Ordering number:2019A

PNP/NPN Epitaxial Planar Silicon Transistors

2SB1124/2SD1624

High Current Switching Applications

Applications

· Voltage regulators, relay drivers, lamp drivers, electrical equipment.

Features

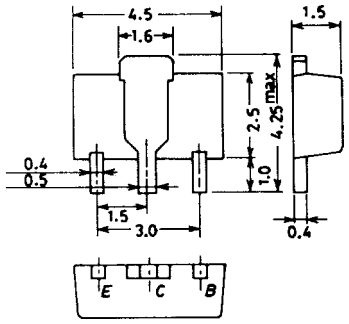
· Adoption of FBET, MBIT processes.
· Low collector-to-emitter saturation voltage.
· Fast switching speed.
· Large current capacity and wide ASO.

Package Dimensions

unit:mm

2038

[2SB1124/2SD1624]



E : Emitter
C : Collector
B : Base

SANYO : PCP
(Bottom view)

( ) : 2SB1124

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)60	V
Collector-to-Emitter Voltage	V_{CEO}		(–)50	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)3	A
Collector Current (Pulse)	I_{CP}		(–)6	A
Collector Dissipation	P_C		500	mW
		Mounted on ceramic board (250mm²×0.8mm)	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}=(–)40V, I_E=0			(–)1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(–)2V, I_C=(–)100mA	100*		560*	
	$h_{FE}2$	V_{CE}=(–)2V, I_C=(–)3A	35			
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)50mA		150		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		(39)		pF
				25		pF

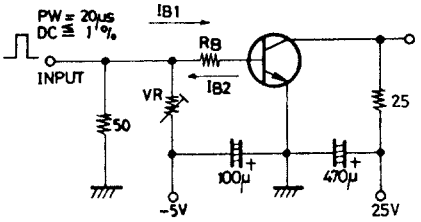
* ; The 2SB1124/2SD1624 are classified by 100mA h_{FE} as follows :

100	R	200	140	S	280	200	T	400	280	U	560

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-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)2A, I_B=(–)100mA		(–0.35)	(–0.7)	V
				0.19	0.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)2A, I_B=(–)100mA		(–0.94)	(–)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)6			V
Turn-ON Time	t_{on}	See specified Test Circuit.		70		ns
				(70)		ns
Storage Time	t_{stg}	See specified Test Circuit.		650		ns
				(450)		ns
Fall Time	t_f	See specified Test Circuit.		35		ns
				(35)		ns

Switching Time Test Circuit

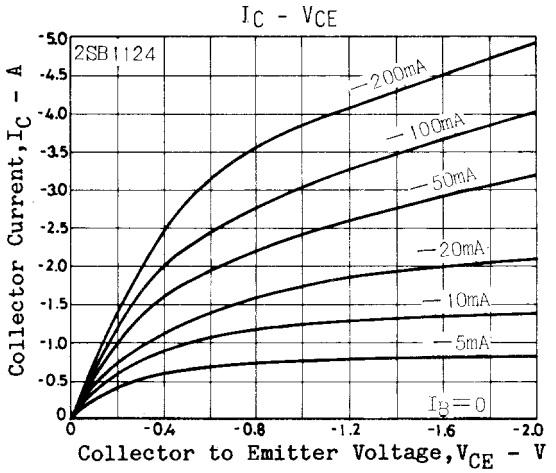


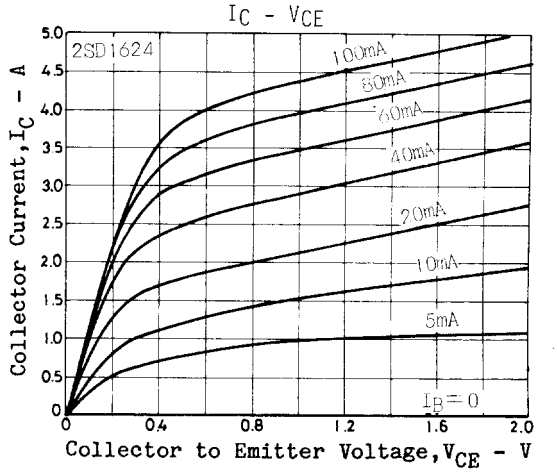
$10I_{B1} = -10I_{B2} = I_C = 1A$

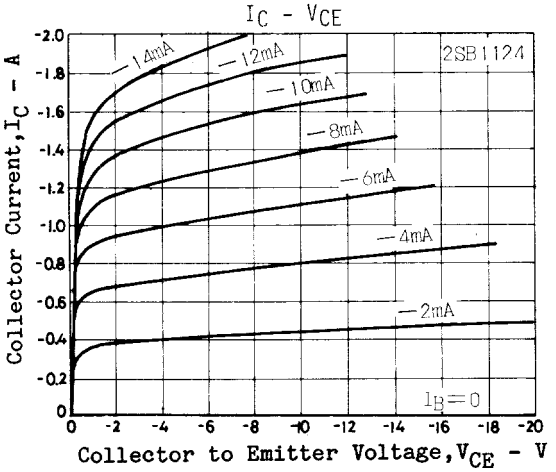
(For PNP, the polarity is reversed.)

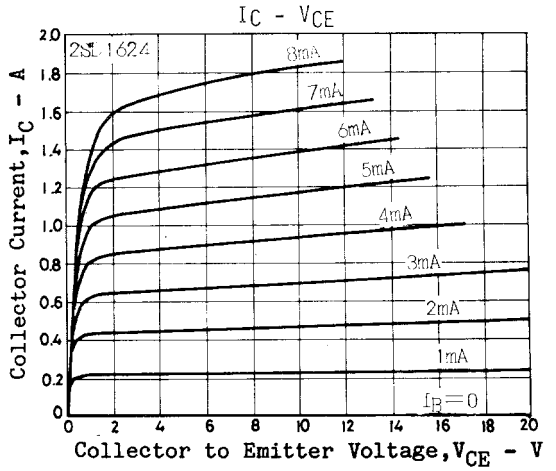
Unit (resistance : Ω, capacitance : F)

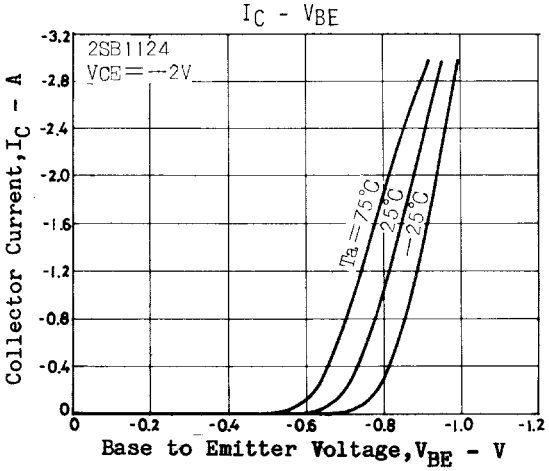
Marking 2SB1124:BG
2SD1624:DG
h_{FE} rank :R,S,T,U

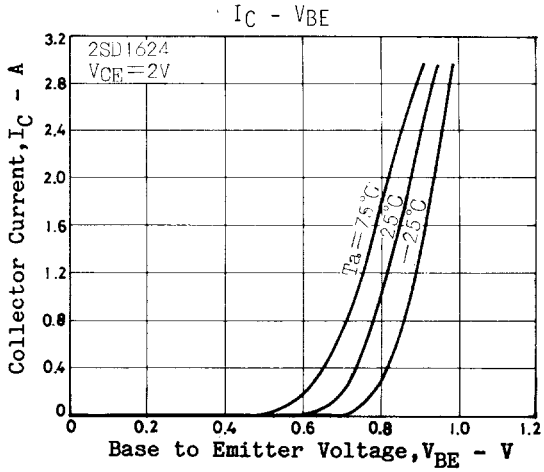


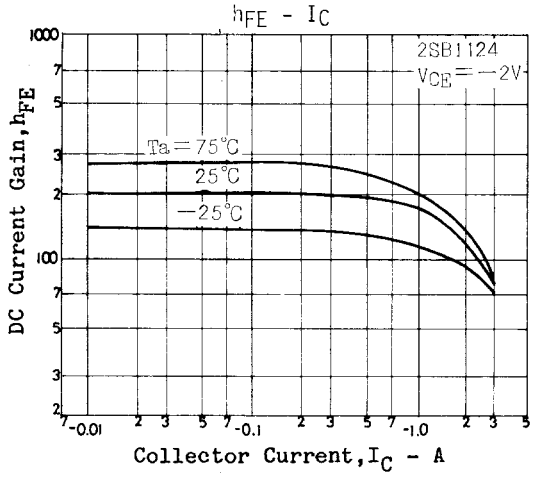


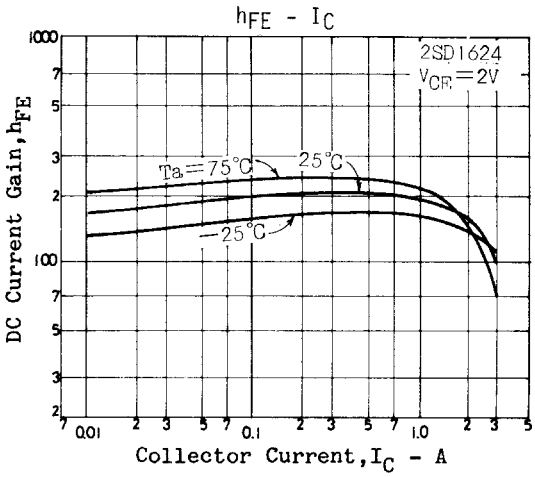


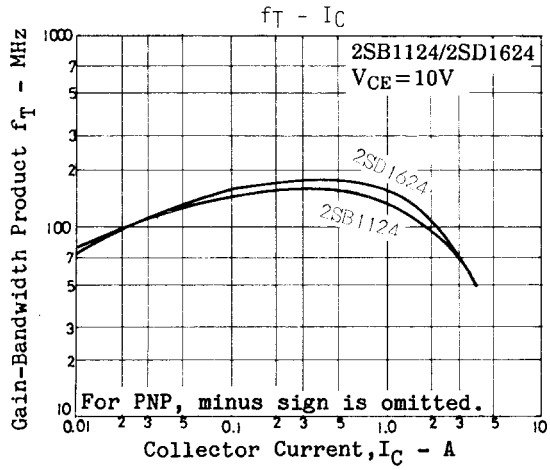


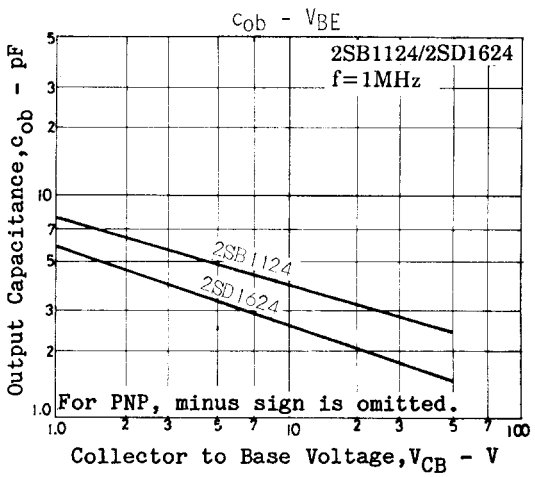

I_C - V_{BE}
2SB1124
V_{CE}=−2V
Ta=75°C
25°C
−25°C
Collector Current, I_C - A
Base to Emitter Voltage, V_{BE} - V

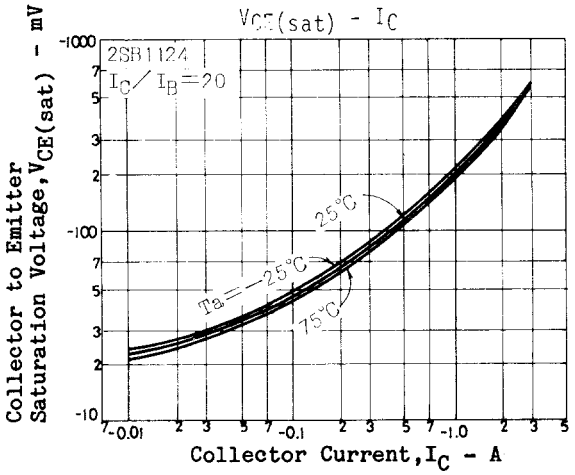

I_C - V_{BE}
2SD1624
V_{CE}=2V
Ta=75°C
25°C
−25°C
Collector Current, I_C - A
Base to Emitter Voltage, V_{BE} - V

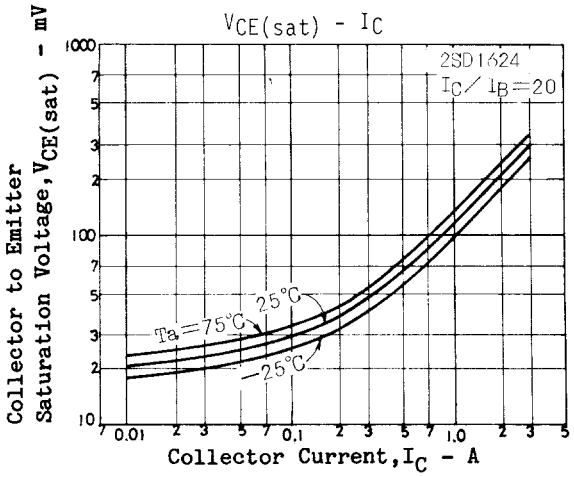

h_{FE} - I_C
2SB1124
V_{CE}=−2V
Ta=75°C
25°C
−25°C
DC Current Gain, h_{FE}
Collector Current, I_C - A

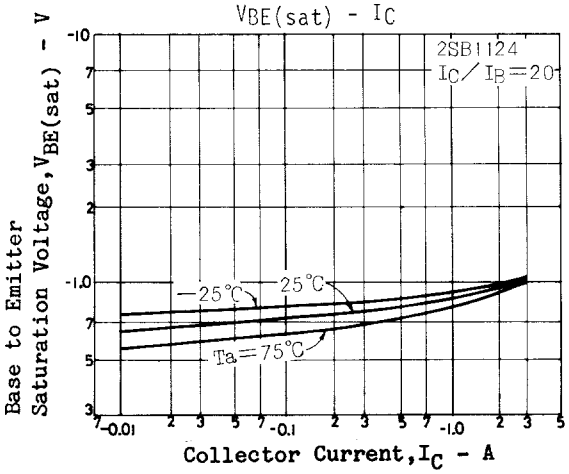

h_{FE} - I_C
2SD1624
V_{CE}=2V
Ta=75°C
25°C
−25°C
DC Current Gain, h_{FE}
Collector Current, I_C - A

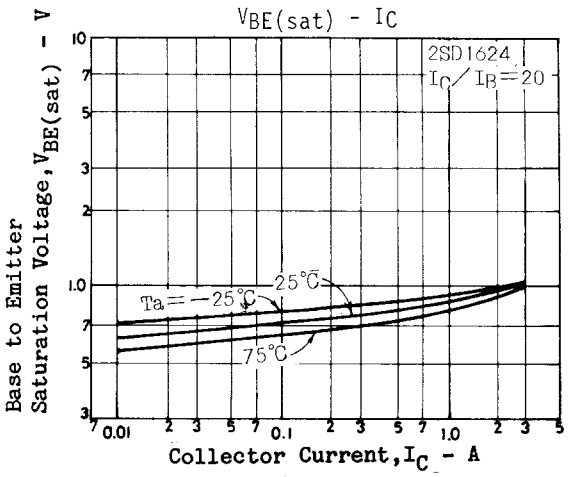

f_T - I_C
2SB1124/2SD1624
V_{CE}=10V
2SD1624
2SB1124
For PNP, minus sign is omitted.
Gain-Bandwidth Product f_T - MHz
Collector Current, I_C - A

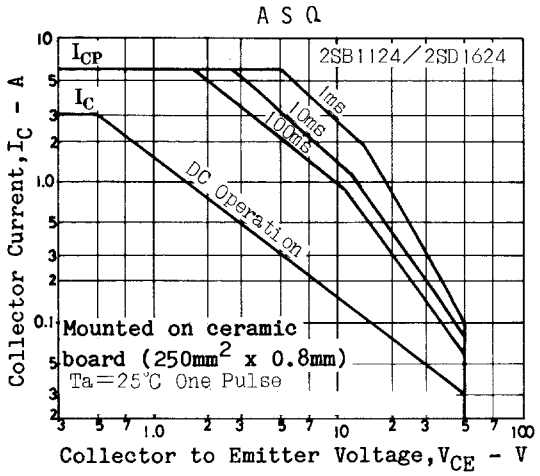

C_{ob} - V_{BE}
2SB1124/2SD1624
f=1MHz
2SB1124
2SD1624
For PNP, minus sign is omitted.
Output Capacitance, C_{ob} - pF
Collector to Base Voltage, V_{CB} - V

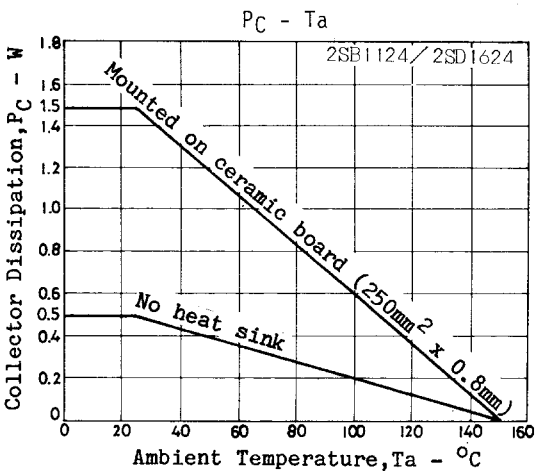

V_{CE}(sat) - I_C
2SB1124
I_C / I_B=20
25°C
Ta=−25°C
75°C
Collector to Emitter Saturation Voltage, V_{CE}(sat) - mV
Collector Current, I_C - A


V_{CE}(sat) - I_C
2SD1624
I_C / I_B=20
Ta=75°C
25°C
−25°C
Collector to Emitter Saturation Voltage, V_{CE}(sat) - mV
Collector Current, I_C - A









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