Ordering number:ENN2974A

PNP Epitaxial Planar Silicon Transistors

2SA1700

High-Voltage Driver Applications

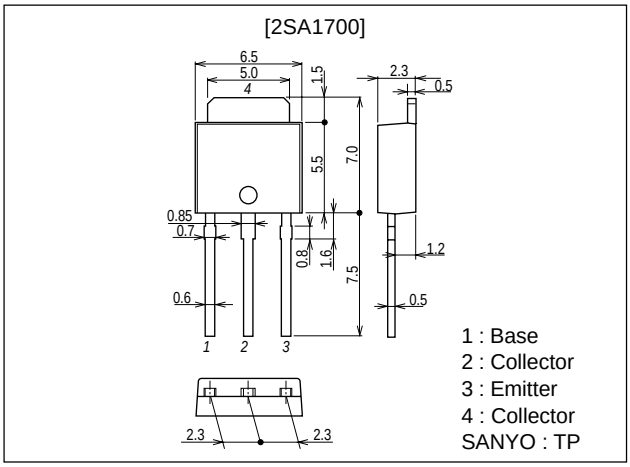
Features

- High breakdown voltage.
- Adoption of MBIT process.
- Excellent h_{FE} linearity.

Package Dimensions

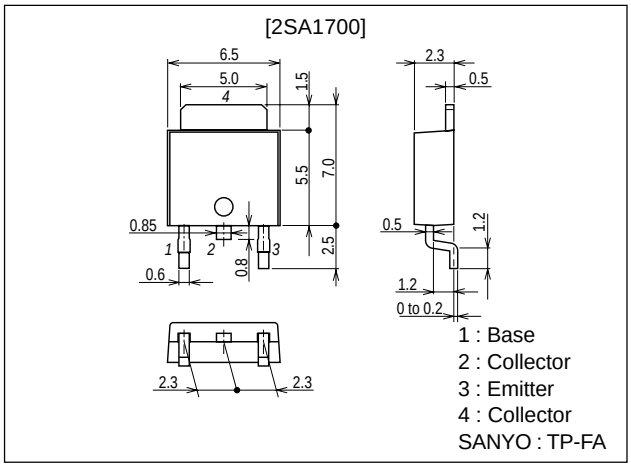
unit:mm

2045B



unit:mm

2044B



SANYO Electric Co.,Ltd. Semiconductor Company

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}		–400	V
Collector-to-Emitter Voltage	V_{CEO}		–400	V
Emitter-to-Base Voltage	V_{EBO}		–5	V
Collector Current	I_C		–200	mA
Colletor Current (Pulse)	I_{CP}		–400	mA
Collector Dissipation	P_C		1	W
		Tc=25˚C	10	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

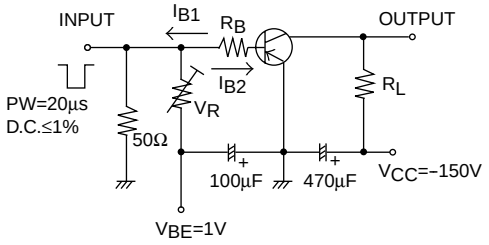
Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=–300V, 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}=–10V, I_C=–50mA	60*		200*	
Gain-Bandwidth Product	f_T	V_{CE}=–30V, I_C=–10mA		70		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=–50mA, I_B=–5mA			–0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=–50mA, I_B=–5mA			–1.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=–10μA, I_E=0	–400			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	–400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=–10μA, I_C=0	–5			V
Collector Output Capacitance	C_{ob}	V_{CB}=–30V, f=1MHz		5		pF
Reverse Transfer Capacitance	C_{re}	V_{CB}=–30V, f=1MHz		4		pF
Turn-ON Time	t_{on}	See specified Test Circuit		0.25		μs
Turn-OFF Time	t_{off}	See specified Test Circuit		5		μs

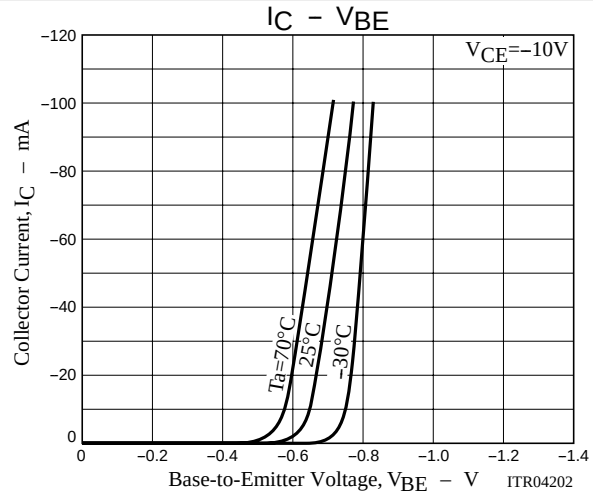
* : The 2SA1700 is classified by 50mA h_{FE} as follows :

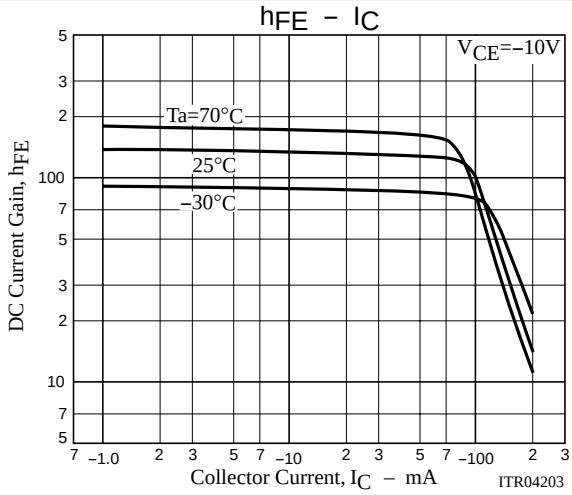
Rank	D	E
h_{FE}	60 to 120	100 to 200

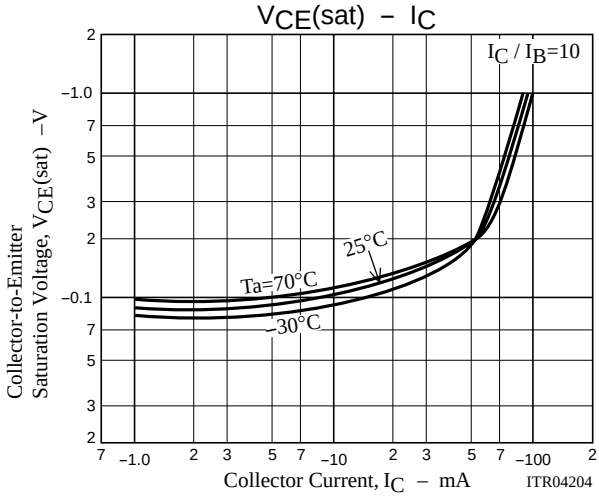
Switching Time Test Circuit

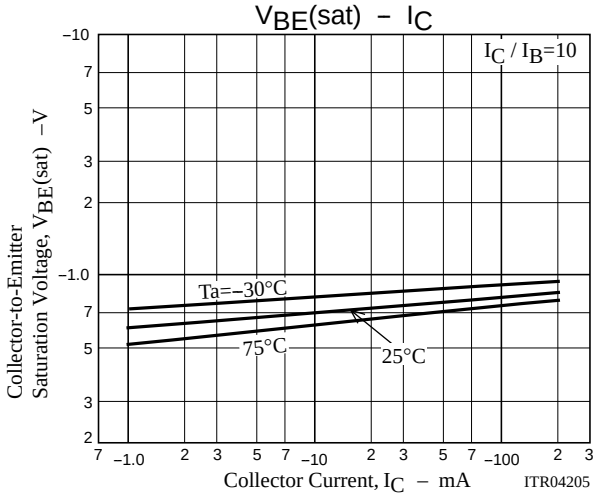


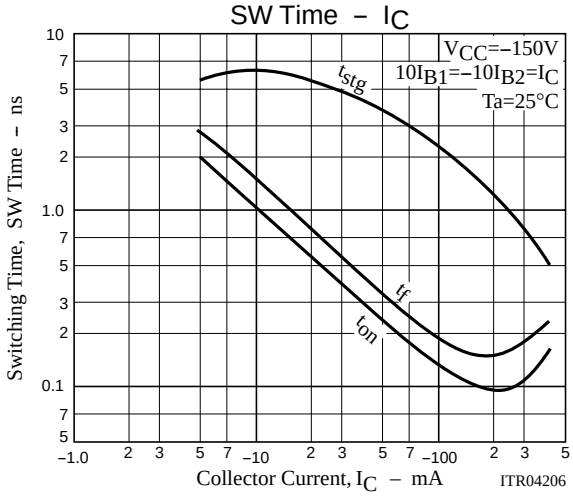
$-10I_{B1}= 10I_{B2}= I_C=-50mA$
R_L=3kΩ, R_B=200Ω at I_C=–50mA

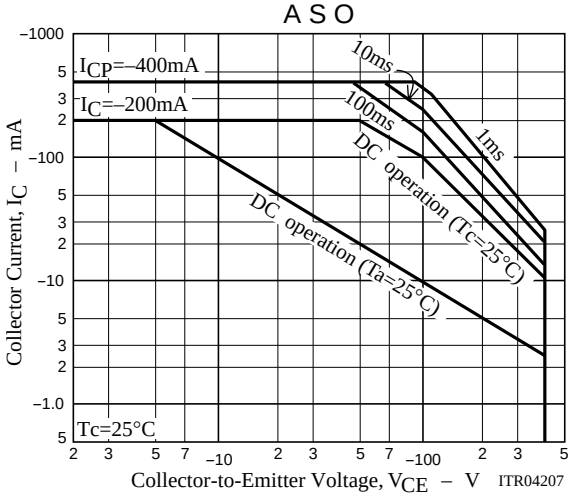

I_C – V_{BE}
V_{CE}=–10V
Ta=70°C
25°C
–30°C
Collector Current, I_C – mA
Base-to-Emitter Voltage, V_{BE} – V
ITR04202

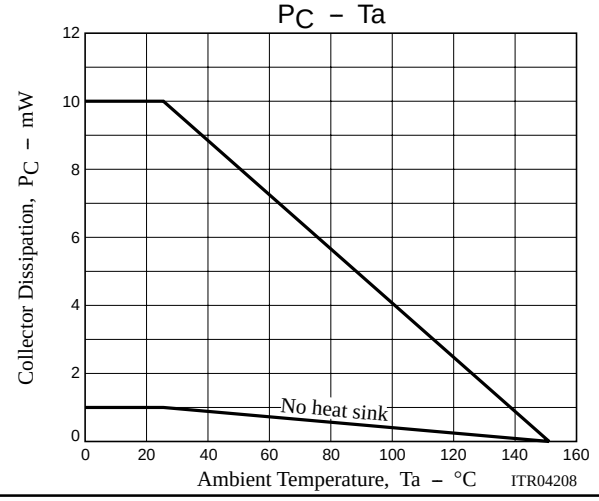

h_{FE} – I_C
V_{CE}=–10V
Ta=70°C
25°C
–30°C
DC Current Gain, h_{FE}
Collector Current, I_C – mA
ITR04203


V_{CE}(sat) – I_C
I_C / I_B=10
Ta=70°C
25°C
–30°C
Collector-to-Emitter Saturation Voltage, V_{CE}(sat) –V
Collector Current, I_C – mA
ITR04204


V_{BE}(sat) – I_C
I_C / I_B=10
Ta=–30°C
75°C
25°C
Collector-to-Emitter Saturation Voltage, V_{BE}(sat) –V
Collector Current, I_C – mA
ITR04205


SW Time – I_C
V_{CC}=–150V
$10I_{B1}$=–$10I_{B2}$=I_C
Ta=25°C
t_{stg}
t_f
t_{on}
Switching Time, SW Time – ns
Collector Current, I_C – mA
ITR04206


A S O
I_{CP}=–400mA
I_C=–200mA
10ms
100ms
1ms
DC operation (Tc=25°C)
DC operation (Ta=25°C)
Tc=25°C
Collector Current, I_C – mA
Collector-to-Emitter Voltage, V_{CE} – V
ITR04207


P_C – Ta
No heat sink
Collector Dissipation, P_C – mW
Ambient Temperature, Ta – °C
ITR04208