Ordering number:EN4698

# FP215

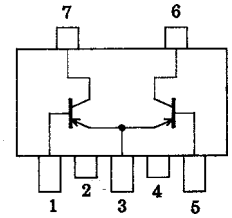
PNP Epitaxial Planar Silicon Composite Transistors

## High-Frequency Amp, Differential Amp Applications

## Features

- Composite type with 2 transistors contained in the PCP package currently in use, improving the mounting efficiency greatly.
- The FP215 is formed with two chips, being equivalent to the 2SA1724, placed in one package.
- Excellent in thermal equilibrium and pair capability.

### Electrical Connection



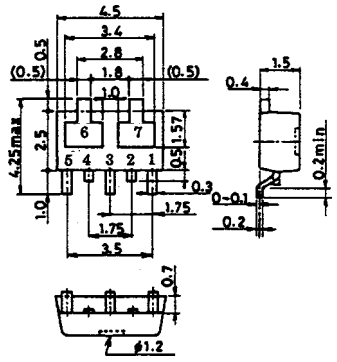

1:Base (PNP TR)
2:Collector (PNP TR)
3:Emitter Common
4:Collector (PNP TR)
5:Base (PNP TR)
6:Collector (PNP TR)
7:Collector (PNP TR)
(Top view)

## Package Dimensions

unit:mm

2108A

[FP215]



1:Base (PNP TR)
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5:Base (PNP TR)
6:Collector (PNP TR)
7:Collector (PNP TR)

SANYO:PCP5
(Bottom view)

## 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 | $V_{CEO}$ | | –20 | V |
| Emitter-to-Base Voltage | $V_{EBO}$ | | –3 | V |
| Collector Current | $I_C$ | | –300 | mA |
| Collector Current (Pulse) | $I_{CP}$ | | –600 | mA |
| Collector Dissipation | $P_C$ | Mounted on ceramic board (250mm²×0.8mm) 1 unit | 0.75 | W |
| Total 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 |

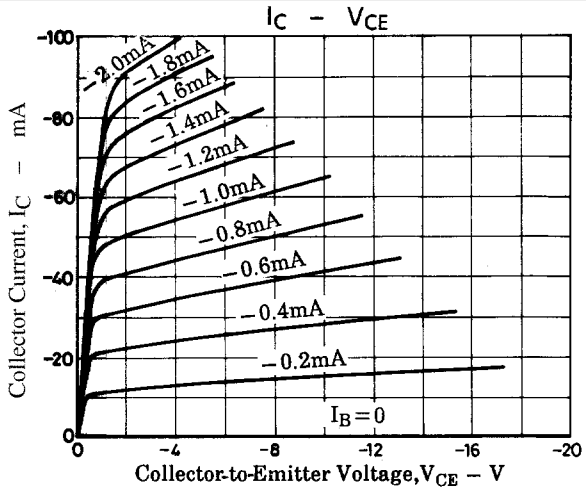
### Electrical Characteristics at Ta=25˚C

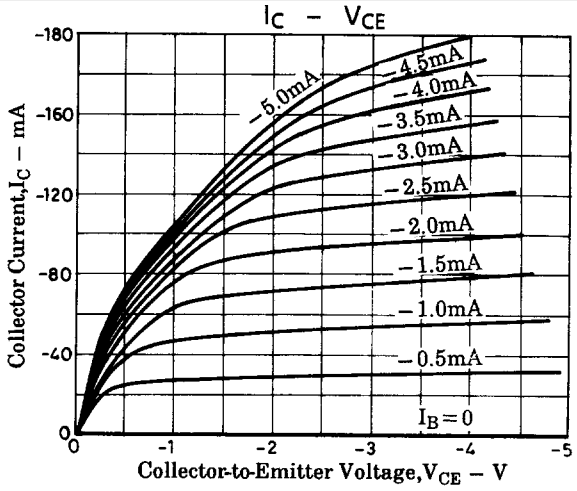
| Parameter | Symbol | Conditons | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=–20V, $I_E$=0 | | | –0.1 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=–2V, $I_C$=0 | | | –1.0 | μA |
| DC Current Gain | $h_{FE}1$ | $V_{CE}$=–5V, $I_C$=–50mA | 15 | | 100 | |
| | $h_{FE}2$ | $V_{CE}$=–5V, $I_C$=–3000mA | 5 | | | |
| DC Current Gain Ratio | $h_{FE}1$ (small-large) | $V_{CE}$=–5V, $I_C$=–50mA | 0.6 | 0.93 | | |
| Base-to-Emitter Voltage Difference | $V_{BE}$ (large-small) | $V_{CE}$=–5V, $I_C$=–100mA | | 3.0 | 25 | mV |
| Gain-Bandwidth Product | $f_T$ | $V_{CE}$=–5V, $I_C$=–50mA | | 1.5 | | GHz |
| Output Capacitance | Cob | $V_{CB}$=–10V, f=1MHz | | 4.9 | | pF |
| Reverse Transfer Capacitance | Cre | $V_{CB}$=–10V, f=1MHz | | 4.4 | | pF |
| C-E Saturation Voltage | $V_{CE(sat)}$ | $I_C$=–100mA, $I_B$=–10mA | | –0.4 | –1.0 | V |
| B-E Saturation Voltage | $V_{BE(sat)}$ | $I_C$=–100mA, $I_B$=–10mA | | –0.9 | –1.2 | V |

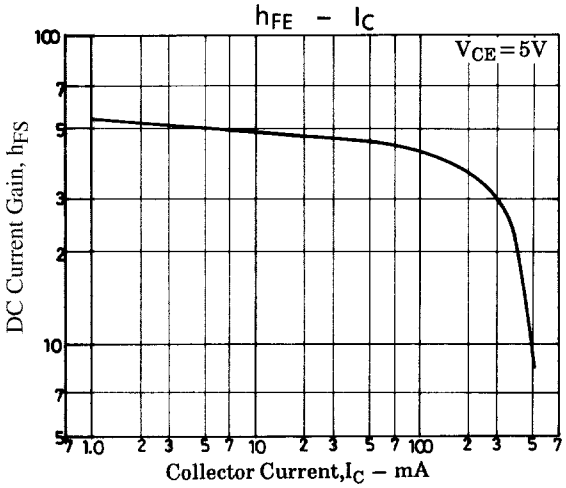
Note:The specifications shown above are for individual transistor.

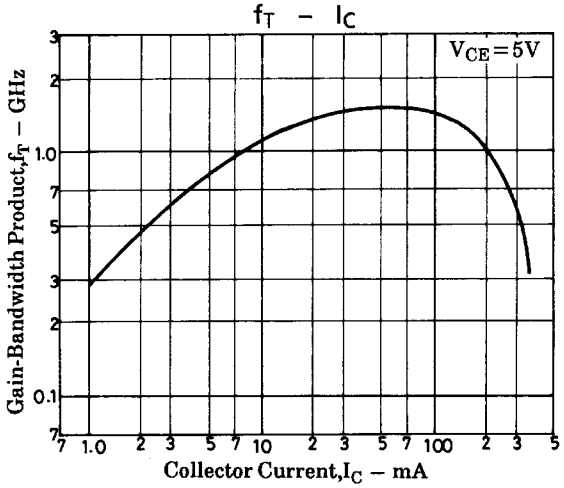
However, the DC Current Gain Ratio and Base-to-Emitter Voltage Difference are for the paired transistors.

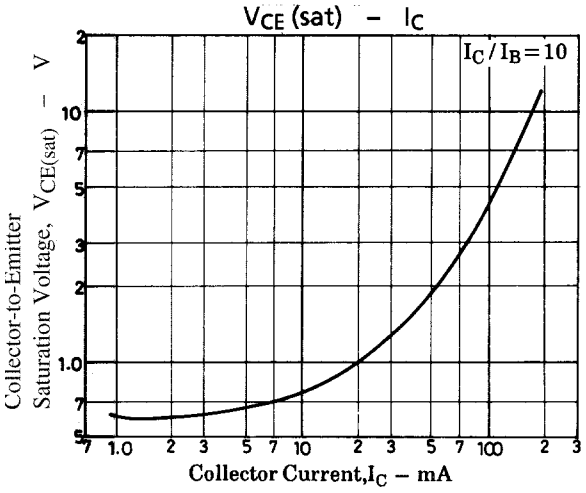
Marking:215

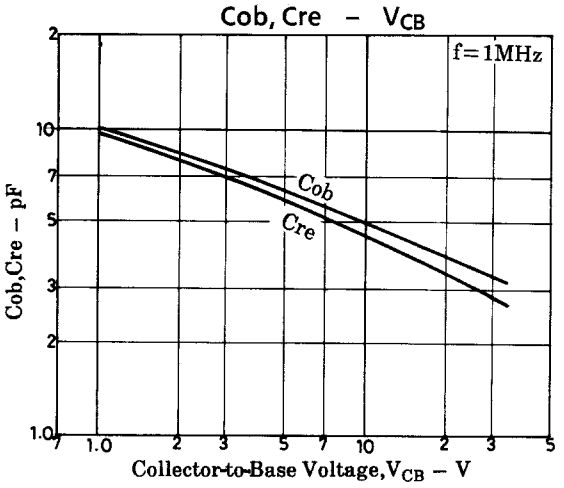

IC – VCE
Collector Current, IC – mA
Collector-to-Emitter Voltage, VCE – V
–2.0mA
–1.8mA
–1.6mA
–1.4mA
–1.2mA
–1.0mA
–0.8mA
–0.6mA
–0.4mA
–0.2mA
IB=0

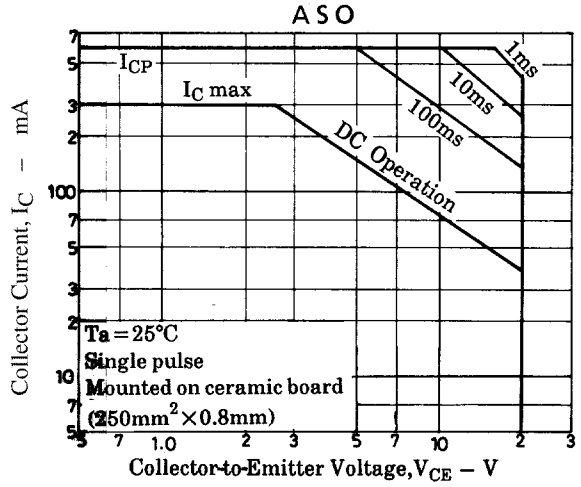

IC – VCE
Collector Current, IC – mA
Collector-to-Emitter Voltage, VCE – V
–5.0mA
–4.5mA
–4.0mA
–3.5mA
–3.0mA
–2.5mA
–2.0mA
–1.5mA
–1.0mA
–0.5mA
IB=0

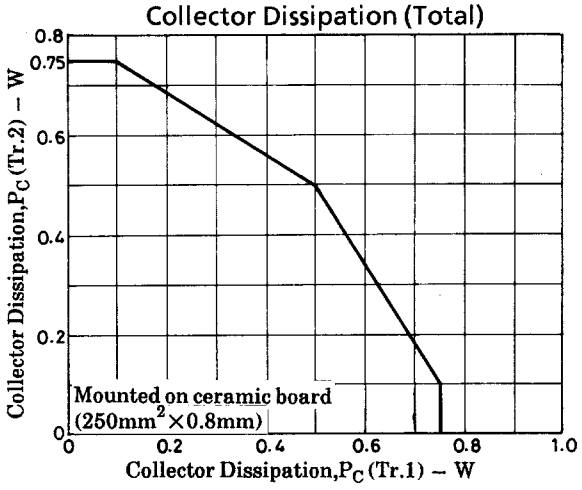

hFE – IC
DC Current Gain, hFE
Collector Current, IC – mA
VCE=5V


fT – IC
Gain-Bandwidth Product, fT – GHz
Collector Current, IC – mA
VCE=5V


VCE (sat) – IC
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
IC / IB=10


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


ASO
Collector Current, IC – mA
Collector-to-Emitter Voltage, VCE – V
ICP
IC max
1ms
10ms
100ms
DC Operation
Ta=25°C
Single pulse
Mounted on ceramic board
(250mm2×0.8mm)


Collector Dissipation (Total)
Collector Dissipation, PC (Tr.2) – W
Collector Dissipation, PC (Tr.1) – W
Mounted on ceramic board
(250mm2×0.8mm)