Ordering number:1787A

PNP/NPN Epitaxial Planar Silicon Transistors

2SB1121/2SD1621

High-Current Driver Applications

Applications

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

Features

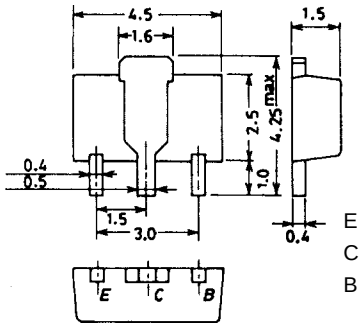
· Adoption of FBET, MBIT processes.
· Low collector-to-emitter saturation voltage.
· Large current capacity and wide ASO.
· Fast switching speed.
· Very small size making it easy to provide high-density, small-sized hybrid IC's.

Package Dimensions

unit:mm

2038

[2SB1121/2SD1621]



E : Emitter
C : Collector
B : Base

SANYO : PCP
(Bottom view)

( ) : 2SB1121

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)30	V
Collector-to-Emitter Voltage	V_{CEO}		(–)25	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)2	A
Collector Current (Pulse)	I_{CP}		(–)5	A
Collector Dissipation	P_C		500	mW
		Mounted on ceramic board (250mm²×0.8mm)	1.3	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			(–)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)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=(–)1.5A	65			
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)50mA		150		MHz

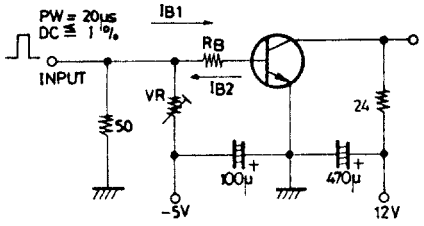
* ; The 2SB1121/2SD1621 are classified by 100mA h_{FE} as follows :

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=(–)1.5A, I_B=(–)75mA		0.18	0.4	V
				(–0.35)	(–0.6)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)1.5A, I_B=(–)75mA		(–)0.85	(–)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)25			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)6			V
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		19		pF
				(32)		pF
Turn-ON Time	t_{on}	See specified Test Circuit.		60		ns
				(60)		ns
Storage Time	t_{stg}	See specified Test Circuit.		500		ns
				(350)		ns
Fall Time	t_f	See specified Test Circuit.		25		ns
				(25)		ns

Switching Time Test Circuit

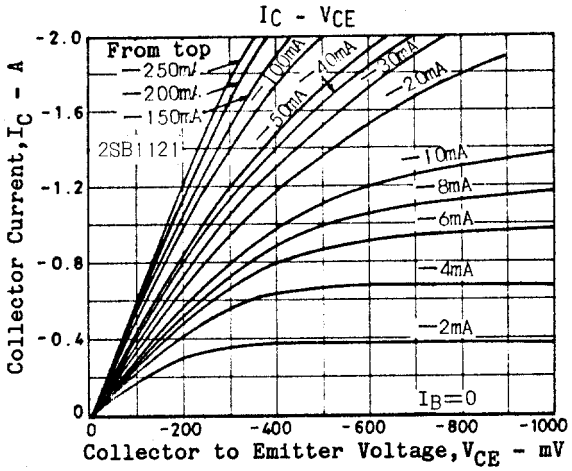


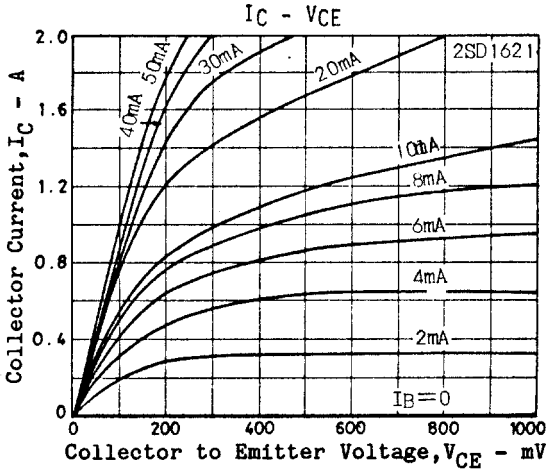
Marking 2SB1121:BD
2SD1621:DD
h_{FE} rank :R,S,T,U

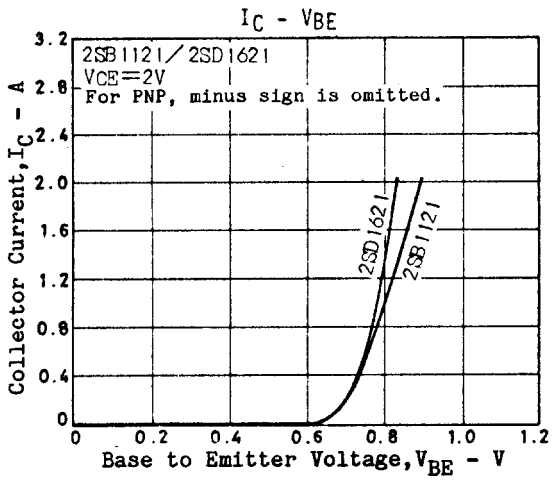
$20I_{B1}=-20I_{B2}=I_C=500mA$

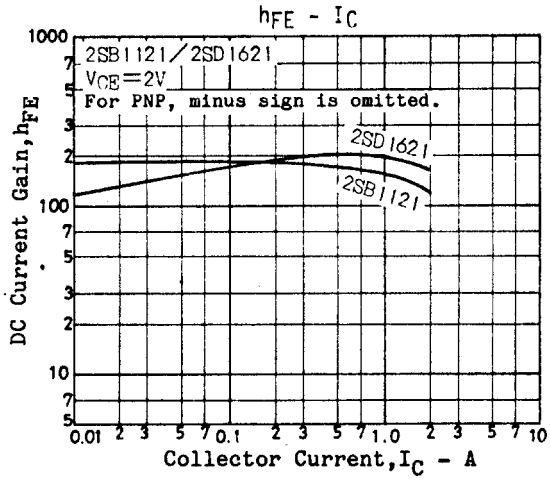
(For PNP, the polarity is reversed.)

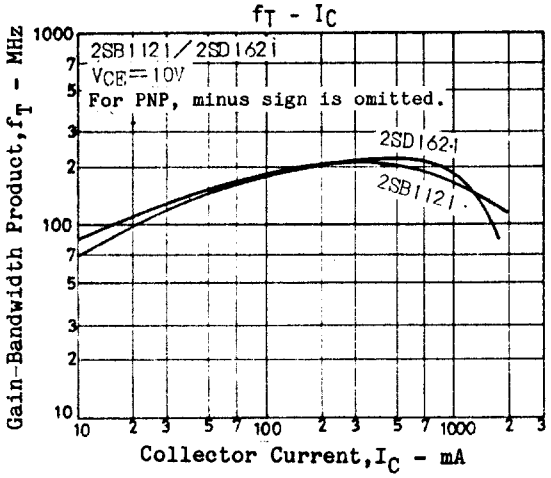
Unit (resistance : Ω, capacitance : F)

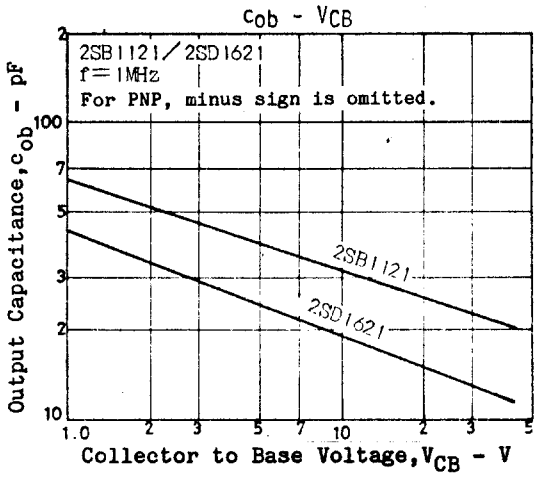


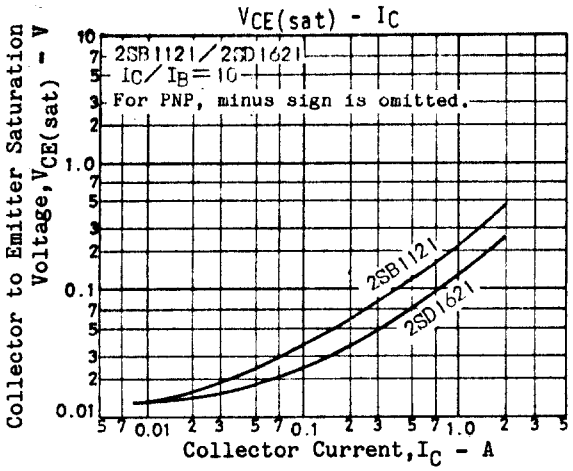


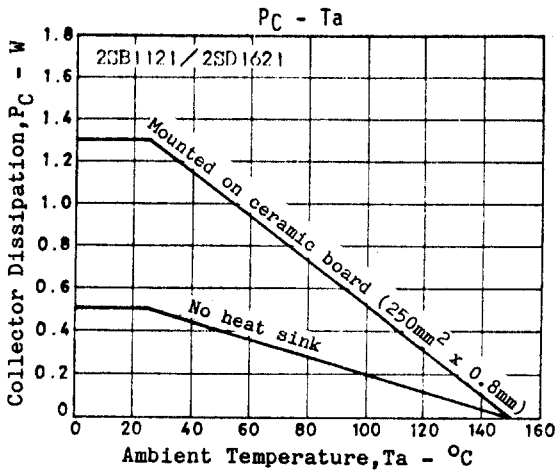


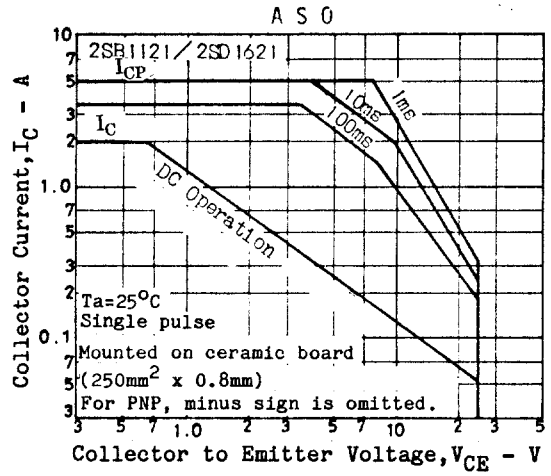



fT - IC
2SB1121/2SD1621
VCE=10V
For PNP, minus sign is omitted.
2SD1621
2SB1121
Gain-Bandwidth Product, fT - MHz
Collector Current, IC - mA


Cob - VCB
2SB1121/2SD1621
f=1MHz
For PNP, minus sign is omitted.
2SB1121
2SD1621
Output Capacitance, Cob - pF
Collector to Base Voltage, VCB - V


VCE(sat) - IC
2SB1121/2SD1621
IC/IB=10
For PNP, minus sign is omitted.
2SB1121
2SD1621
Collector to Emitter Saturation Voltage, VCE(sat) - V
Collector Current, IC - A


PC - Ta
2SB1121/2SD1621
Mounted on ceramic board (250mm2 x 0.8mm)
No heat sink
Collector Dissipation, PC - W
Ambient Temperature, Ta - °C


A S O
2SB1121/2SD1621
ICP
IC
10ms
100ms
1ms
DC Operation
Ta=25°C
Single pulse
Mounted on ceramic board
(250mm2 x 0.8mm)
For PNP, minus sign is omitted.
Collector Current, IC - A
Collector to Emitter Voltage, VCE - V