Ordering number : ENA1836

SANYO Semiconductors
DATA SHEET

# PCP1208 — NPN Epitaxial Planar Silicon Transistor
# LED Back Light

## Features

- $V_{CEO}$=200V, $I_C$=0.7A
- High allowable power dissipation
- Halogen free compliance
- Low collector-to-emitter saturation voltage $V_{CE}$(sat)=0.115V(typ.)@$I_C$=0.35A
- High-speed switching $t_f$=70ns(typ.)@$I_C$=0.3A

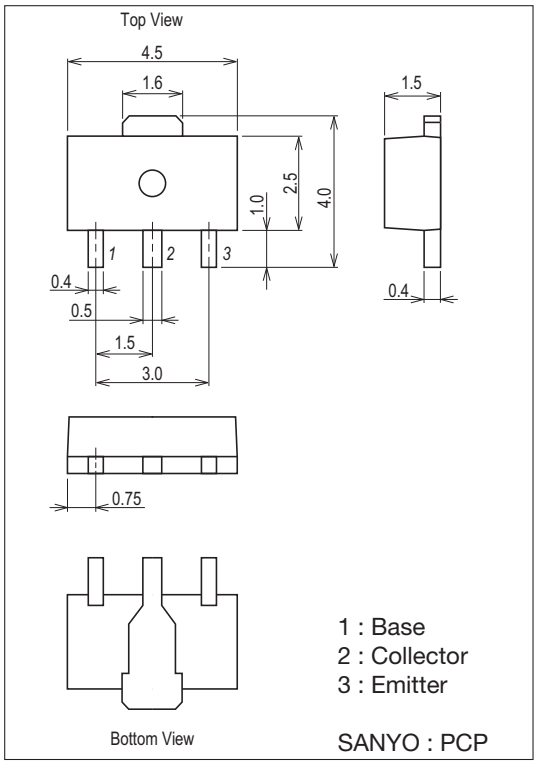
## Specifications

### Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Collector-to-Base Voltage | $V_{CBO}$ | | 220 | V |
| Collector-to-Emitter Voltage | $V_{CEO}$ | | 200 | V |
| Emitter-to-Base Voltage | $V_{EBO}$ | | 8 | V |
| Collector Current | $I_C$ | | 0.7 | A |
| Collector Current (Pulse) | $I_{CP}$ | | 2 | A |
| Base Current | $I_B$ | | 140 | mA |
| Collector Dissipation | $P_C$ | When mounted on ceramic substrate (450mm$^2$×0.8mm) | 1.3 | W |
| | | Tc=25°C | 3.5 | W |
| Junction Temperature | Tj | | 150 | °C |
| Storage Temperature | Tstg | | -55 to +150 | °C |

### Package Dimensions

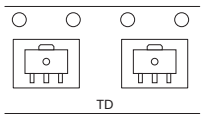
unit : mm (typ)
7007B-004



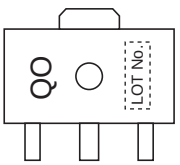

### Product & Package Information

- Package : PCP
- JEITA, JEDEC : SC-62, SOT-89, TO-243
- Minimum Packing Quantity : 1000 pcs./reel

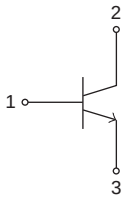
### Packing Type : TD




### Marking



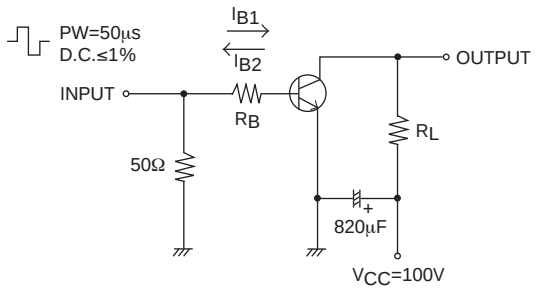

### Electrical Connection



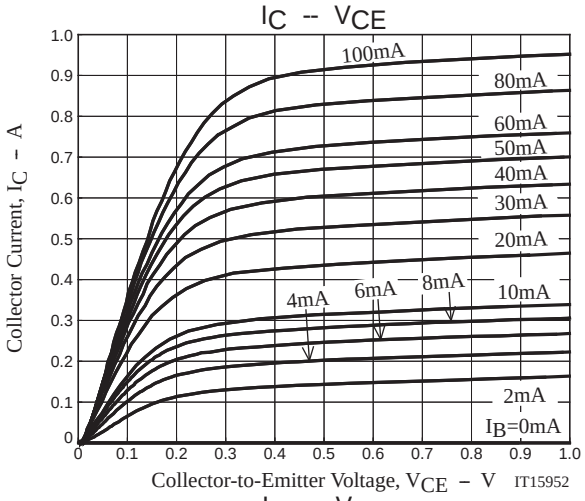
## Electrical Characteristics at Ta=25°C

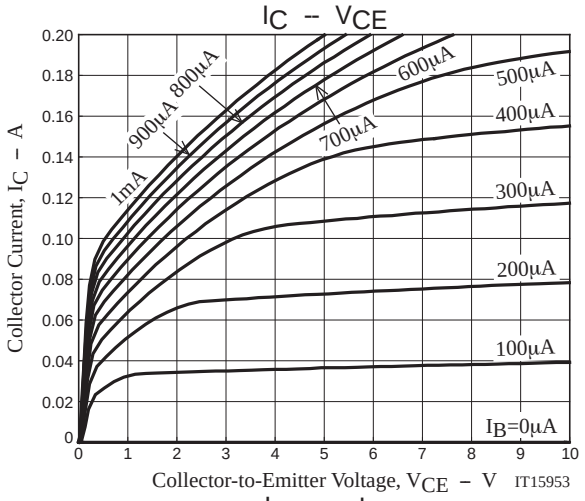
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=100V, $I_E$=0A | | | 1 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=4V, $I_C$=0A | | | 1 | μA |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=5V, $I_C$=100mA | 200 | | 560 | |
| Gain-Bandwidth Product | $f_T$ | $V_{CE}$=10V, $I_C$=100mA | | 120 | | MHz |
| Output Capacitance | Cob | $V_{CB}$=10V, f=1MHz | | 9 | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE}$(sat) | $I_C$=0.35A, $I_B$=35mA | | 115 | 200 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE}$(sat) | $I_C$=0.35A, $I_B$=35mA | | 0.82 | 1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$=10μA, $I_E$=0A | 220 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$=1mA, $R_{BE}$=∞ | 200 | | | V |
| Emitter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$=10μA, $I_C$=0A | 8 | | | V |
| Turn-On Time | $t_{on}$ | See specified Test Circuit. | | 50 | | ns |
| Storage Time | $t_{stg}$ | See specified Test Circuit. | | 2 | | μs |
| Fall Time | $t_f$ | See specified Test Circuit. | | 70 | | ns |

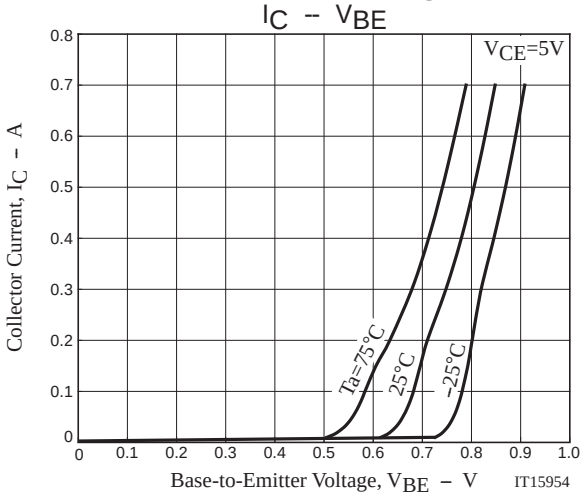
## Switching Time Test Circuit

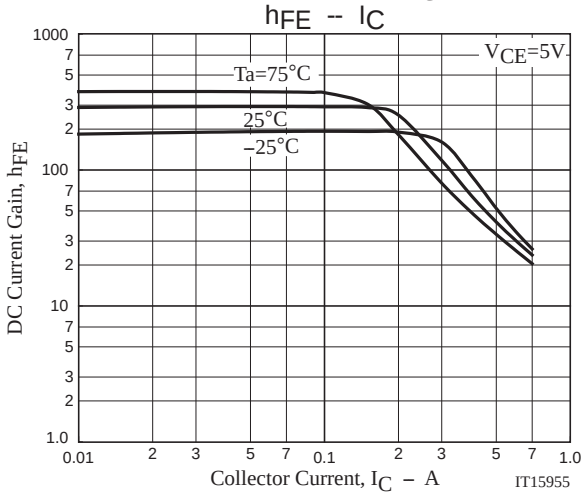


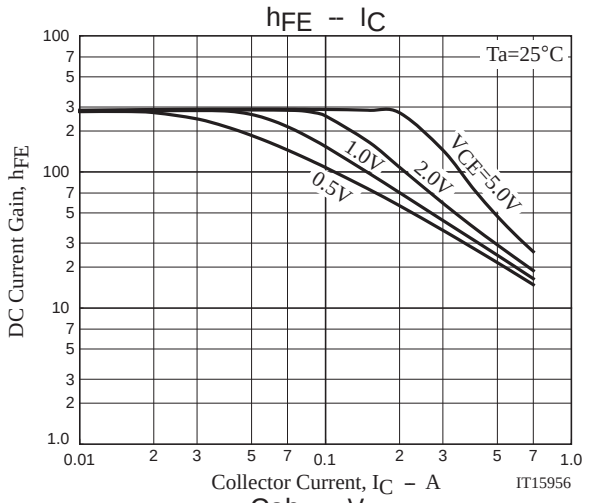

$I_C$=10$I_{B1}$= −10$I_{B2}$=0.3A

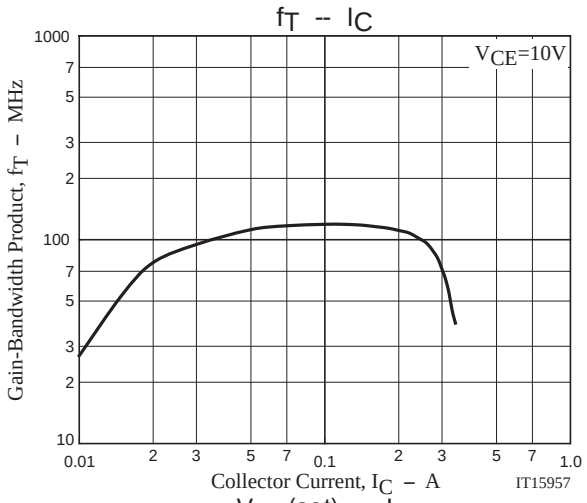


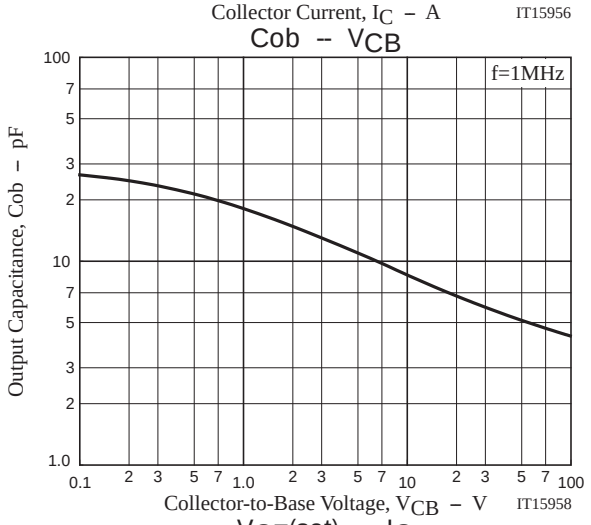



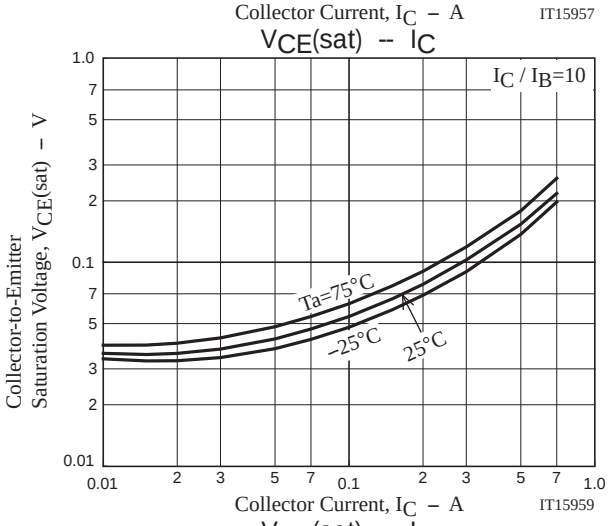



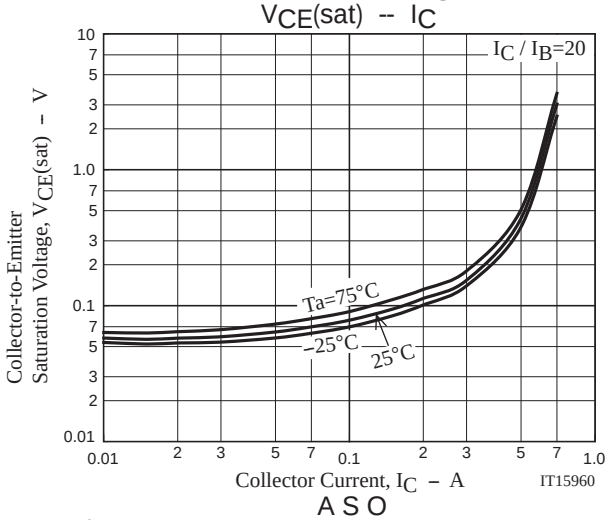



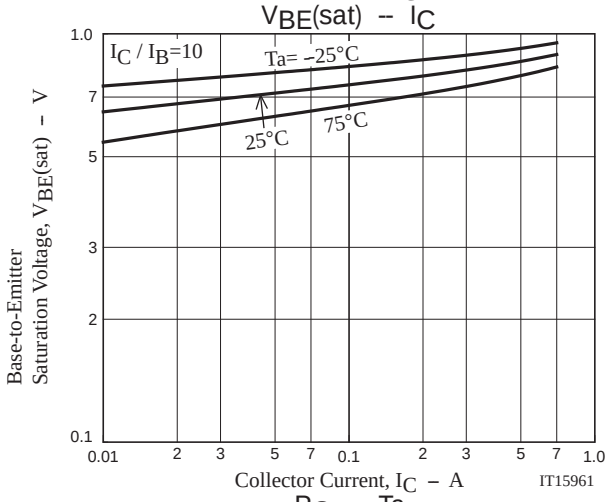

hFE -- IC
Ta=25°C
VCE=5.0V
2.0V
1.0V
0.5V
DC Current Gain, hFE
Collector Current, IC – A
IT15956

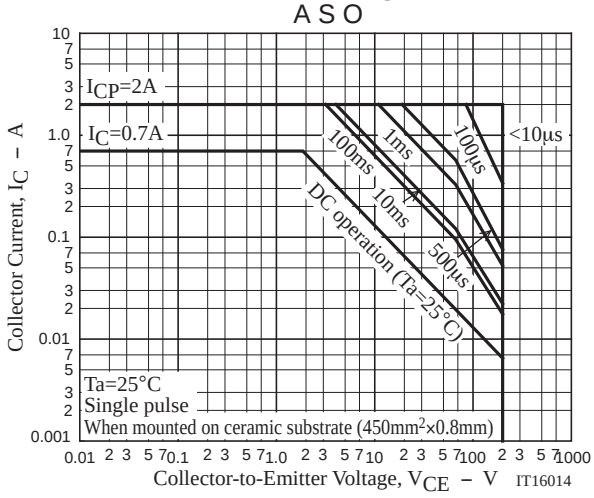

fT -- IC
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT15957

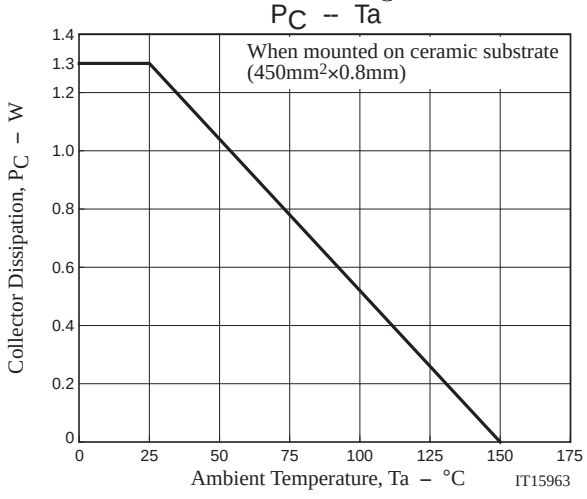

Cob -- VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT15958


VCE(sat) -- IC
IC / IB=10
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT15959


VCE(sat) -- IC
IC / IB=20
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT15960


VBE(sat) -- IC
IC / IB=10
Ta= –25°C
25°C
75°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT15961


A S O
ICP=2A
IC=0.7A
100ms
1ms
100µs
<10µs
10ms
DC operation (Ta=25°C)
500µs
Ta=25°C
Single pulse
When mounted on ceramic substrate (450mm²×0.8mm)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT16014


PC -- Ta
When mounted on ceramic substrate
(450mm²×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT15963

This catalog provides information as of January, 2011. Specifications and information herein are subject to change without notice.