Ordering number:EN3135A

PNP Epitaxial Planar Silicon Transistor

2SA1731

High-Speed Switching Applications

Features

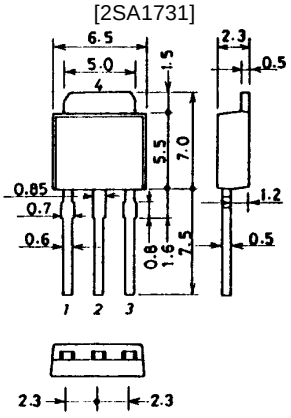
- Adoption of FBET, MBIT processes.
- Large current capacity.
- Low collector-to-emitter saturation voltage.
- Fast switching speed.

Package Dimensions

unit:mm

2045B

[2SA1731]



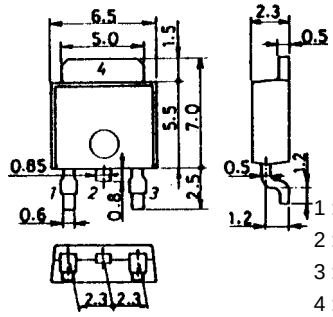
1 : Base
2 : Collector
3 : Emitter
4 : Collector

SANYO : TP

unit:mm

2044B

[2SA1731]



1 : Base
2 : Collector
3 : Emitter
4 : Collector

SANYO : TP-FA

SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters

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

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		–50	V
Collector-to-Emitter Voltage	V_{CEO}		–40	V
Emitter-to-Base Voltage	V_{EBO}		–5	V
Collector Current	I_C		–5	A
Collector Current (Pulse)	I_{CP}		–8	A
Collector Dissipation	P_C		1	W
		Tc=25˚C	15	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

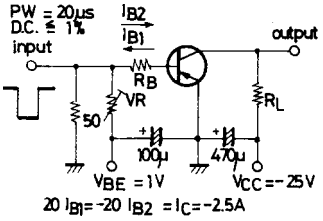
Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=–40V, I_E=0			–1	µA
Emitter Cutoff Current	I_{EBO}	V_{EB}=–3V, I_C=0			–1	µA
DC Current Gain	$h_{FE}1$	V_{CE}=–2V, I_C=–500mA	70*		280*	
	$h_{FE}2$	V_{CE}=–2V, I_C=–5A	25			
Gain-Bandwidth Product	f_T	V_{CE}=–2V, I_C=–500mA		300		MHz
Output Capacitance	C_{ob}	V_{CB}=–10V, f=1MHz		60		pF
Collector-to-Emitter Saturatin Voltage	$V_{CE(sat)}$	I_C=–2.5A, I_B=–125mA		–0.3	–0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=–2.5A, I_B=–125mA		–0.95	–1.3	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=–100µA, I_E=0	–50			V
Collector-to-Emitter Saturation Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	–40			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=–100µA, I_C=0	–5			V
Turn-ON Time	t_{on}	See specified Test Circuit		50	100	ns
Storage Time	t_{stg}	See specified Test Circuit		120	220	ns
Turn-OFF Time	t_{off}	See specified Test Circuit		150	300	ns

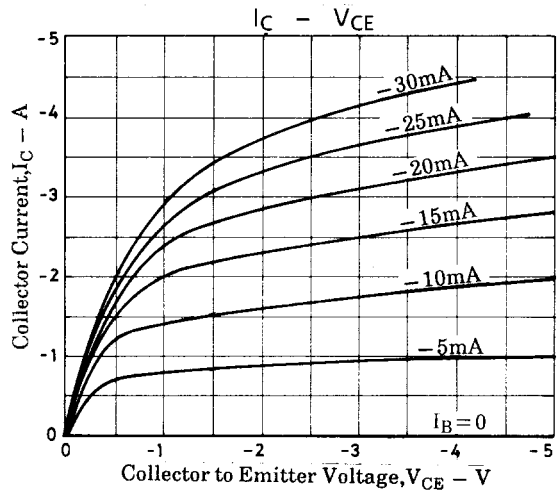
* : The 2SA1731 is classified by 500mA h_{FE} as follows :

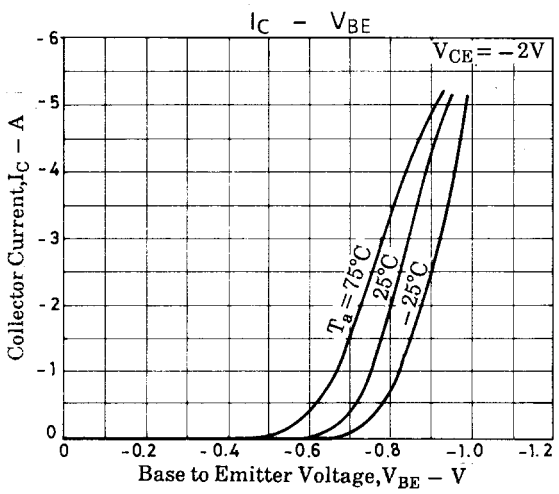
70 Q 140	100 R 200	140 S 280

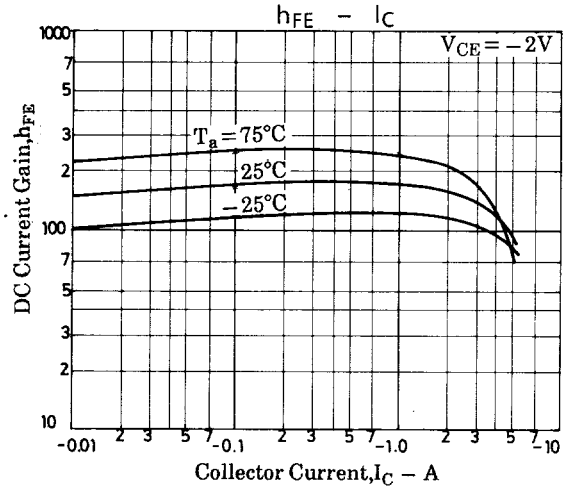
Switching Time Test Circuit

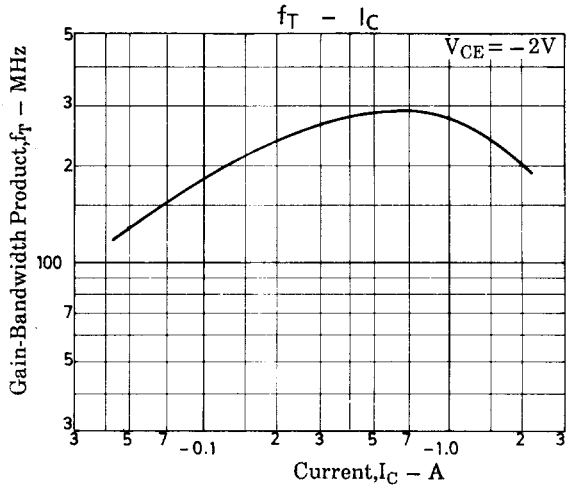


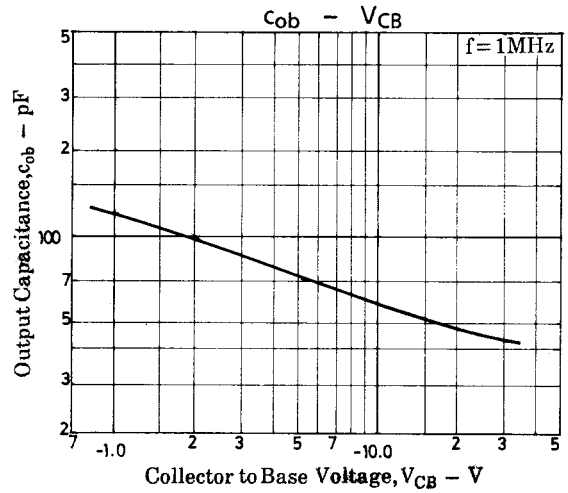
Unit (resistance : Ω, capacitance : F)

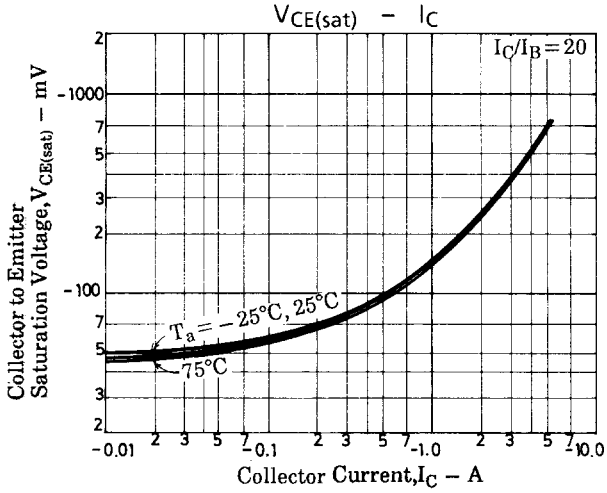

I_C – V_{CE}
Collector Current, I_C – A
Collector to Emitter Voltage, V_{CE} – V
–30mA
–25mA
–20mA
–15mA
–10mA
–5mA
I_B = 0


I_C – V_{BE}
V_{CE} = –2V
Collector Current, I_C – A
Base to Emitter Voltage, V_{BE} – V
T_a = 75°C
25°C
–25°C


h_{FE} – I_C
V_{CE} = –2V
DC Current Gain, h_{FE}
Collector Current, I_C – A
T_a = 75°C
25°C
–25°C


f_T – I_C
V_{CE} = –2V
Gain-Bandwidth Product, f_T – MHz
Current, I_C – A


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 = 20
Collector to Emitter Saturation Voltage, $V_{CE(sat)}$ – mV
Collector Current, I_C – A
T_a = –25°C, 25°C
75°C