Ordering number:EN4133

PNP Epitaxial Planar Silicon Transistor

2SA1854

20V/5A Switching Applications

Applications

· Strobes, power supplies, relay drivers, lamp drivers.

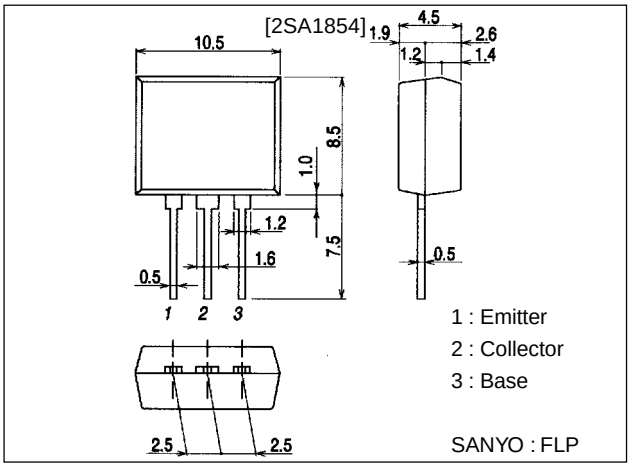
Features

· Adoption of FBET and MBIT processes.
· Large allowable collector dissipation.
· Low saturation voltage.
· Large current capacity.
· Fast switching speed.
· Usage of radial taping to meet automatic mounting.

Package Dimensions

unit:mm

2084B



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		–25	V
Collector-to-Emitter Voltage	V_{CEO}		–20	V
Emitter-to-Base Voltage	V_{EBO}		–5	V
Collector Current	I_C		–5	A
Colletor Current (Pulse)	I_{CP}		–8	A
Base Current	I_B		–0.5	A
Collector Dissipation	P_C		1.5	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}=–20V, I_E=0			–500	nA
Emitter Cutoff Current	I_{EBO}	V_{EB}=–4V, I_C=0			–500	nA
DC Current Gain	$h_{FE}1$	V_{CE}=–2V, I_C=–500mA	100*		400*	
	$h_{FE}2$	V_{CE}=–2V, I_C=–4A	60			
Gain-Bandwidth Product	f_T	V_{CE}=–5V, I_C=–200mA		320		MHz
Output Capacitance	C_{ob}	V_{CB}=–10V, f=1MHz		60		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=–3mA, I_B=–60mA		–250	–500	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=–3mA, I_B=–60mA		–1.0	–1.3	V

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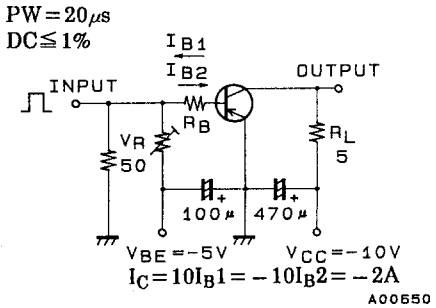
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=–10μA, I_E=0	–25			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	–20			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=–10μA, I_C=0	–5			V
Turn-ON Time	t_{on}	See specified Test Circuit		40		ns
Storage Time	t_{stg}	See specified Test Circuit		200		ns
Fall Time	t_f	See specified Test Circuit		10		ns

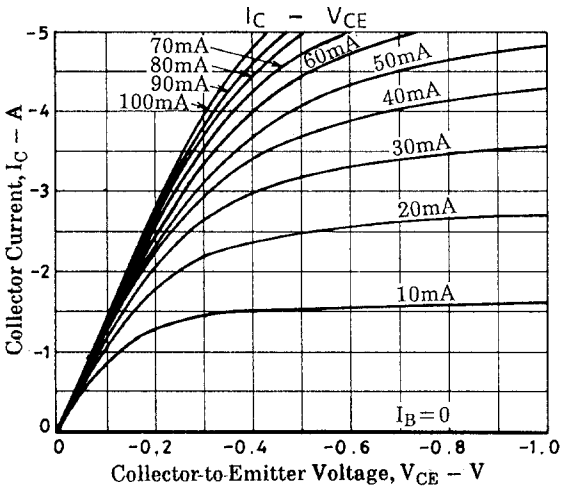
* : The 2SA1854 is classified by 500mA h_{FE} as follows :

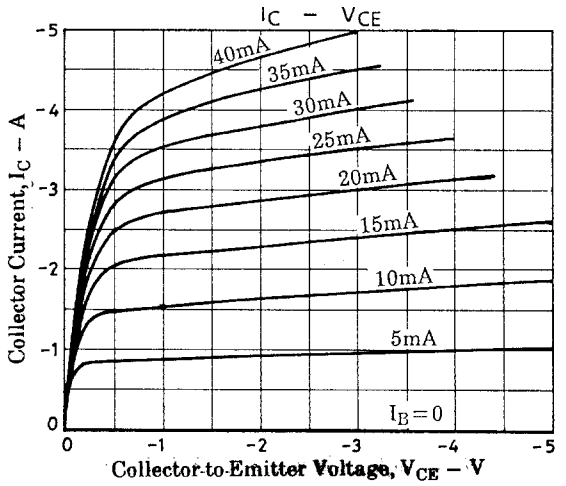
100 R 200	140 S 280	200 T 400

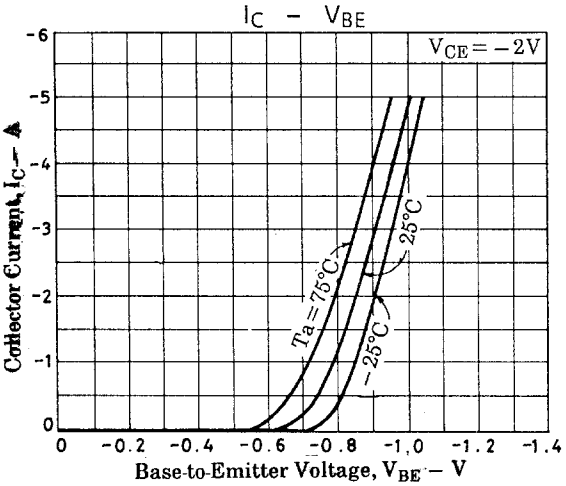
Switchint Time Test Circuit

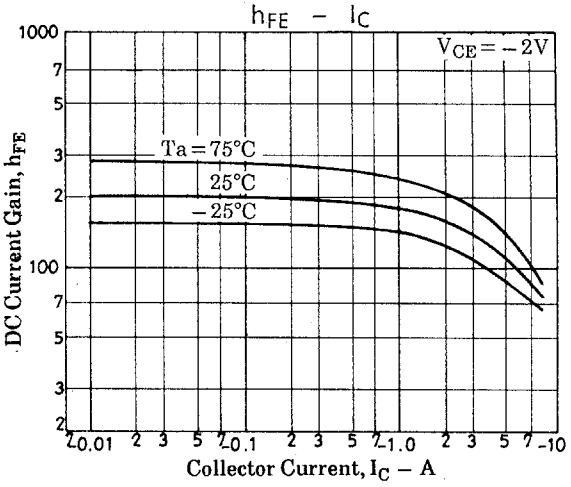


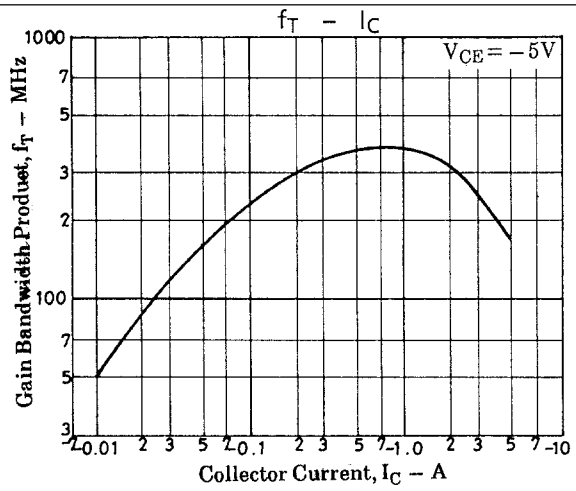
Unit (resistance : Ω, capacitance : F)

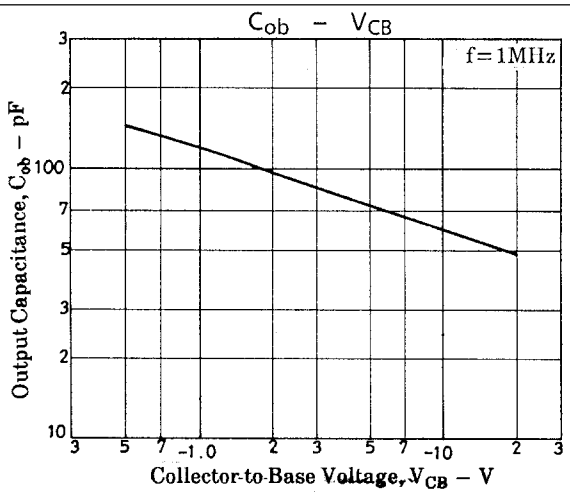


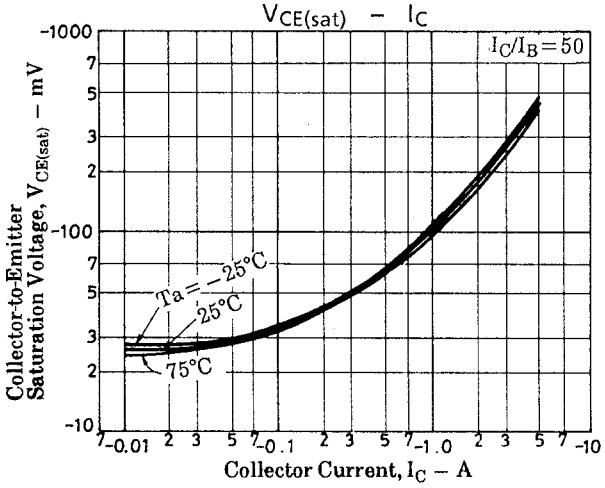


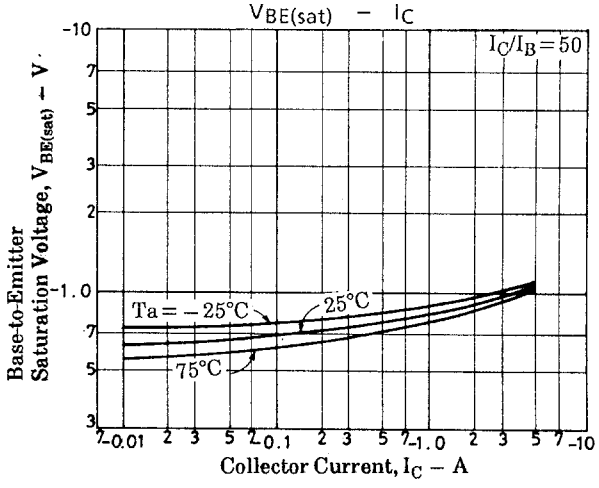


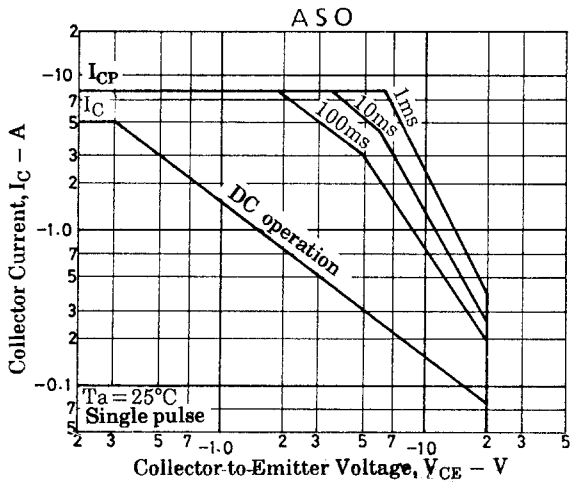


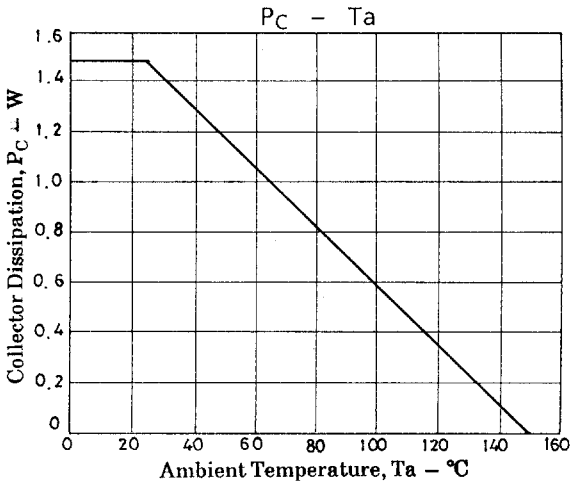

fT – IC
VCE = –5V
Gain Bandwidth Product, fT – MHz
Collector Current, IC – A


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


VCE(sat) – IC
IC/IB=50
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Ta=–25°C
25°C
75°C
Collector Current, IC – A


VBE(sat) – IC
IC/IB=50
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Ta=–25°C
25°C
75°C
Collector Current, IC – A


ASO
ICP
IC
1ms
10ms
100ms
DC operation
Ta=25°C
Single pulse
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V


PC – Ta
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C