified Test Circuit | | 19 | | ns |

## Switching Time Test Circuit

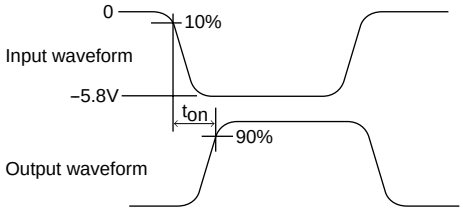
$t_{on}$, $t_{off}$ Test Circuit



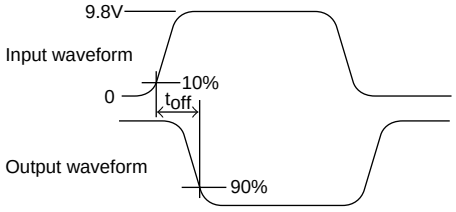

$t_{stg}$ Test Circuit



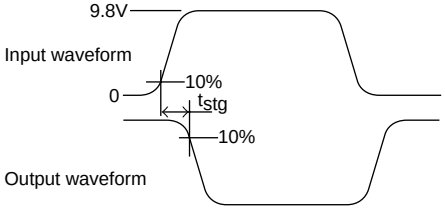

$t_{on}$ Test Waveform ($V_{BB}$=GND)

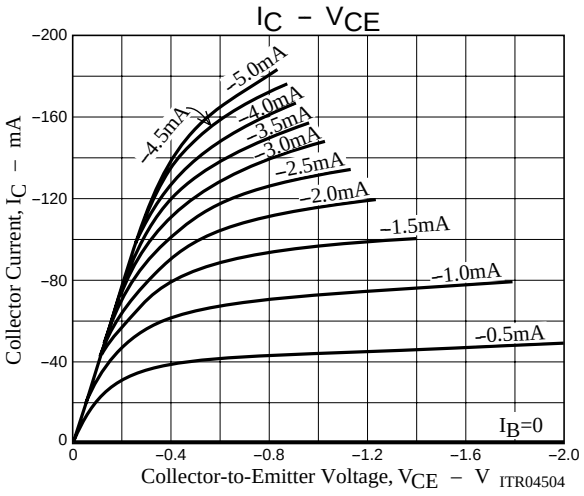


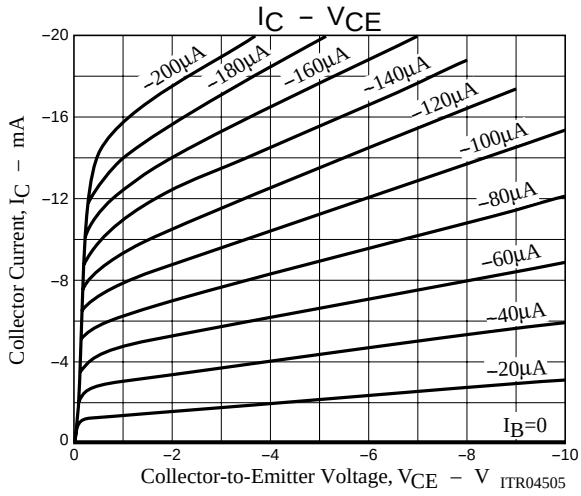

$t_{off}$ Test Waveform ($V_{BB}$=–8.0V)

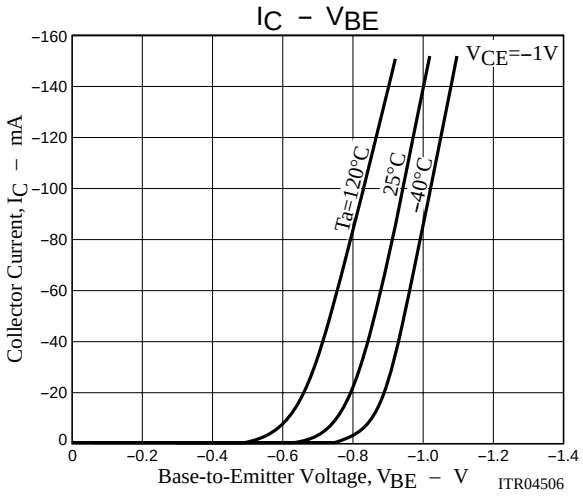


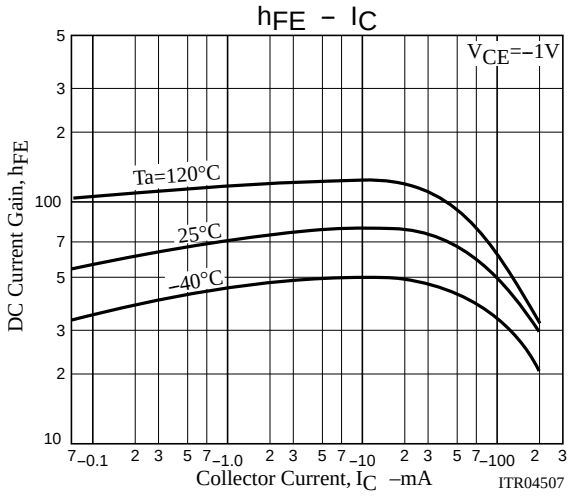

$t_{stg}$ Test Waveform

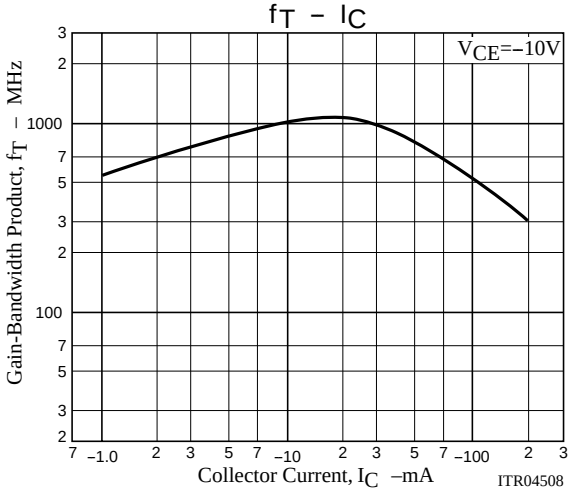


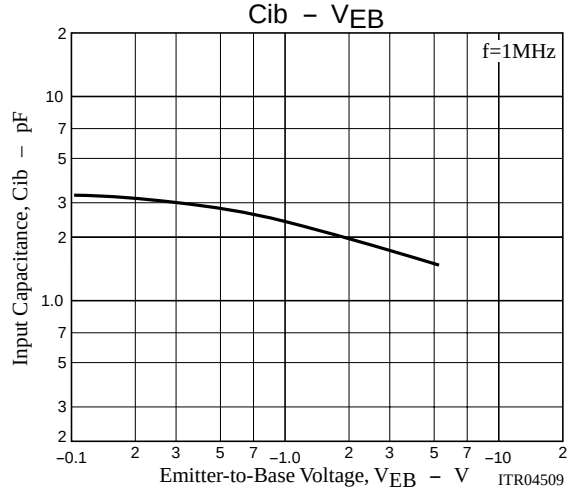



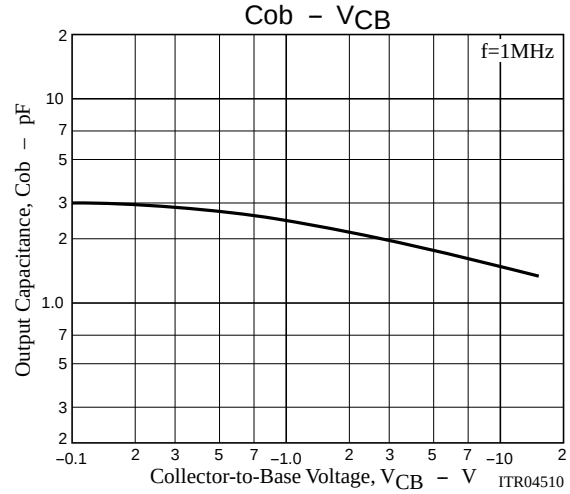



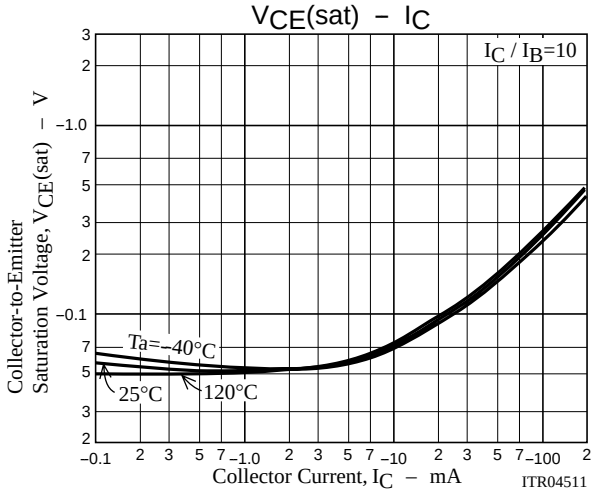

IC – VBE
VCE=–1V
Ta=120°C
25°C
–40°C
Collector Current, IC – mA
Base-to-Emitter Voltage, VBE – V
ITR04506

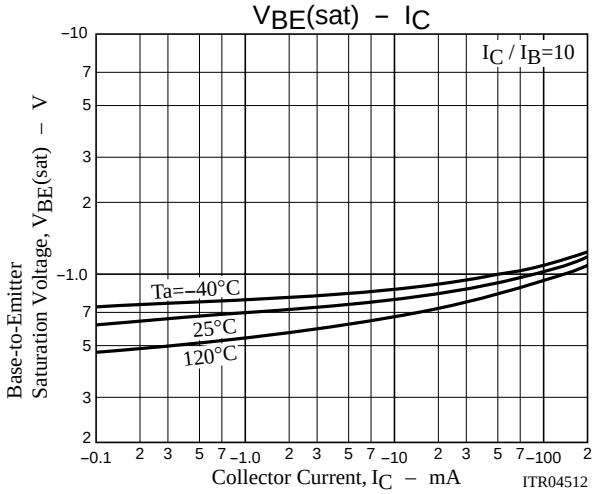

hFE – IC
VCE=–1V
Ta=120°C
25°C
–40°C
DC Current Gain, hFE
Collector Current, IC –mA
ITR04507

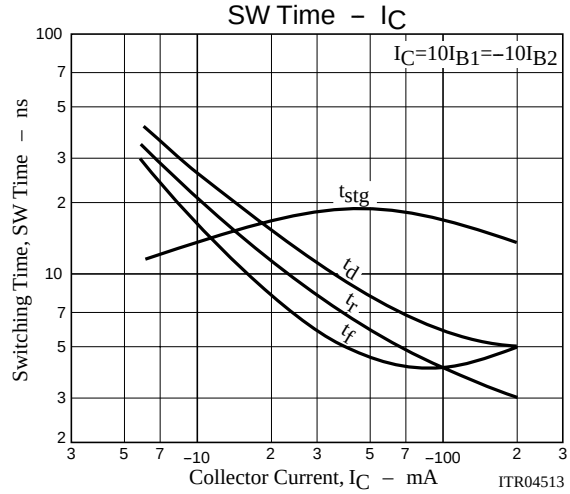

fT – IC
VCE=–10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC –mA
ITR04508


Cib – VEB
f=1MHz
Input Capacitance, Cib – pF
Emitter-to-Base Voltage, VEB – V
ITR04509


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR04510


VCE(sat) – IC
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Ta=–40°C
25°C
120°C
Collector Current, IC – mA
ITR04511


VBE(sat) – IC
IC / IB=10
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Ta=–40°C
25°C
120°C
Collector Current, IC – mA
ITR04512


SW Time – IC
IC=10IB1=–10IB2
Switching Time, SW Time – ns
tstg
td
tr
tf
Collector Current, IC – mA
ITR04513