

**DESCRIPTION**

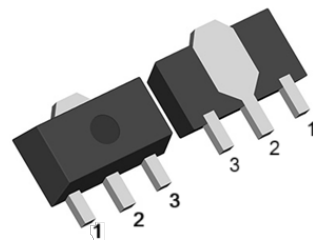
The 2SA1203-O & 2SA1203-Y is available in SOT-89 package.

**FEATURE**

- Suitable for Output Stage of 3 Watts Amplifier
- Small Flat Package
- $P_C = 1$  to 2W (mounted on ceramic substrate)
- Complementary to 2SC2883

**ORDERING INFORMATION**

| Package Type                             | Part Number   |
|------------------------------------------|---------------|
| SOT-89                                   | 2SA1203-O     |
|                                          | 2SA1203-Y     |
| SPQ                                      | 1,000pcs/Reel |
| AiT provides all RoHS Compliant Products |               |

**PIN DESCRIPTION**

SOT-89

 **$h_{FE}$  CLASSIFICATION**

| Rank | Range     |
|------|-----------|
| O    | 100 ~ 200 |
| Y    | 160 ~ 320 |

| PIN# | DESCRIPTION |
|------|-------------|
| 1    | Base        |
| 2    | Collector   |
| 3    | Emitter     |

**ABSOLUTE MAXIMUM RATINGS**

$T_A = 25^\circ\text{C}$ , unless otherwise specified.

|                                           |                             |
|-------------------------------------------|-----------------------------|
| $V_{CBO}$ , Collector-Base Voltage        | -30 V                       |
| $V_{CEO}$ , Collector-Emitter Voltage     | -30 V                       |
| $V_{EBO}$ , Emitter-Base Voltage          | -5 V                        |
| $I_C$ , Collector Current                 | -1.5 A                      |
| $I_B$ , Base Current                      | -0.3 A                      |
| $P_C$ , Collector Power Dissipation       | 500 mW                      |
| $P_C^{(1)}$ , Collector Power Dissipation | 1000 mW                     |
| $T_J$ , Junction Temperature              | 150 $^\circ\text{C}$        |
| $T_{stg}$ , Storage Temperature Range     | -55 ~ +150 $^\circ\text{C}$ |

(1) Mounted on ceramic substrate (250 mm<sup>2</sup> x 0.8 t)

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



## ELECTRICAL CHARACTERISTICS

$T_A=25^{\circ}\text{C}$  unless otherwise specified.

| Parameter                            | Symbols       | Conditions                                                  | Min. | Typ. | Max. | Unit          |
|--------------------------------------|---------------|-------------------------------------------------------------|------|------|------|---------------|
| Collector Cut-off Current            | $I_{CBO}$     | $V_{CB} = -30\text{ V}, I_E = 0$                            | -    | -    | -0.1 | $\mu\text{A}$ |
| Emitter Cut-off Current              | $I_{EBO}$     | $V_{EB} = -5\text{ V}, I_C = 0$                             | -    | -    | -0.1 | $\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = -10\text{ mA}, I_B = 0$                              | -30  | -    | -    | V             |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$ | $I_E = -1\text{ mA}, I_C = 0$                               | -5   | -    | -    | V             |
| DC Current Gain                      | $h_{FE}$      | $V_{CE} = -2\text{ V},$<br>$I_C = -500\text{ mA}$           | 100  | -    | 320  | -             |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = -1.5\text{ A},$<br>$I_B = -0.03\text{ A},$           | -    | -    | -2   | V             |
| Base-Emitter Voltage                 | $V_{BE}$      | $V_{CE} = -2\text{ V},$<br>$I_C = -500\text{ mA}$           | -    | -    | -1   | V             |
| Transition Frequency                 | $f_T$         | $V_{CE} = -2\text{ V},$<br>$I_C = -500\text{ mA}$           | -    | 120  | -    | MHz           |
| Collector Output Capacitance         | $C_{ob}$      | $V_{CB} = -10\text{ V},$<br>$I_E = 0$<br>$f = 1\text{ MHz}$ | -    | -    | 50   | pF            |



## TYPICAL CHARACTERISTICS

Fig 1.  $I_C - V_{CE}$

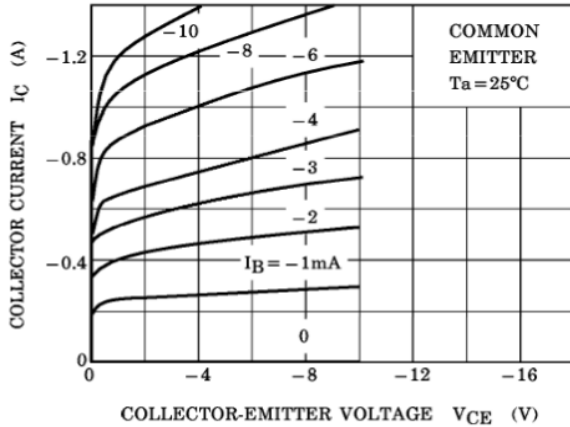


Fig 2.  $h_{FE} - I_C$

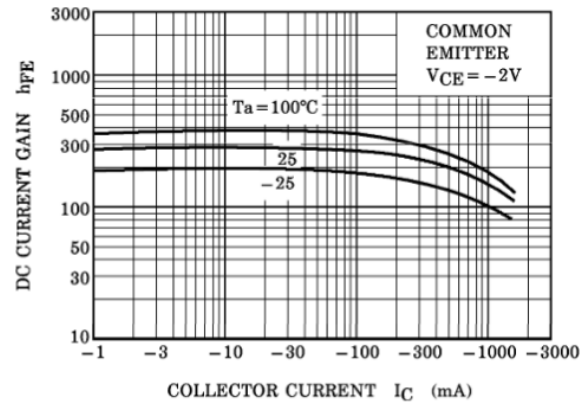


Fig 3.  $V_{CE(sat)} - I_C$

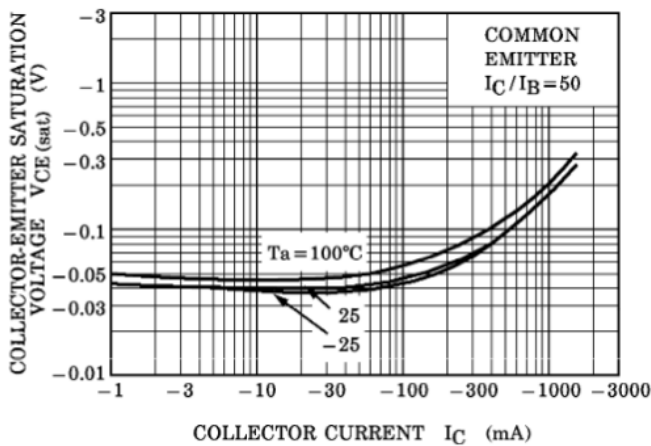


Fig 4.  $I_C - V_{BE}$

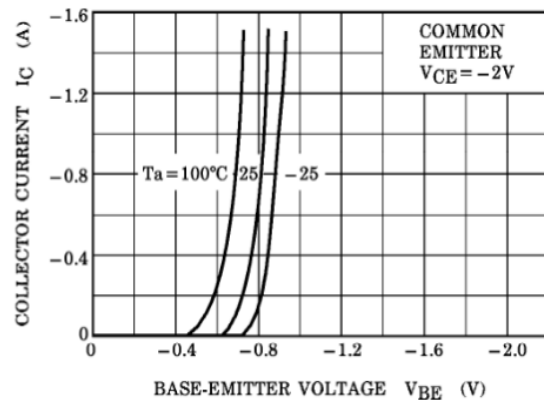


Fig 5. SAFE OPERATING AREA

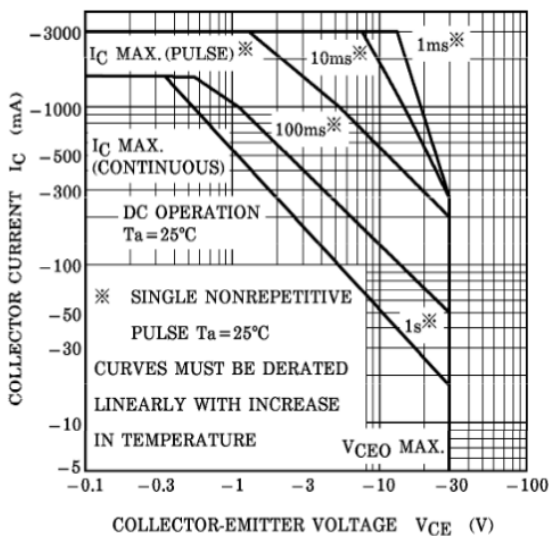
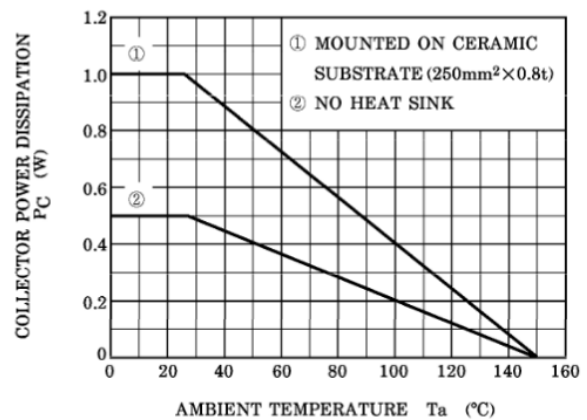


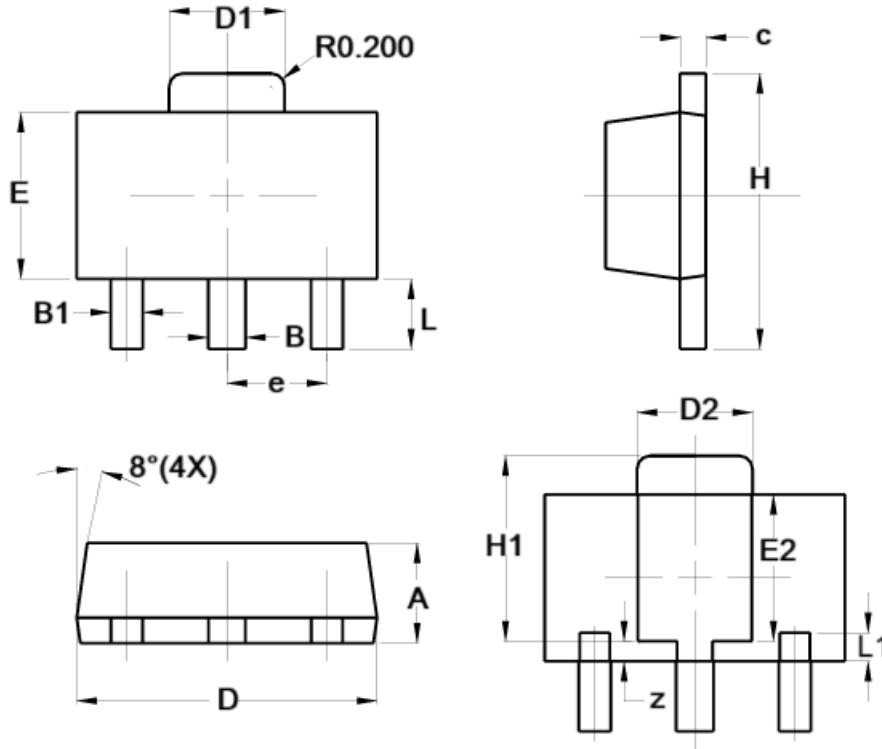
Fig 6.  $P_C - T_a$





## PACKAGE INFORMATION

Dimension in SOT-89 (Unit: mm)



| Symbol | Millimeter |       |
|--------|------------|-------|
|        | Min.       | Max.  |
| A      | 1.400      | 1.600 |
| B      | 0.500      | 0.620 |
| B1     | 0.420      | 0.540 |
| c      | 0.350      | 0.430 |
| D      | 4.440      | 4.600 |
| D1     | 1.620      | 1.830 |
| D2     | 1.610      | 1.810 |
| E      | 2.400      | 2.600 |
| E2     | 2.050      | 2.350 |
| e      | 1.500 TYP. |       |
| H      | 3.950      | 4.250 |
| H1     | 2.630      | 2.930 |
| L      | 0.900      | 1.200 |
| L1     | 0.327      | 0.527 |
| z      | 0.200      | 0.400 |



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