Ordering number:EN4778

FP206

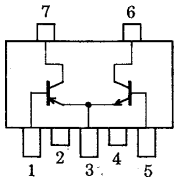
PNP/NPN Epitaxial Planar Silicon Transistors

Push-Pull Circuit Applications

Features

- Composite type with a PNP transistor and an NPN transistor in one package, facilitating high-density mounting.
- The FP206 is composed of 2 chips, one being equivalent to the 2SA1728 and the other 2SC4519, placed in one package.

Electrical Connection



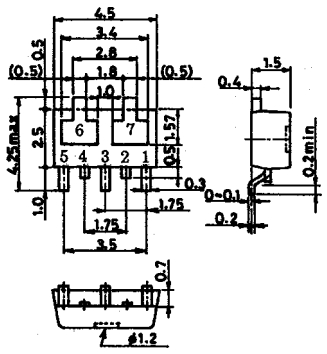
1:Base
2:Collector
3:Emitter Common
4:Collector
5:Base
6:Collector
7:Collector
(Top view)

Package Dimensions

unit:mm

2097A

[FP206]



1:Base
2:Collector
3:Emitter Common
4:Collector
5:Base
6:Collector
7:Collector

SANYO:PCP5
(Bottom view)

Specifications

Absolute Maximum Ratings at Ta = 25˚C

( ) : PNP

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		(–)500	mA
Collector Current (Pulse)	I_{CP}		(–)1	A
Base Current	I_B		(–)100	mA
Collector Dissipation	P_C	Mounted on ceramic board (250mm²×0.8mm) 1unit	0.75	W
Total Power Dissipation	P_T	Mounted on ceramic board (250mm²×0.8mm)	1.0	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta=25˚C

Parameter	Symbol	Conditons	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)40V, I_E=0			(–)0.5	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)3V, I_C=0			(–)0.5	μA
DC Current Gain	h_{FE}	V_{CE}=(–)2V, I_C=(–)50mA	100		400	
Gain-Bandwidth Product	f_T	V_{CE}=(–)2V, I_C=(–)50mA		350		MHz
Output Capacitance	Cob	V_{CB}=(–)10V, f=1MHz		(6)4		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=(–)200mA, I_B=(–)10mA		(–0.2)	(–0.5)	mV
				0.15	0.45	mV
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=(–)200mA, I_B=(–)10mA		(–)0.8	(–)1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)50			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)40			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)5			V
Turn-ON Time	t_{on}	See specified Test Circuit		(60)60		ns
Storage Time	t_{stg}	See specified Test Circuit		(120) 150		ns
Fall Time	t_f	See specified Test Circuit		(50)50		ns

Marking:206

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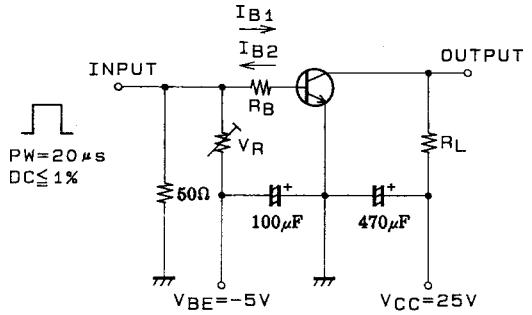
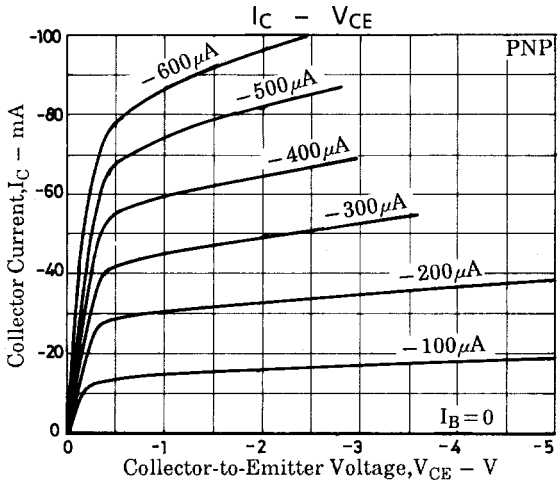
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

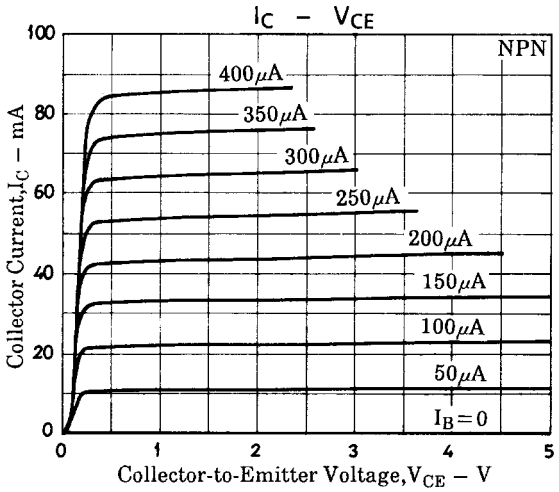
Switching Time Test Circuit

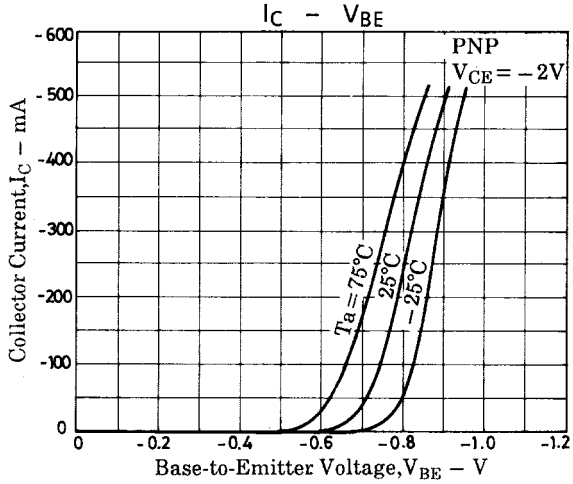


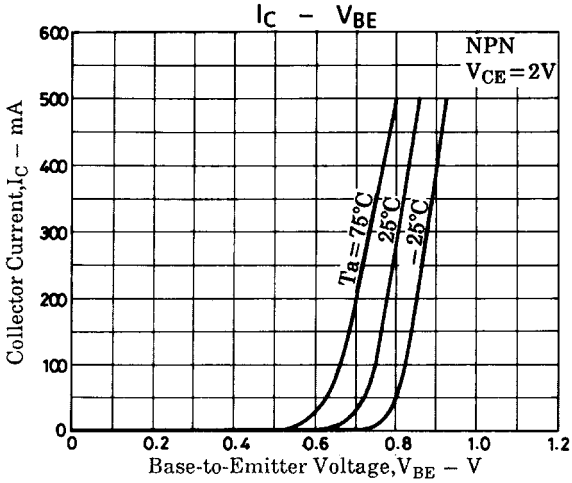
For PNP, the polarity is reversed.

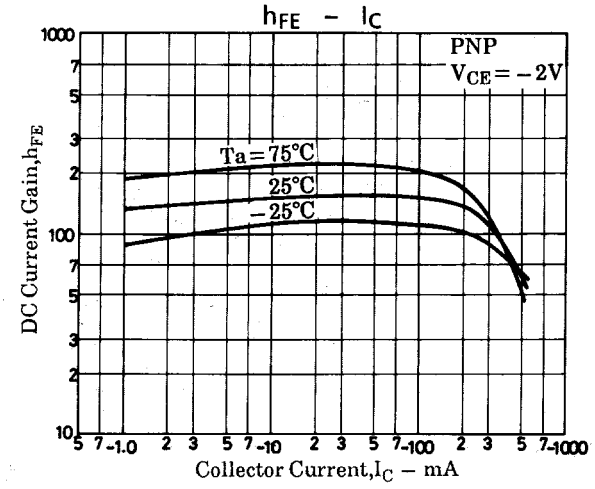
$10I_{B1}=-10I_{B2}=I_C=200mA$

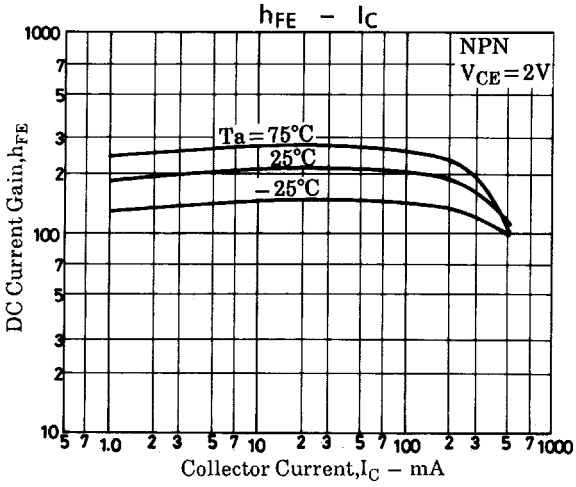


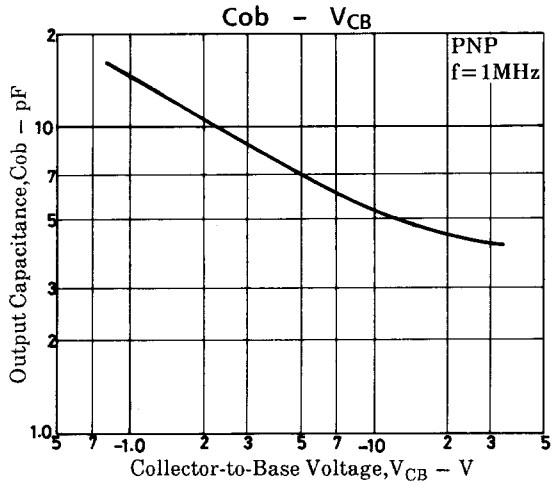


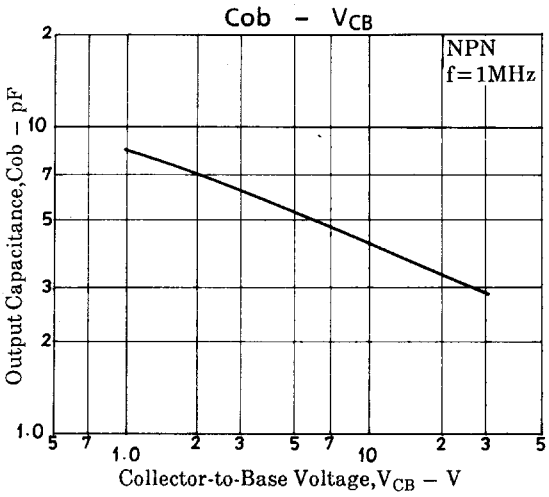


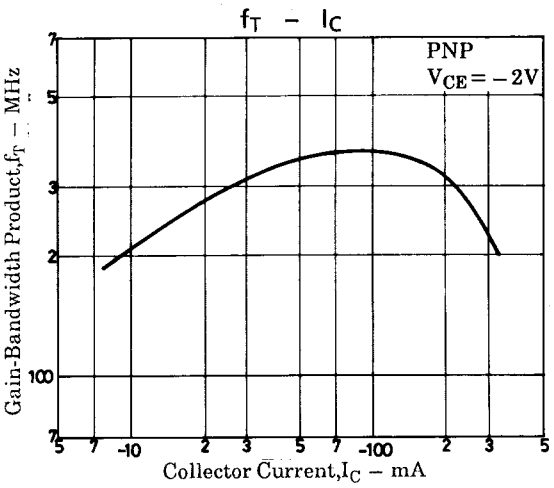


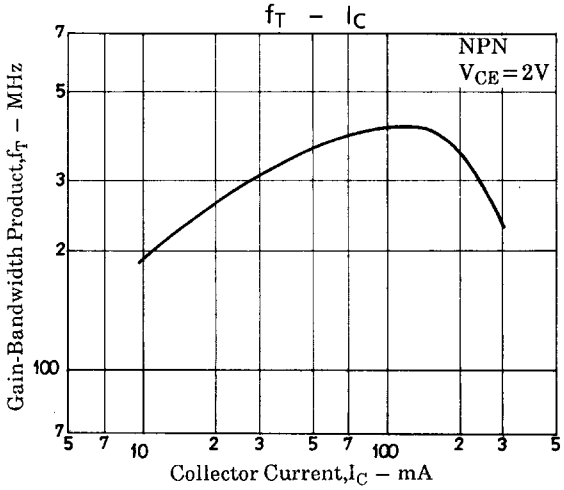


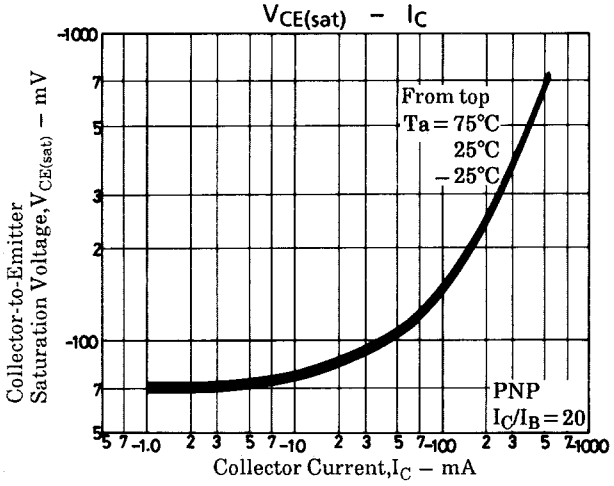


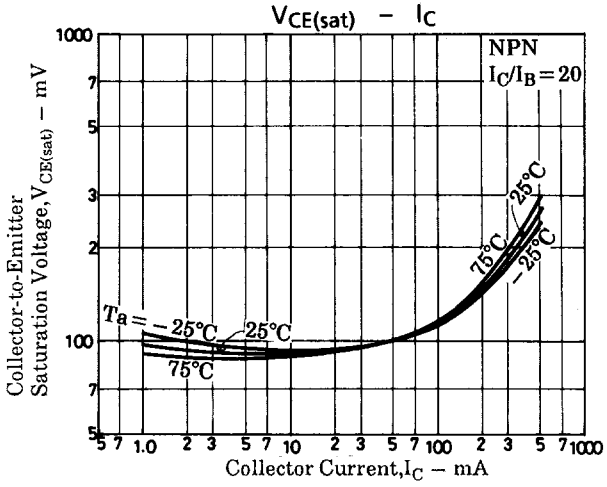

Cob – VCB
PNP
f=1MHz
Output Capacitance,Cob – pF
Collector-to-Base Voltage,VCB – V

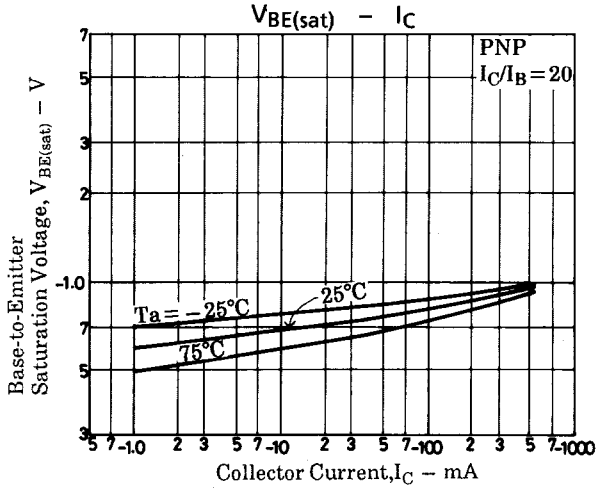

Cob – VCB
NPN
f=1MHz
Output Capacitance,Cob – pF
Collector-to-Base Voltage,VCB – V

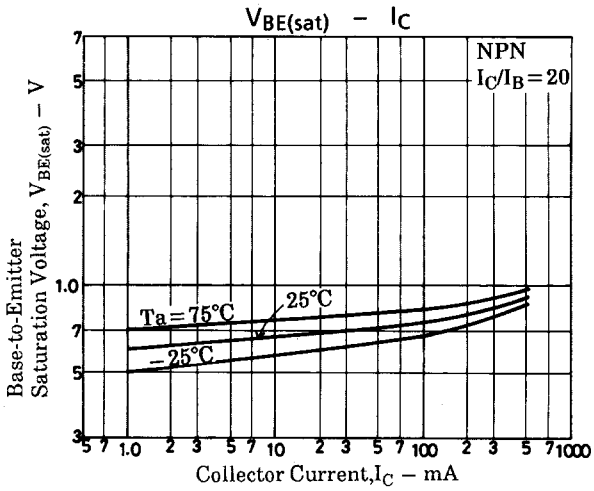

fT – IC
PNP
VCE=–2V
Gain-Bandwidth Product,fT – MHz
Collector Current,IC – mA


fT – IC
NPN
VCE=2V
Gain-Bandwidth Product,fT – MHz
Collector Current,IC – mA


VCE(sat) – IC
From top
Ta=75°C
25°C
–25°C
PNP
IC/IB=20
Collector-to-Emitter Saturation Voltage,VCE(sat) – mV
Collector Current,IC – mA


VCE(sat) – IC
NPN
IC/IB=20
Ta=–25°C
25°C
75°C
Collector-to-Emitter Saturation Voltage,VCE(sat) – mV
Collector Current,IC – mA


VBE(sat) – IC
PNP
IC/IB=20
Ta=–25°C
25°C
75°C
Base-to-Emitter Saturation Voltage,VBE(sat) – V
Collector Current,IC – mA


VBE(sat) – IC
NPN
IC/IB=20
Ta=75°C
25°C
–25°C
Base-to-Emitter Saturation Voltage,VBE(sat) – V
Collector Current,IC – mA