



FP205

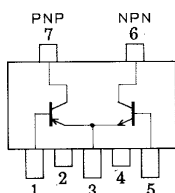
PNP/NPN Epitaxial Planar Silicon Transistors

## Push-Pull Circuit Applications

### Features

- Composite type with a PNP transistor and an NPN transistor in one package, facilitating high-density mounting.
- The FP205 is composed of 2 chips, one being equivalent to the 2SA1416 and the other 2SC3646, which are placed in one package.

### Electrical Connection

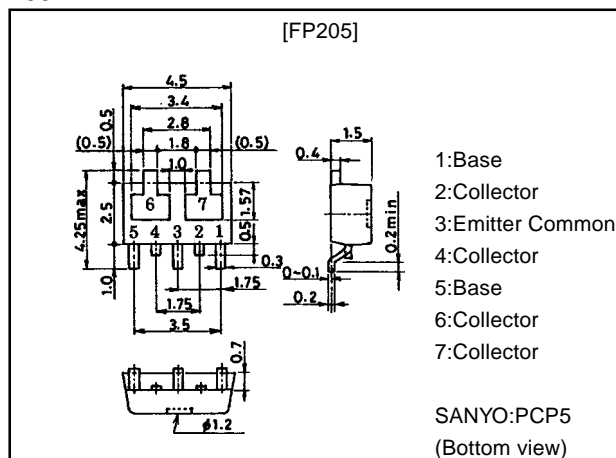


- 1:Base  
2:Collector  
3:Emitter Common  
4:Collector  
5:Base  
6:Collector  
7:Collector  
(Top view)

### Package Dimensions

unit:mm

2097A



### Specifications

#### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

( ) : PNP

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-)120	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)100	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)6	V
Collector Current	$I_C$		(-)1	A
Collector Current (Pulse)	$I_{CP}$		(-)2	A
Base Current	$I_B$		(-)0.2	A
Collector Dissipation	$P_C$	Mounted on ceramic board (250mm $\times$ 0.8mm) 1unit	0.8	W
Total Power Dissipation	$P_T$	Mounted on ceramic board (250mm $\times$ 0.8mm)	1.1	W
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

#### Electrical Characteristics at $T_a=25^\circ\text{C}$

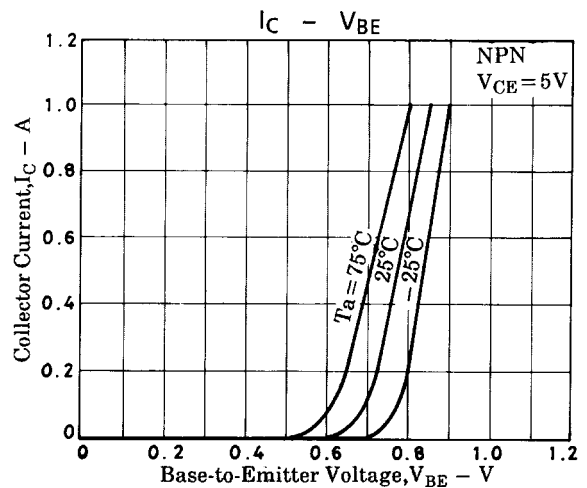
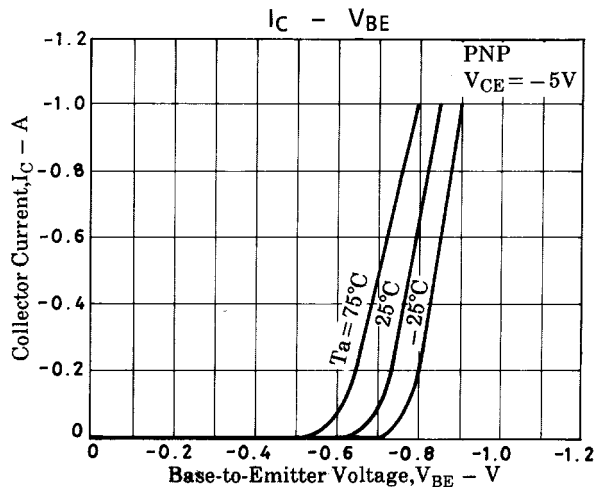
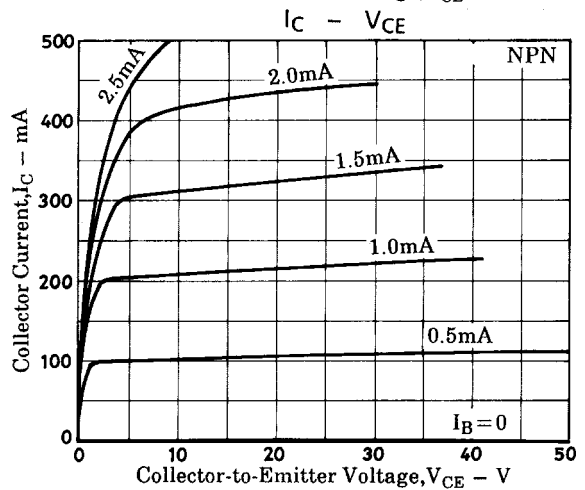
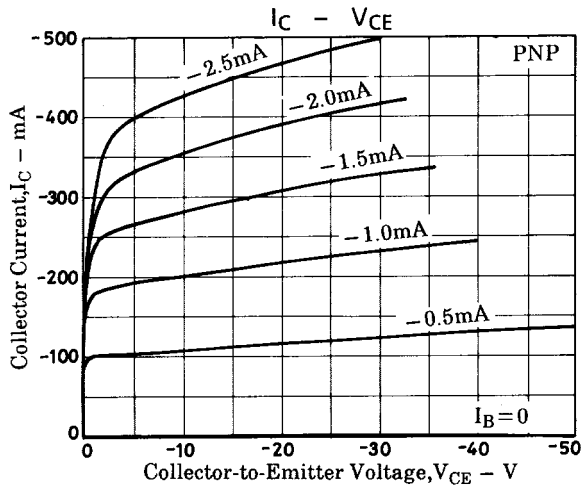
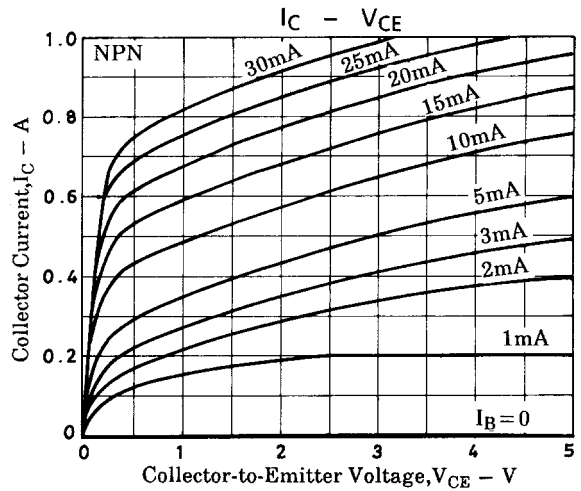
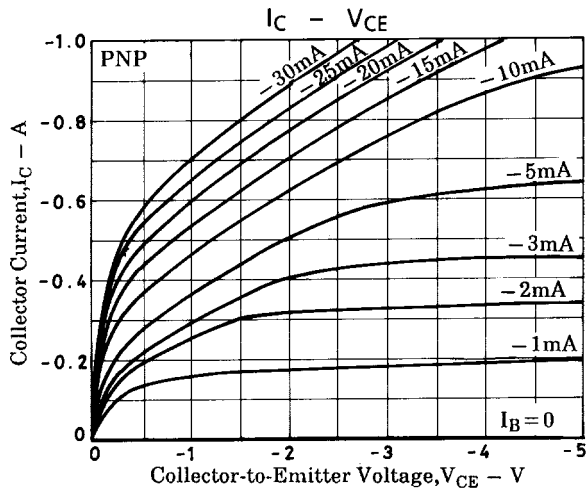
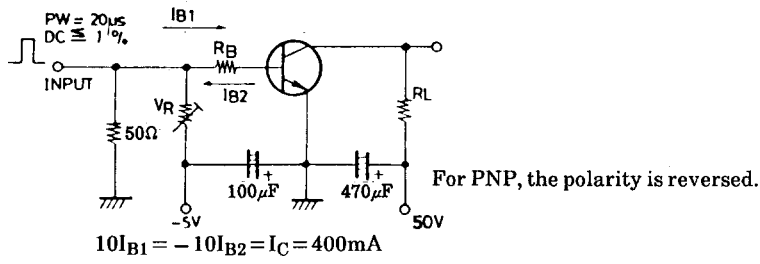
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CB0}$	$V_{CB} = (-)100\text{V}, I_E = 0$			(-)100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4\text{V}, I_C = 0$			(-)100	nA
DC Current Gain	$h_{FE}$	$V_{CE} = (-)5\text{V}, I_C = (-)100\text{mA}$	140		400	
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)10\text{V}, I_C = (-)100\text{mA}$		120		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = (-)10\text{V}, f = 1\text{MHz}$		(13)		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)400\text{mA}, I_B = (-)40\text{mA}$		8.5		pF
				(-0.2)	(-0.6)	V
			0.1	0.4	V	
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)400\text{mA}, I_B = (-)40\text{mA}$		(-)0.85	(-)1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu\text{A}, I_E = 0$	(-)120			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1\text{mA}, R_{BE} = \infty$	(-)100			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu\text{A}, I_C = 0$	(-)6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		(80)80		ns
Storage Time	$t_{stg}$	See specified Test Circuit		(700)850		ns
Fall Time	$t_f$	See specified Test Circuit		(40)50		ns

Marking:205

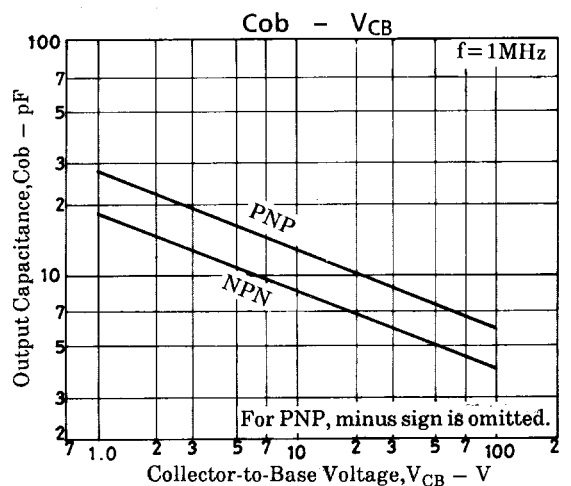
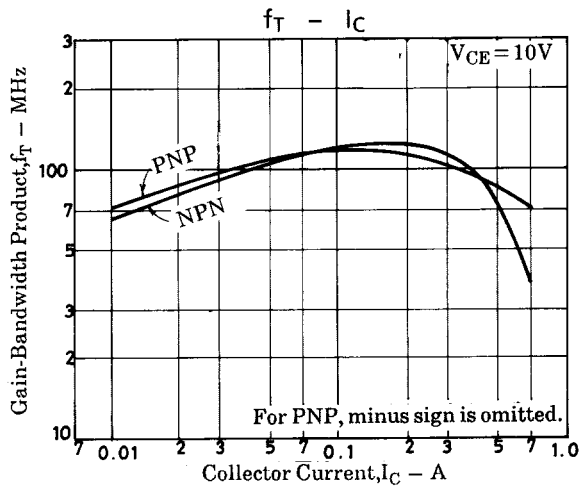
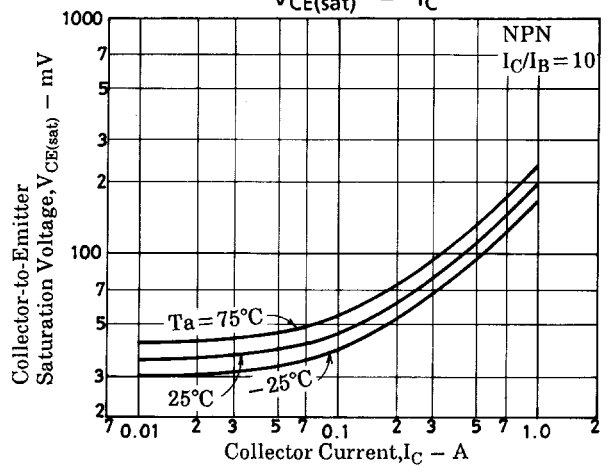
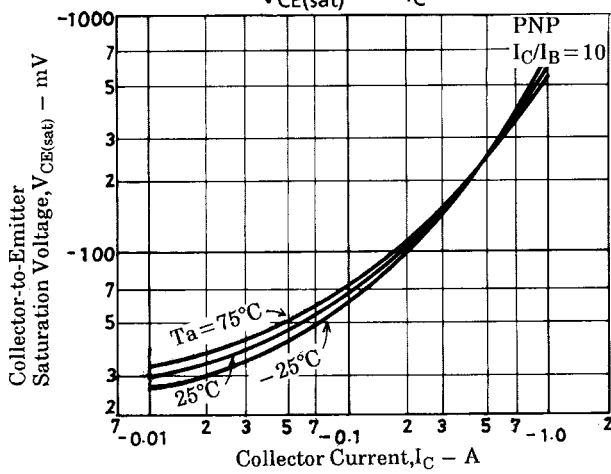
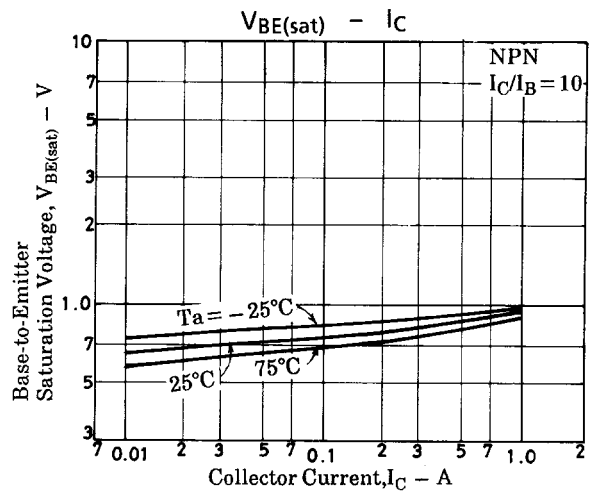
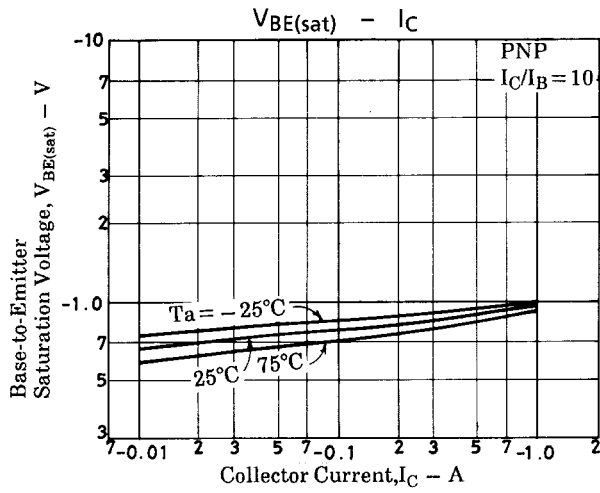
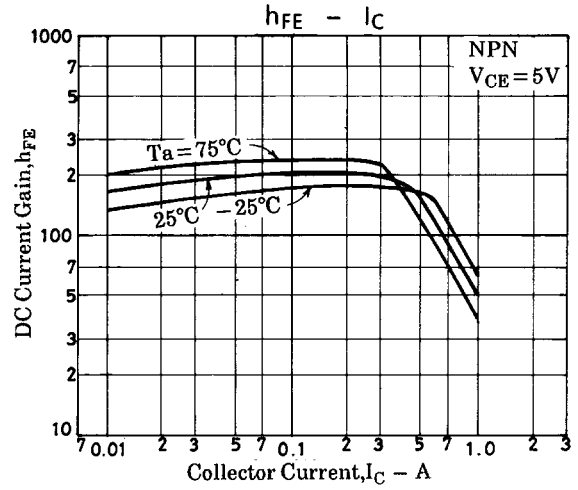
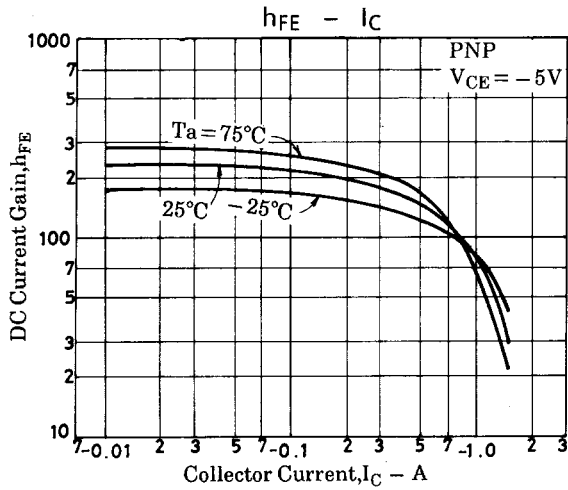
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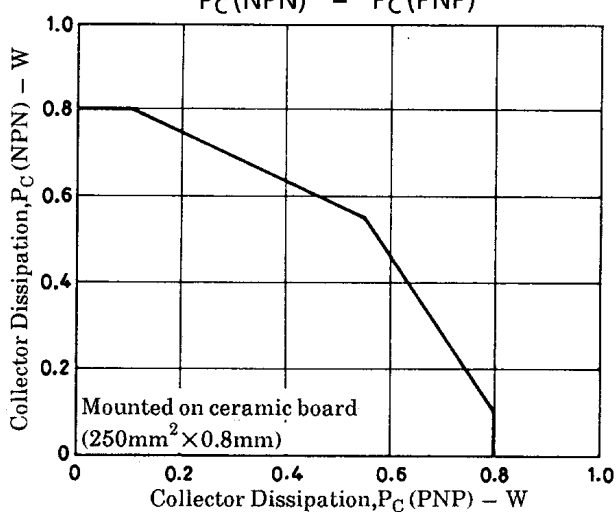
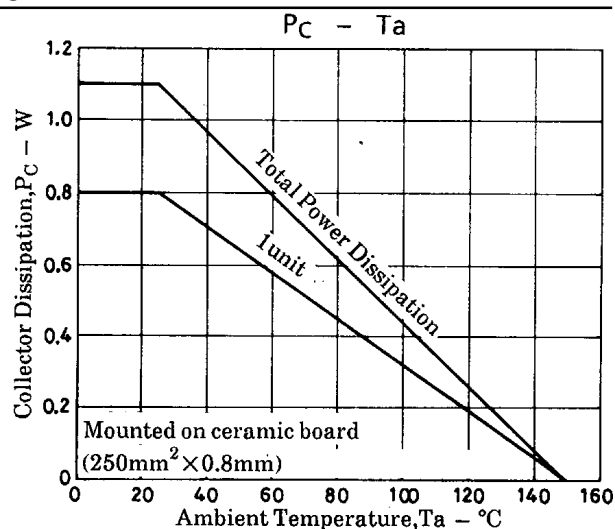
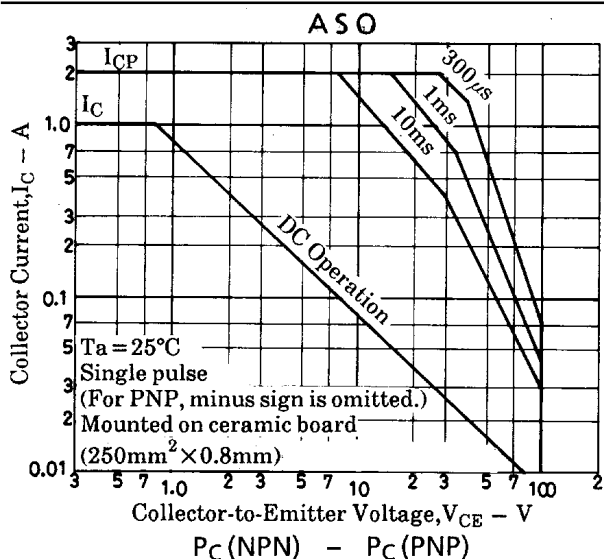
Switching Time Test Circuit



# FP205



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