Ordering number:EN3179A

PNP Epitaxial Planar Silicon Transistor

2SA1763

High-Speed Switching Applications

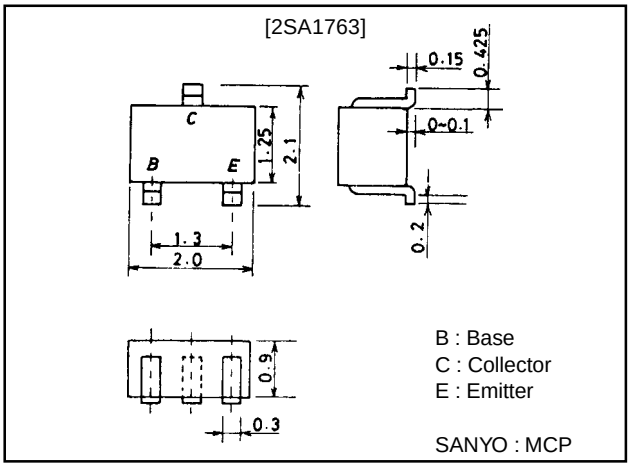
Features

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

Package Dimensions

unit:mm

2059



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

SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters

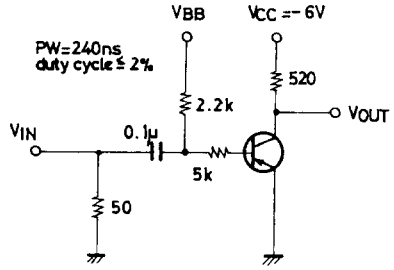
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

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

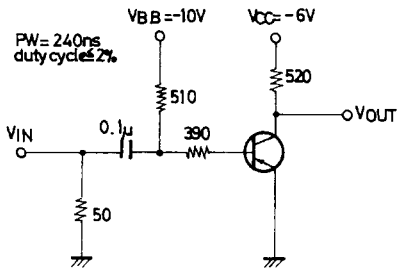
Marking : FS
For the specified switching test circuit, see the below.

Switching Time Test Circuit

t_{on}, t_{off} Test Circuit

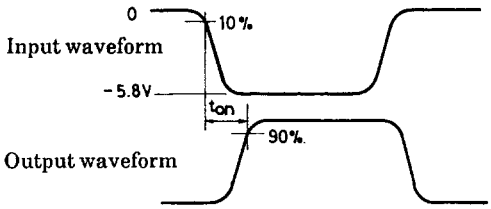


t_{stg} Test Circuit

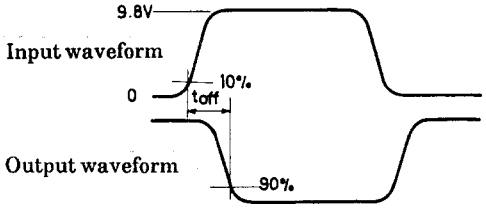


Unit (resistance : Ω, capacitance : F)

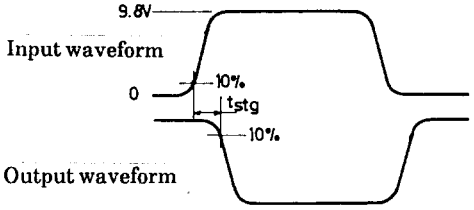
t_{on} Test Waveform (V_{BB} = GND)

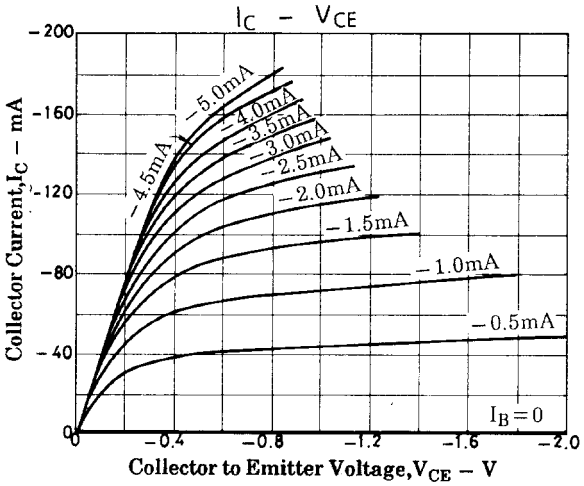


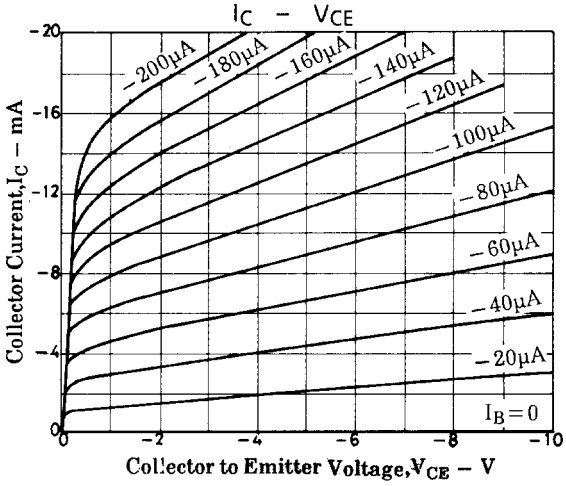
t_{off} Test Waveform (V_{BB} = –8.0V)

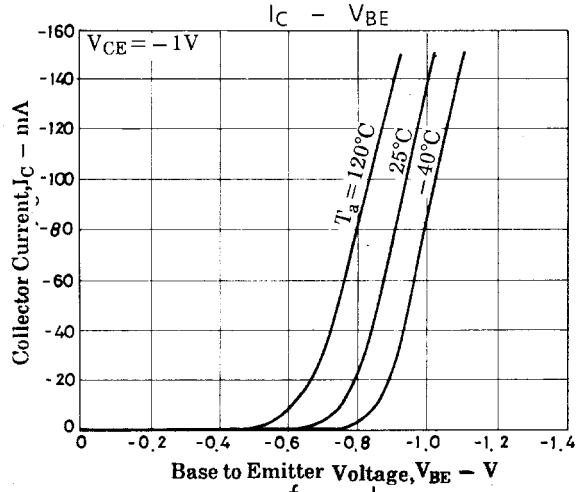


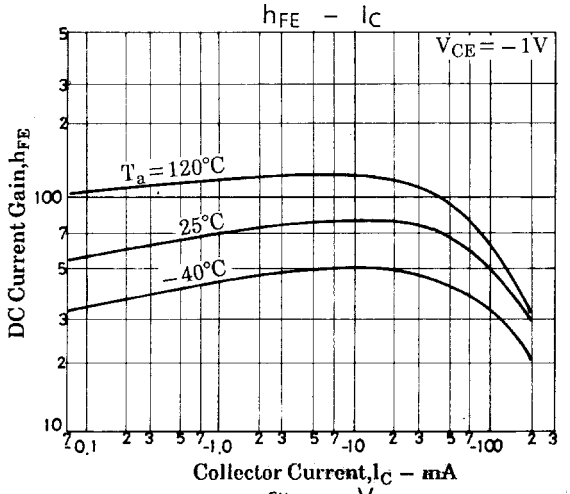
t_{stg} Test Waveform

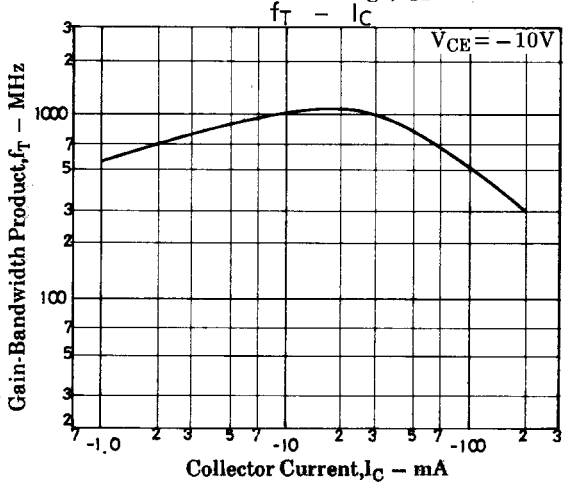


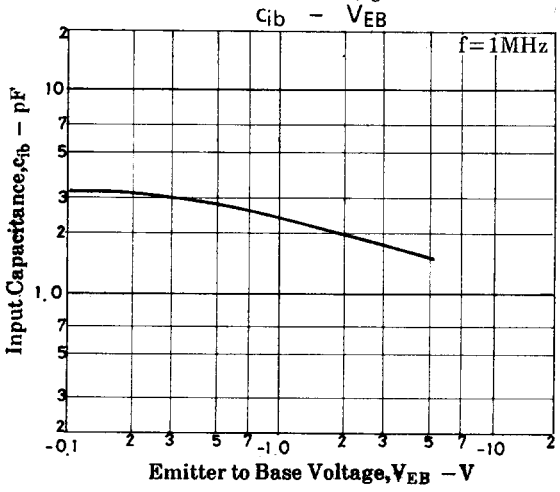

I_C – V_{CE}
Collector Current, I_C – mA
Collector to Emitter Voltage, V_{CE} – V
–5.0mA
–4.5mA
–4.0mA
–3.5mA
–3.0mA
–2.5mA
–2.0mA
–1.5mA
–1.0mA
–0.5mA
I_B = 0

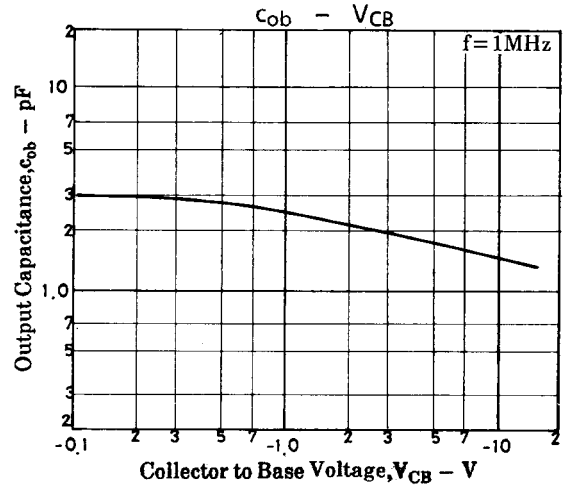

I_C – V_{CE}
Collector Current, I_C – mA
Collector to Emitter Voltage, V_{CE} – V
–200μA
–180μA
–160μA
–140μA
–120μA
–100μA
–80μA
–60μA
–40μA
–20μA
I_B = 0

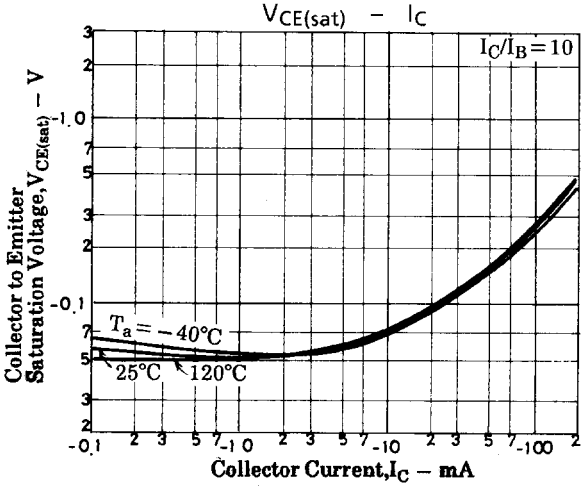

I_C – V_{BE}
V_{CE} = –1V
Collector Current, I_C – mA
Base to Emitter Voltage, V_{BE} – V
T_a = 120°C
25°C
–40°C


h_{FE} – I_C
V_{CE} = –1V
DC Current Gain, h_{FE}
Collector Current, I_C – mA
T_a = 120°C
25°C
–40°C


f_T – I_C
V_{CE} = –10V
Gain-Bandwidth Product, f_T – MHz
Collector Current, I_C – mA


C_{ib} – V_{EB}
f = 1MHz
Input Capacitance, C_{ib} – pF
Emitter to Base Voltage, V_{EB} – V


C_{ob} – V_{CB}
f = 1MHz
Output Capacitance, C_{ob} – pF
Collector to Base Voltage, V_{CB} – V


$V_{CE(sat)}$ – I_C
I_C/I_B = 10
Collector to Emitter Saturation Voltage, $V_{CE(sat)}$ – V
Collector Current, I_C – mA
T_a = –40°C
25°C
120°C