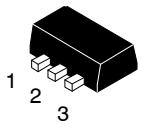
Bipolar Transistor

–20 V, –5 A, Low V_{CE}(sat), PNP Single PCP

2SB1302



SOT−89 / PCP−1
CASE 419AU

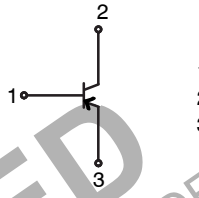
特長

- FBET, MBIT プロセス採用
- 電流容量が大きい
- 小型でハイブリッド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
- スイッチングスピードが速い
- These Devices are Pb−Free and are RoHS Compliant

用途

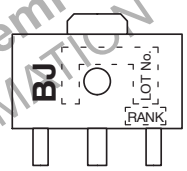
- DC−DC コンバータ,モータドライバ,リレードライバ,
  ランプドライバ

電気的接続図



1: Base
2: Collector
3: Emitter

マーキング



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

項目	記号	定格値	Unit
コレクタ・ベース電圧	V_{CBO}	−25	V
コレクタ・エミッタ電圧	V_{CEO}	−20	V
エミッタ・ベース電圧	V_{EBO}	−5	V
コレクタ電流	I_C	−5	A
コレクタ電流(パルス)	I_{CP}	−8	A
コレクタ損失 (注1)	P_C	1.3	W
接合部温度	T_j	150	°C
保存周囲温度	T_{STG}	−55 to +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。
1. セラミック基板 (250 mm^2 x 0.8 mm) 装着時

ORDERING INFORMATION

Device	パッケージ名	最小梱包単位†
2SB1302S−TD−E	PCP (Pb−Free)	1000 / Tape & Reel
2SB1302T−TD−E	PCP (Pb−Free)	1000 / 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.

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電気的特性 ELECTRICAL CHARACTERISTICS at T_A = 25°C

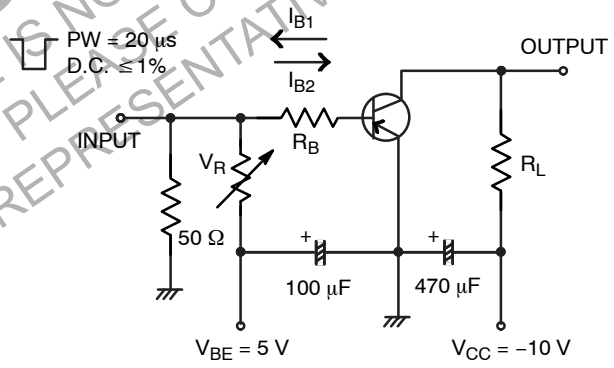
項目	記号	条件	定格値			Unit
			Min	Typ	Max	
コレクタしゃ断電流	I_{CBO}	V_{CB} = −20 V, I_E = 0 A			−500	nA
エミッタしゃ断電流	I_{EBO}	V_{EB} = −4V, I_C = 0 A			−500	nA
直流電流増幅率	$h_{FE}1$	V_{CE} = −2 V, I_C = −500 mA	140※		400※	
	$h_{FE}2$	V_{CE} = −2 V, I_C = −4 A	60			
利得帯域幅積	f_T	V_{CE} = −5 V, I_C = −200 mA		320		MHz
出力容量	Cob	V_{CB} = −10 V, f = 1 MHz		60		pF
コレクタ・エミッタ飽和電圧	V_{CE}(sat)	I_C = −3 A, I_B = −60 mA		−250	−500	mV
ベース・エミッタ飽和電圧	V_{BE}(sat)	I_C = −3 A, I_B = −60 mA		−1.0	−1.3	V
コレクタ・ベース降伏電圧	$V_{(BR)CBO}$	I_C = −10 μA, I_E = 0 A	−25			V
コレクタ・エミッタ降伏電圧	$V_{(BR)CEO}$	I_C = −1 mA, R_{BE} = ∞	−20			V
エミッタ・ベース降伏電圧	$V_{(BR)EBO}$	I_E = −10 μA, I_C = 0 A	−5			V
ターンオン時間	t_{on}	指定回路において		40		ns
蓄積時間	t_{stg}			200		ns
下降時間	t_f			10		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気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、電気的特性で示している特性を得られない場合があります。

※2SB1302 は 500 mA h_{FE} により次のように分類している。

ランク	S	T
h_{FE}	140 to 280	200 to 400

スイッチングタイム測定回路図



I_C = 10 I_{B1} = −10 I_{B2} = −2 A

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TYPICAL CHARACTERISTICS

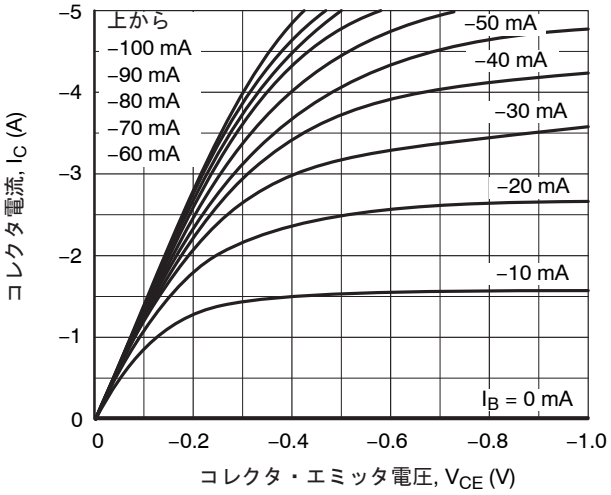

図 1. $I_C - V_{CE}$

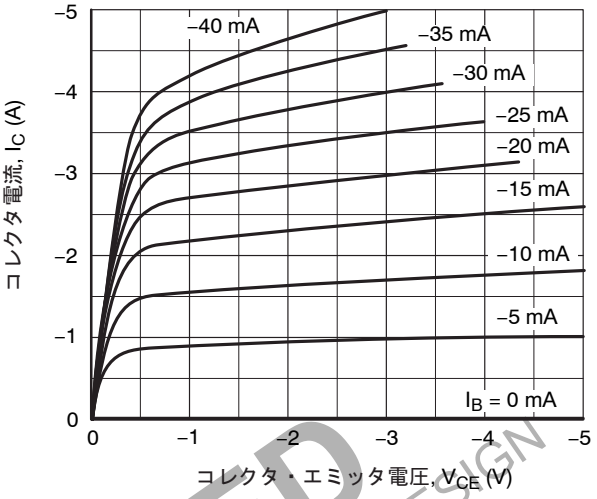

図 2. $I_C - V_{CE}$

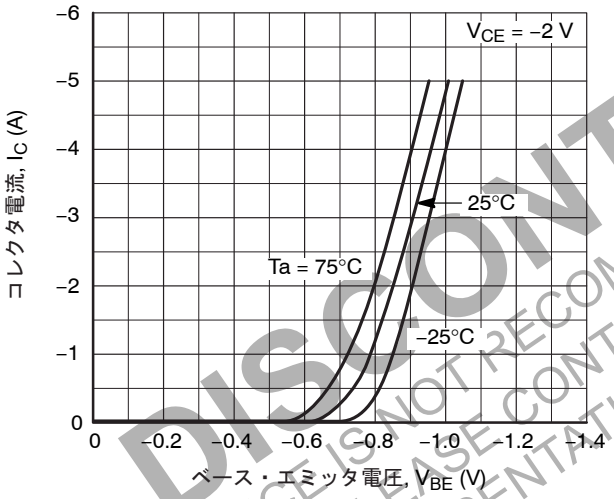

図 3. $I_C - V_{BE}$

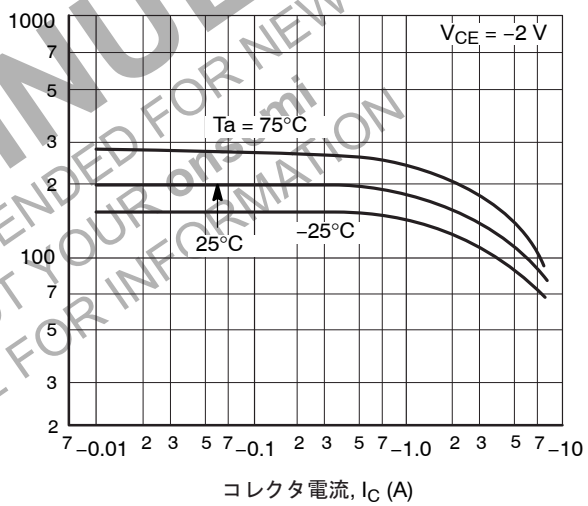

図 4. $h_{FE} - I_C$

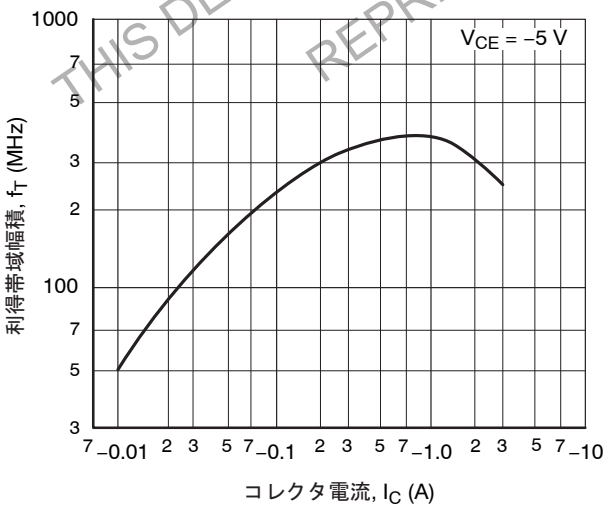

図 5. $f_T - I_C$

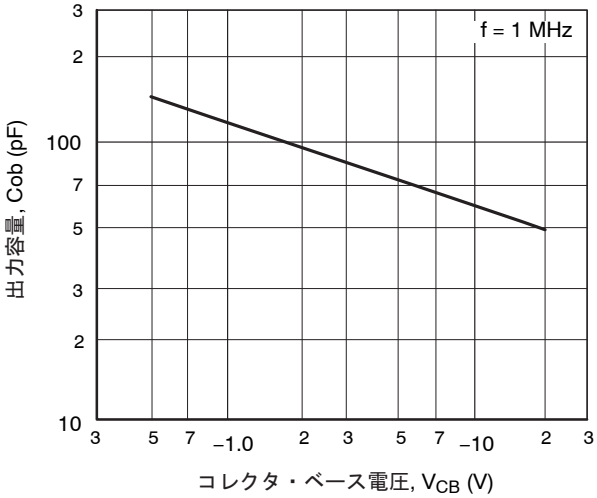

図 6. $Cob - V_{CB}$

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TYPICAL CHARACTERISTICS (continued)

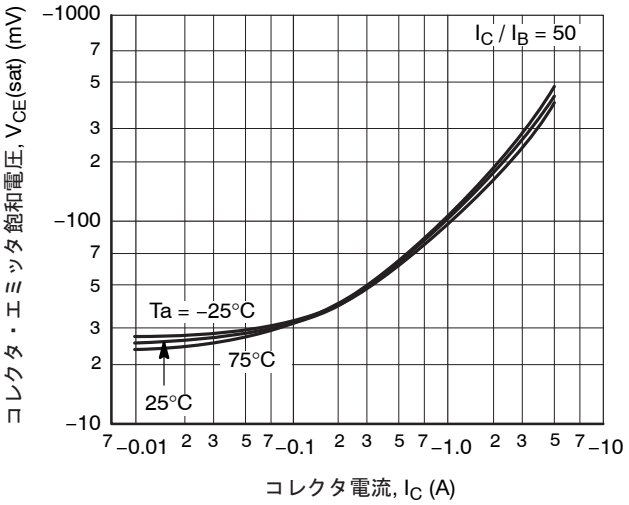

図 7. $V_{CE(sat)}$ − I_C

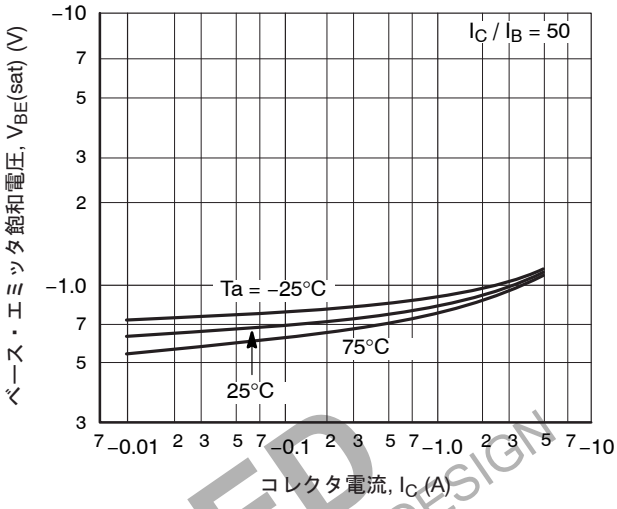

図 8. $V_{BE(sat)}$ − I_C

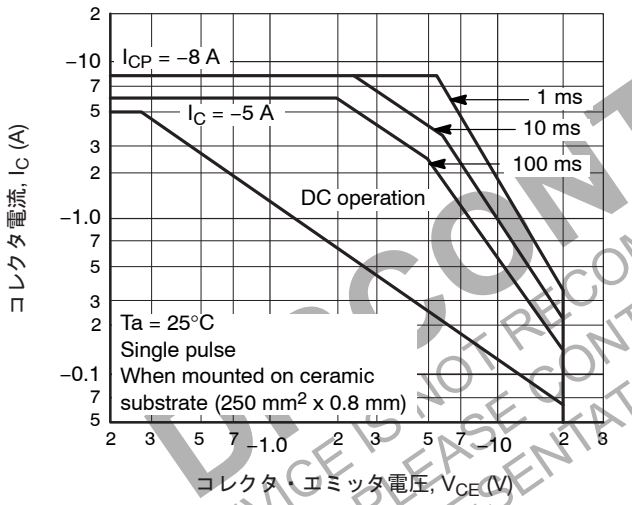

図 9. SOA

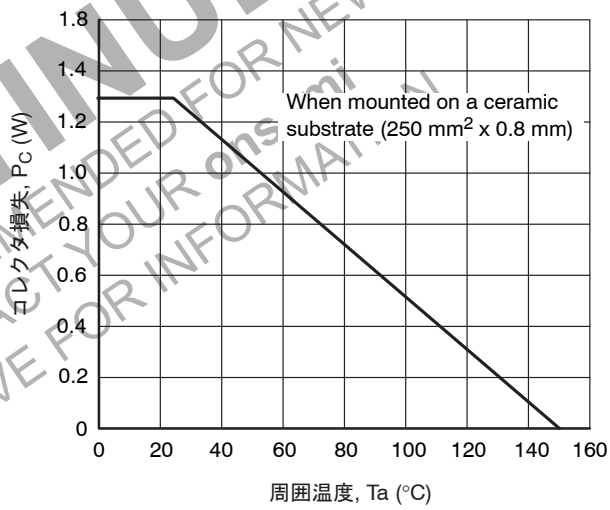

図 10. P_C − Ta

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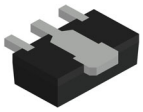
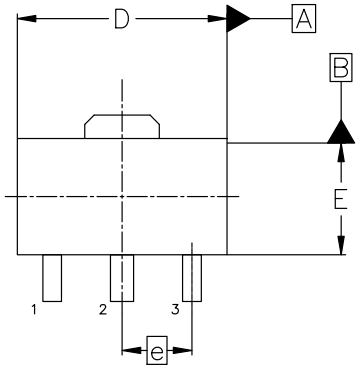
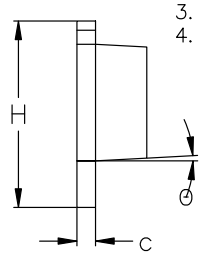


SOT−89−3 4.50x2.50x1.50 1.50P
CASE 419AU
ISSUE B

DATE 06 NOV 2026



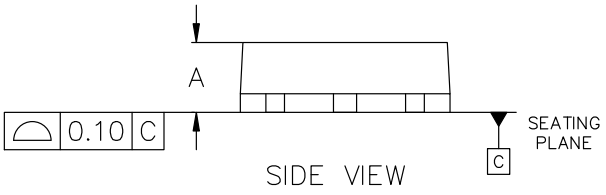
TOP VIEW



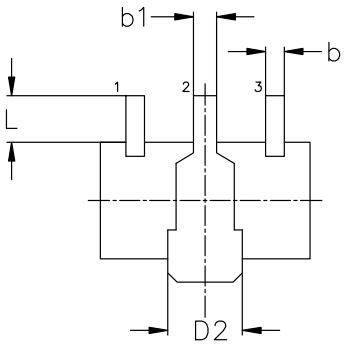
END VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS INCLUDES LEAD FINISH.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

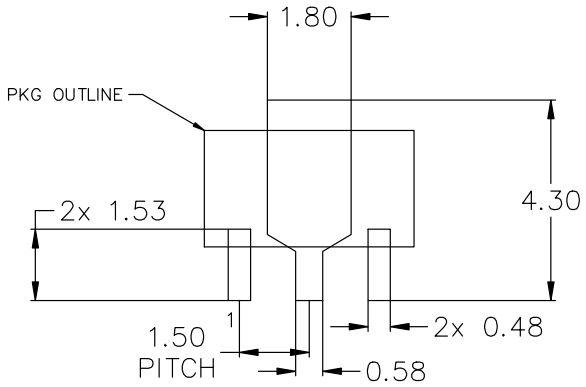
MILLIMETERS			
DIM	MIN	NOM	MAX
A	1.40	1.50	1.60
b	0.35	0.40	0.48
b1	0.40	0.50	0.55
c	0.37	0.40	0.43
D	4.40	4.50	4.60
D2	1.40	1.60	1.80
E	2.40	2.50	2.60
e	1.50 BSC		
H	3.80	4.00	4.20
L	0.80	1.00	1.20
θ	0°	−−−	3°



SIDE VIEW



BOTTOM VIEW



RECOMMENDED MOUNTING FOOTPRINT

*For additional information on our Pb−Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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DESCRIPTION:	**SOT−89−3 4.50x2.50x1.50 1.50P**		**PAGE 1 OF 1**

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