

Bipolar Transistor

(-)50 V, (-)2 A, Low VCE(sat),
(PNP)NPN Single PCP

2SB1123/2SD1623

特長

- FBET, MBIT プロセス採用
- 電流容量が大きく ASO が広い
- 超小型でハイブリット IC 用として高密度化, 小型化が容易である
- コレクタ・エミッタ飽和電圧が低い
- スイッチングタイムが速い
- 超小型でハイブリット IC 用として高密度化, 小型化が容易である
- These are Pb-Free Devices

用途

- 電源, リレードライバ, ランプドライバ, 電装用

絶対最大定格 ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

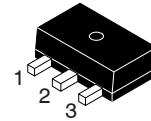
| 項目 | 記号 | 条件 | 定格値 | Unit |
|--------------|------------------|--|----------|------|
| コレクタ・ベース電圧 | V _{CBO} | | (-)60 | V |
| コレクタ・エミッタ電圧 | V _{CEO} | | (-)50 | V |
| エミッタ・ベース電圧 | V _{EBO} | | (-)6 | V |
| コレクタ電流 | I _C | | (-)2 | A |
| コレクタ電流 (パルス) | I _{CP} | | (-)4 | A |
| コレクタ損失 | P _C | | 0.5 | W |
| | | セラミック基板 (250 mm ² x 0.8 mm) 装着時 | 1.3 | W |
| 接合部温度 | T _j | | 150 | °C |
| 保存周囲温度 | T _{stg} | | -55~+150 | °C |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

(参考訳)

最大定格を超えるストレスは、デバイスにダメージを与える危険性があります。これらの定格値を超えた場合は、デバイスの機能性を損ない、ダメージが生じ、信頼性に影響を及ぼす危険性があります。

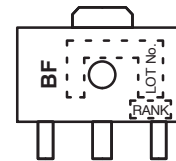
NOTE: ()内は 2SB1123 の場合を示す。



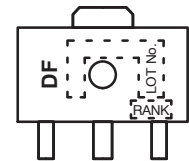
- 1: Base
- 2: Collector
- 3: Emitter

SOT-89 / PCP-1
CASE 419AU

マーキング

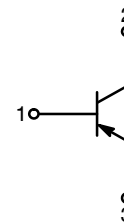


2SB1123

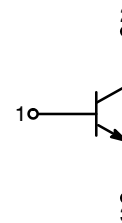


2SD1623

電氣的接続図



2SB1123



2SD1623

ORDERING INFORMATION

| Device | パッケージ名 | 最小梱包単位† |
|---------------|------------------|------------------------|
| 2SB1123S-TD-E | PCP (Pb-Free) | 1,000 / Tape & Reel |
| 2SB1123T-TD-E | PCP (Pb-Free) | 1,000 / Tape & Reel |
| 2SD1623S-TD-E | PCP (Pb-Free) | 1,000 / Tape & Reel |
| 2SD1623T-TD-E | PCP (Pb-Free) | 1,000 / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

2SB1123/2SD1623

電氣的特性 ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| 項目 | 記号 | 条件 | 定格値 | | | Unit |
|---------------|---------------|--|-------|------------|-----------|------|
| | | | Min | Typ | Max | |
| コレクタしゃ断電流 | I_{CBO} | $V_{CB} = (-)50\text{ V}, I_E = 0\text{ A}$ | - | - | (-)100 | nA |
| エミッタしゃ断電流 | I_{EBO} | $V_{EB} = (-)4\text{ V}, I_C = 0\text{ A}$ | - | - | (-)100 | nA |
| 直流電流増幅率 | h_{FE1} | $V_{CE} = (-)2\text{ V}, I_C = (-)100\text{ mA}$ | 90※ | - | 270※ | - |
| | h_{FE2} | $V_{CE} = (-)2\text{ V}, I_C = (-)1.5\text{ A}$ | 40 | - | - | - |
| 利得帯域幅積 | f_T | $V_{CE} = (-)10\text{ V}, I_C = (-)50\text{ mA}$ | - | 150 | - | MHz |
| 出力容量 | C_{ob} | $V_{CB} = (-)10\text{ V}, f = 1\text{ MHz}$ | - | (22)12 | - | pF |
| コレクタ・エミッタ飽和電圧 | $V_{CE(sat)}$ | $I_C = (-)1\text{ A}, I_B = (-)50\text{ mA}$ | - | (-0.3)0.15 | (-0.7)0.4 | V |
| ベース・エミッタ飽和電圧 | $V_{BE(sat)}$ | $I_C = (-)1\text{ A}, I_B = (-)50\text{ mA}$ | - | (-)0.9 | (-)1.2 | V |
| コレクタ・ベース降伏電圧 | $V_{(BR)CBO}$ | $I_C = (-)10\text{ }\mu\text{A}, I_E = 0\text{ A}$ | (-)60 | - | - | V |
| コレクタ・エミッタ降伏電圧 | $V_{(BR)CEO}$ | $I_C = (-)1\text{ mA}, R_{BE} = \infty$ | (-)50 | - | - | V |
| エミッタ・ベース降伏電圧 | $V_{(BR)EBO}$ | $I_E = (-)10\text{ }\mu\text{A}, I_C = 0\text{ A}$ | (-)6 | - | - | V |
| ターンオン時間 | t_{on} | 指定回路において | - | (60)60 | - | ns |
| 蓄積時間 | t_{stg} | | - | (450)550 | - | ns |
| 下降時間 | t_f | | - | (30)30 | - | ns |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

(参考訳)

製品パラメータは、特別な記述が無い限り、記載されたテスト条件に対する電氣的特性で示しています。異なる条件下で製品動作を行った時には、電氣的特性で示している特性を得られない場合があります。

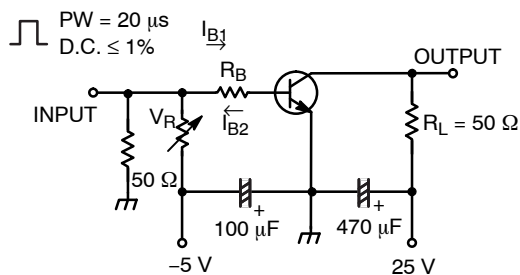
NOTE: ()内は 2SB1123 の場合を示す。

※ 2SB1123 / 2SD1623 は 100 mA h_{FE} により次のように分類している。

Table 1.

| ランク | R | S | T | U |
|----------|------------|------------|------------|------------|
| h_{FE} | 100 to 200 | 140 to 280 | 200 to 400 | 280 to 560 |

スイッチングタイム測定回路図



$I_C = 10\text{ I}_{B1} = -10\text{ I}_{B2} = 500\text{ mA}$
(PNPの場合極性逆)

2SB1123/2SD1623

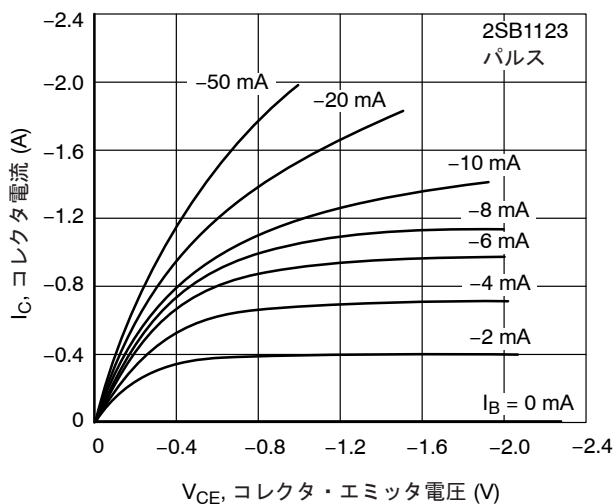


Figure 1. $I_C - V_{CE}$

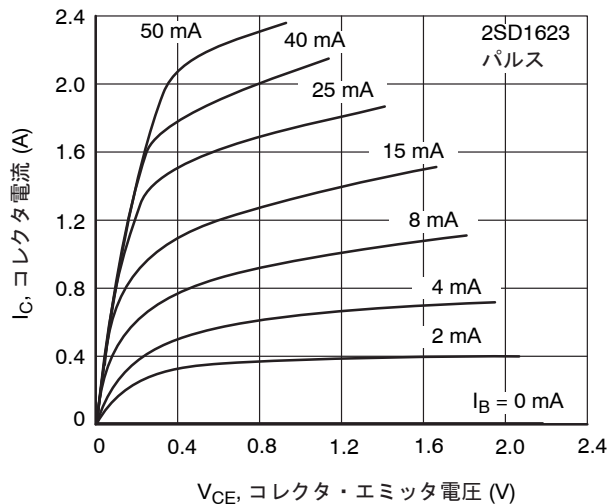


Figure 2. $I_C - V_{CE}$

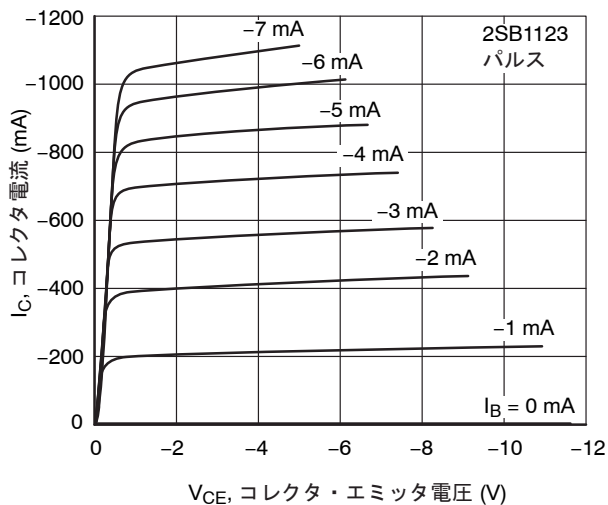


Figure 3. $I_C - V_{CE}$

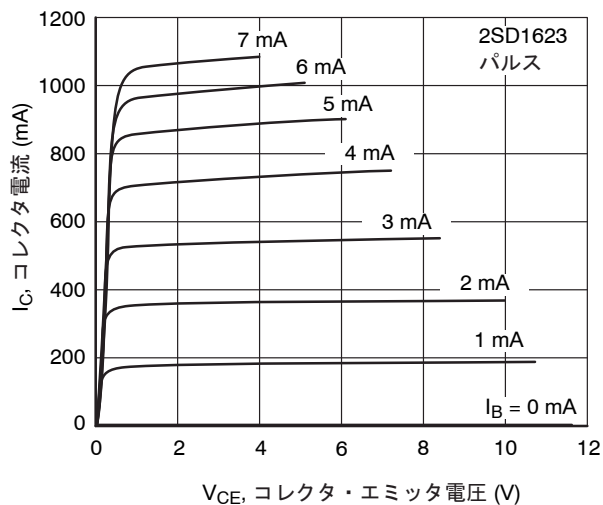


Figure 4. $I_C - V_{CE}$

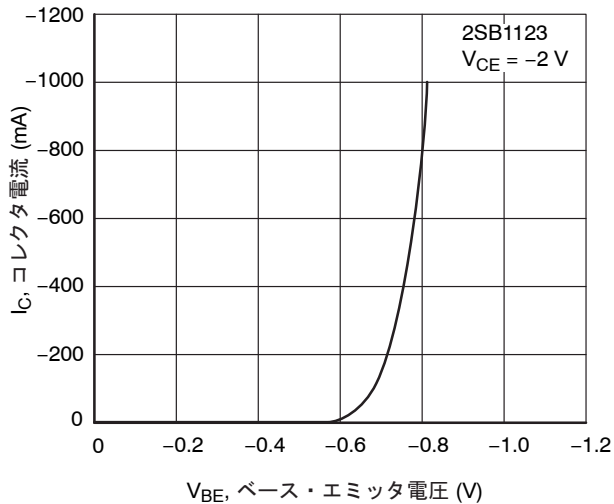


Figure 5. $I_C - V_{BE}$

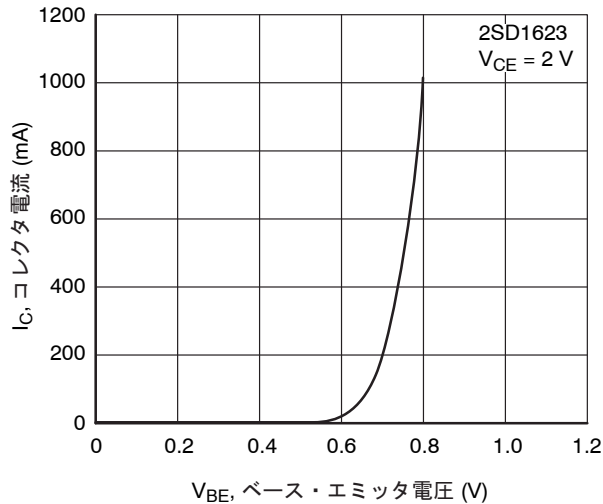
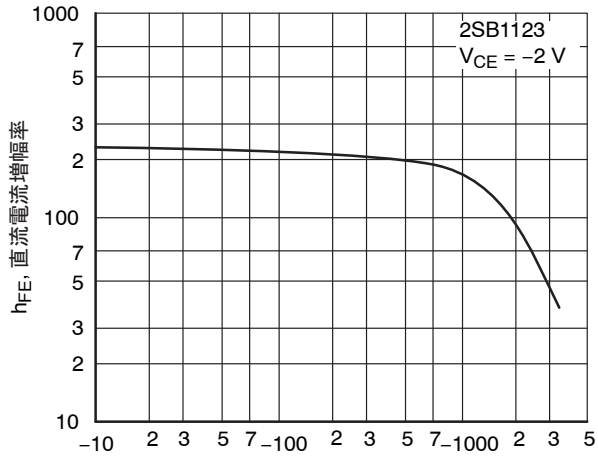


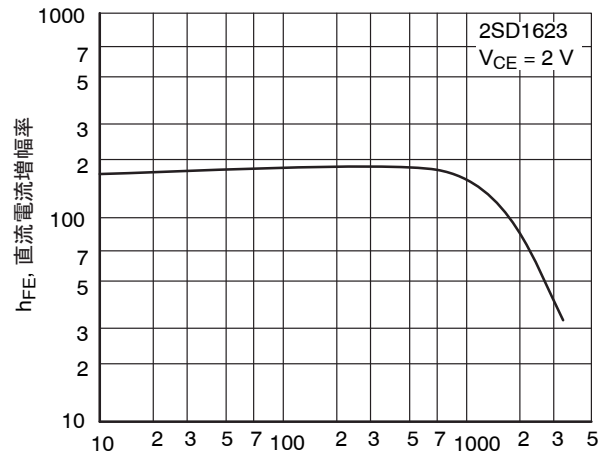
Figure 6. $I_C - V_{BE}$

2SB1123/2SD1623



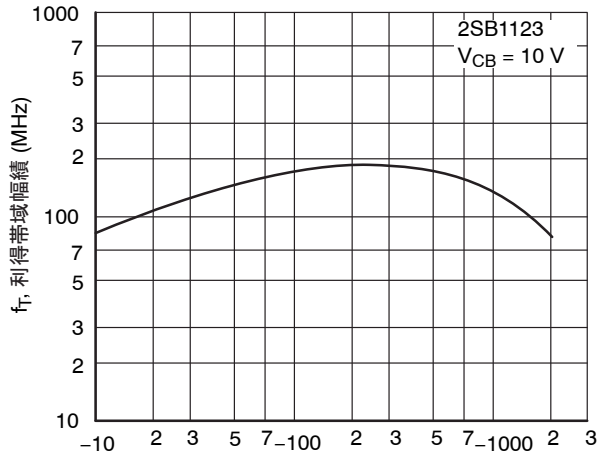
I_C , コレクタ電流 (mA)

Figure 7. $h_{FE} - I_C$



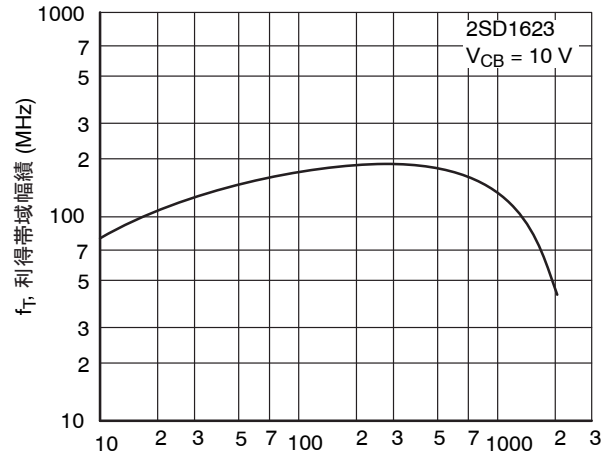
I_C , コレクタ電流 (mA)

Figure 8. $h_{FE} - I_C$



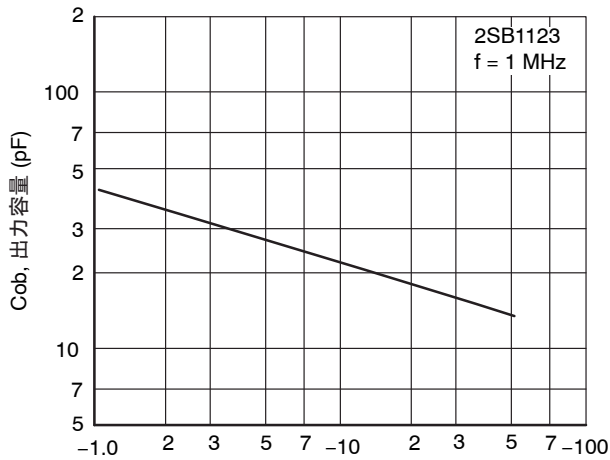
I_C , コレクタ電流 (mA)

Figure 9. $f_T - I_C$



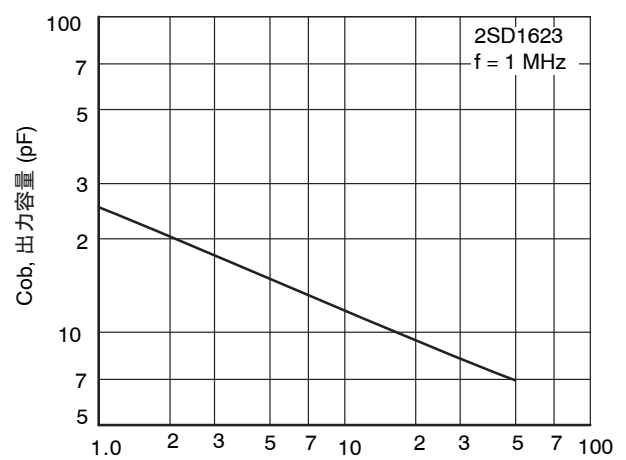
I_C , コレクタ電流 (mA)

Figure 10. $f_T - I_C$



V_{CB} , コレクタ・ベース電圧 (V)

Figure 11. $C_{ob} - V_{CB}$



V_{CB} , コレクタ・ベース電圧 (V)

Figure 12. $C_{ob} - V_{CB}$

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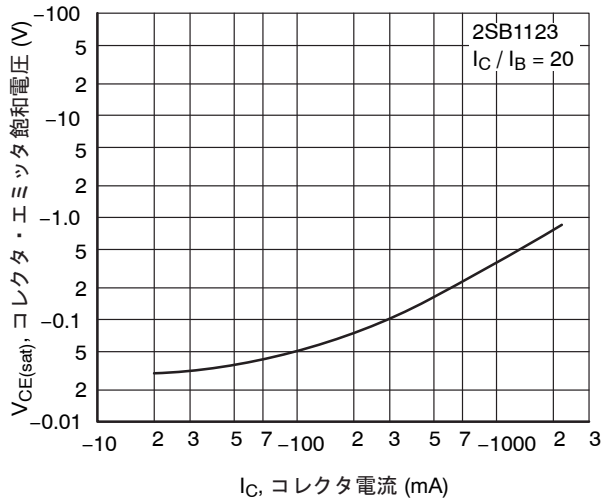


Figure 13. $V_{CE(sat)} - I_C$

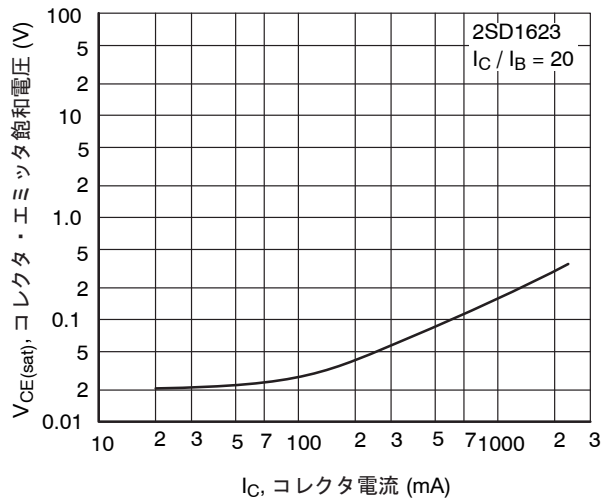


Figure 14. $V_{CE(Sat)} - I_C$

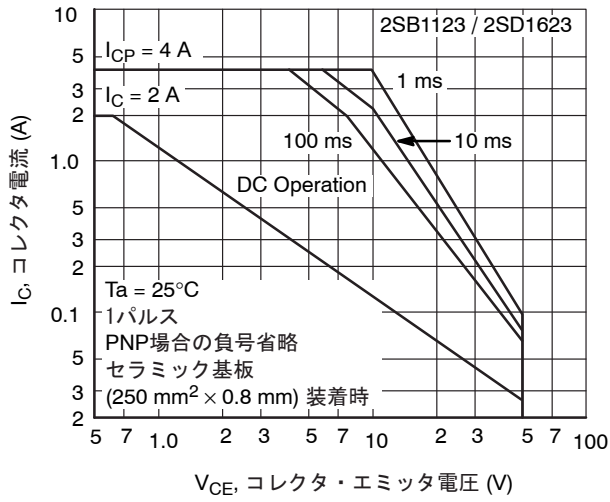


Figure 15. ASO

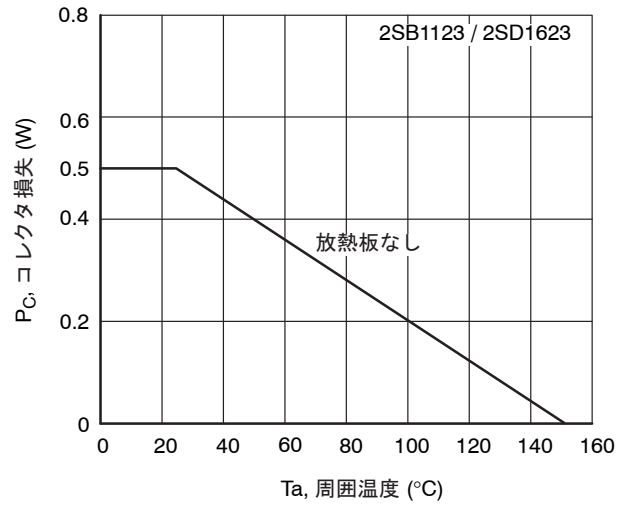


Figure 16. $P_C - T_a$

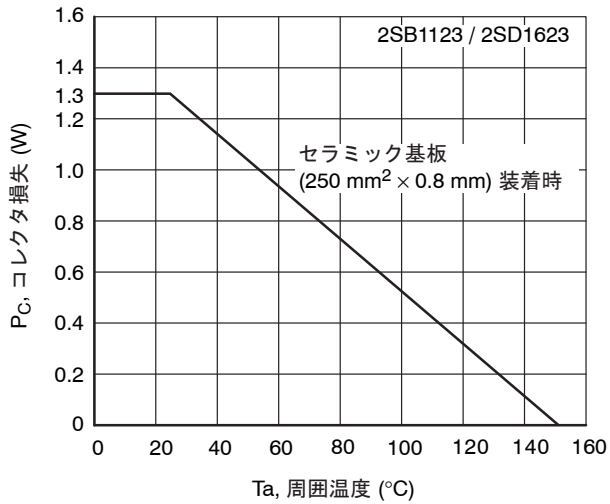
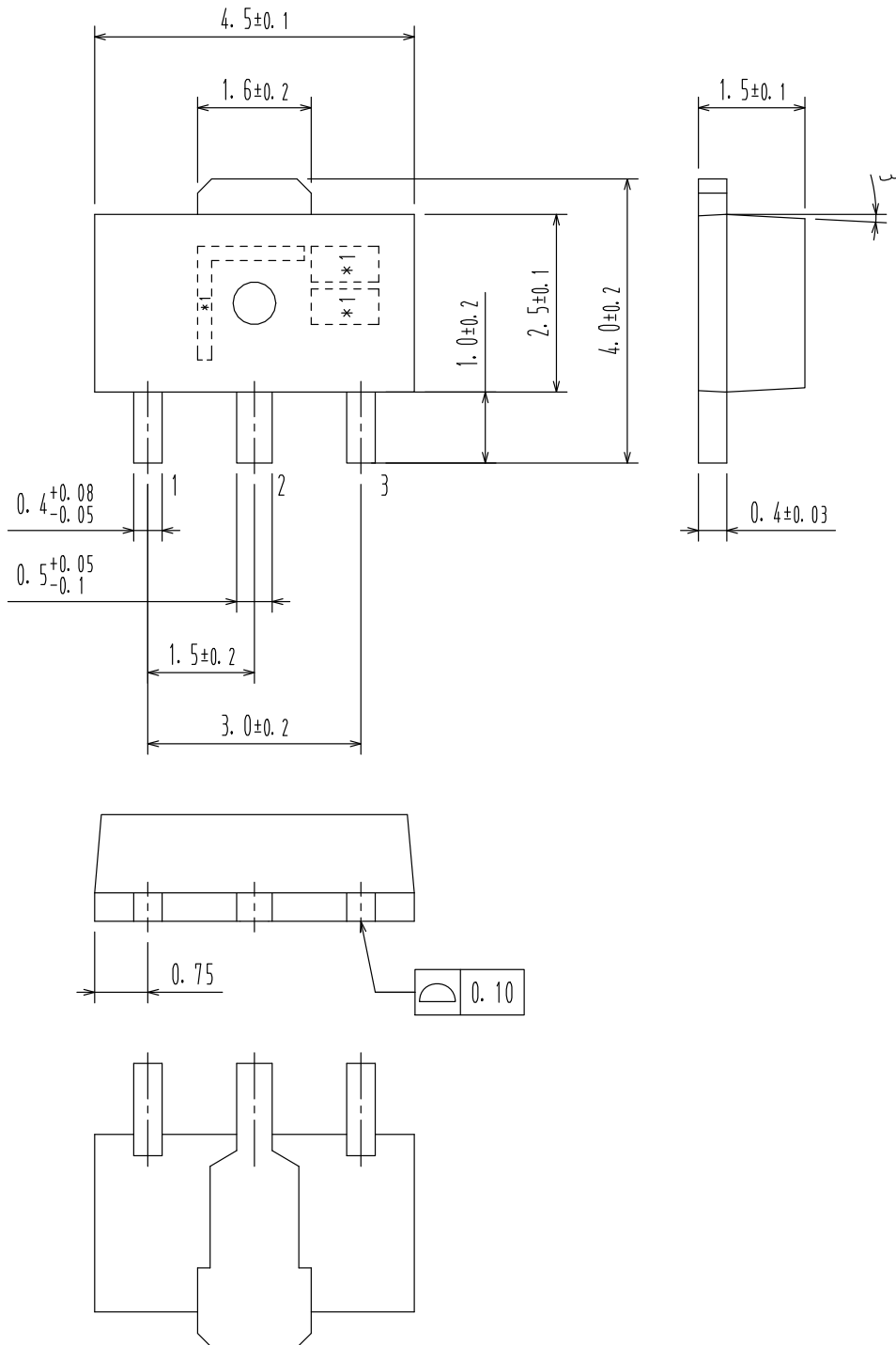


Figure 17. $P_C - T_a$

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

SOT-89 / PCP-1
CASE 419AU
ISSUE 0

DATE 30 APR 2012



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