

RF Transistor

10 V, 70 mA, $f_T = 7$ GHz, NPN Single SSFP

2SC5488A

特長

- 低雑音である: $NF = 1.0$ dB Typ ($f = 1$ GHz)
- 高利得である: $|S_{21e}|^2 = 12$ dB Typ ($f = 1$ GHz)
- しゃ断周波数が高い: $f_T = 7$ GHz Typ
- 超小型、薄型フラットリードパッケージ
(1.4 mm x 0.8 mm x 0.6 mm)
- ハロゲンフリー対応

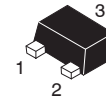
絶対最大定格 ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

記号	項目	定格値	Unit
V_{CBO}	コレクタ・ベース電圧	20	V
V_{CEO}	コレクタ・エミッタ電圧	10	V
V_{EBO}	エミッタ・ベース電圧	2	V
I_C	コレクタ電流	70	mA
P_C	コレクタ損失	100	mW
T_j	接合部温度	150	$^\circ\text{C}$
T_{stg}	保存周囲温度	-55 to +150	$^\circ\text{C}$

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.

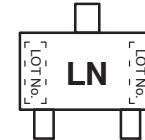
(参考訳)

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、ダメージが生じたり、信頼性に影響を及ぼす危険性があります。



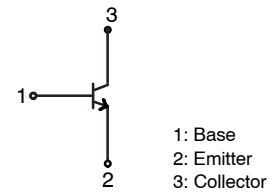
SOT-623 / SSFP
CASE 631AC

マーキング



LN = Specific Device Code

電氣的接続図



ORDERING INFORMATION

Device	Package	Shipping [†]
2SC5488A-TL-H	SOT-623 / SSFP (Pb-Free, Halide Free)	8000 / Tape & Reel

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

電氣的特性 ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

項目	記号	条件	Min	Typ	Max	Unit
コレクタシャ断電流	I_{CBO}	$V_{CB} = 10\text{ V}, I_E = 0\text{ A}$	–	–	1.0	μA
エミッタシャ断電流	I_{EBO}	$V_{EB} = 1\text{ V}, I_C = 0\text{ A}$	–	–	10	μA
直流電流増幅率	h_{FE}	$V_{CE} = 5\text{ V}, I_C = 20\text{ mA}$	90	–	200	
利得帯域幅積	f_T	$V_{CE} = 5\text{ V}, I_C = 20\text{ mA}$	5	7	–	GHz
出力容量	C_{ob}	$V_{CB} = 10\text{ V}, f = 1\text{ MHz}$	–	0.7	1.2	pF
帰還容量	C_{re}		–	0.45	–	pF
順方向伝達利得	$ S_{21e} ^{21}$	$V_{CE} = 5\text{ V}, I_C = 20\text{ mA}, f = 1\text{ GHz}$	9	12	–	dB
	$ S_{21e} ^{22}$	$V_{CE} = 2\text{ V}, I_C = 3\text{ mA}, f = 1\text{ GHz}$	–	8.5	–	dB
雑音指数	NF	$V_{CE} = 5\text{ V}, I_C = 7\text{ mA}, f = 1\text{ GHz}$	–	1.0	1.8	dB

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.

(参考記)

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。

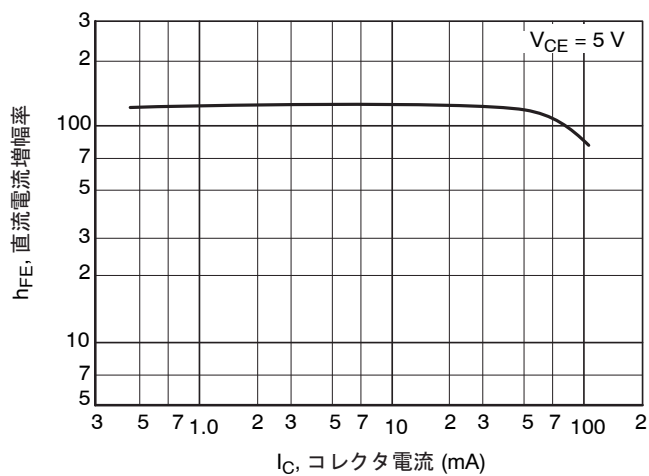


図 1. $h_{FE} - I_C$

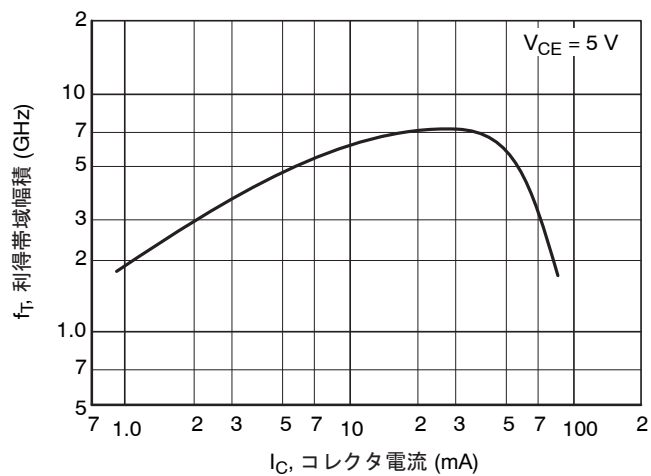


図 2. $f_T - I_C$

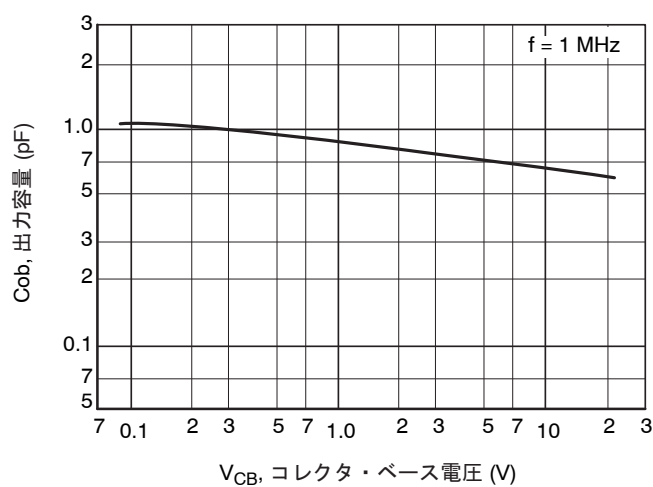


図 3. $C_{ob} - V_{CB}$

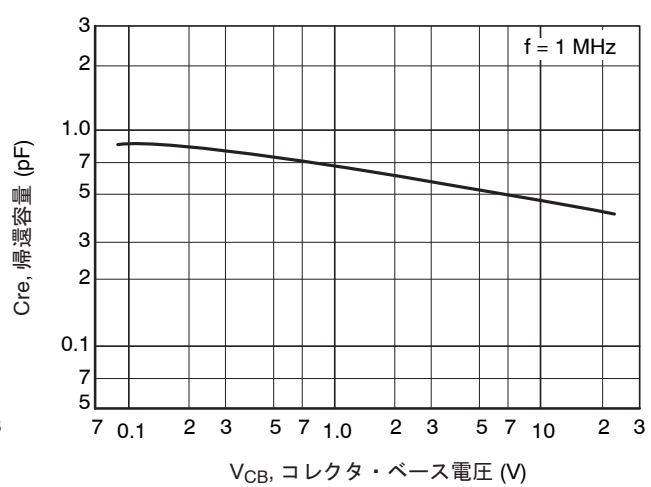


図 4. $C_{re} - V_{CB}$

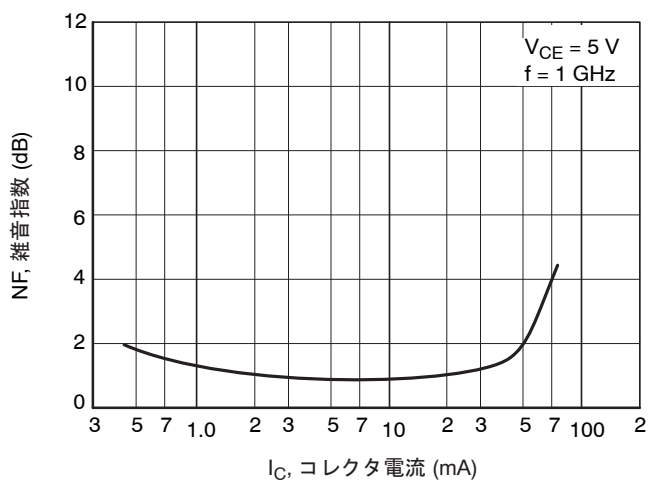


図 5. $NF - I_C$

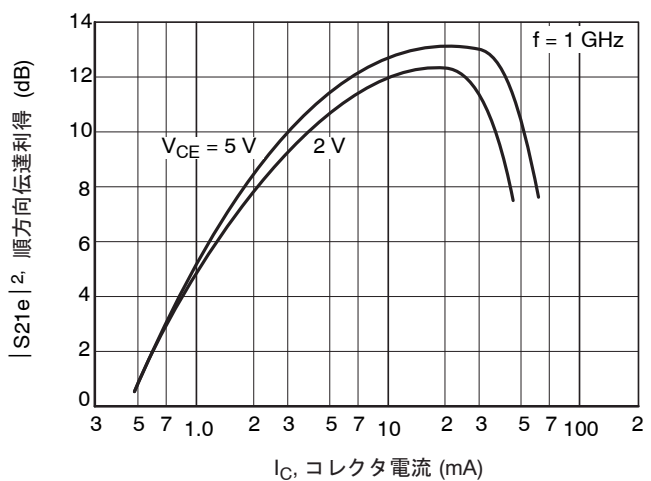


図 6. $|S_{21e}|^2 - I_C$

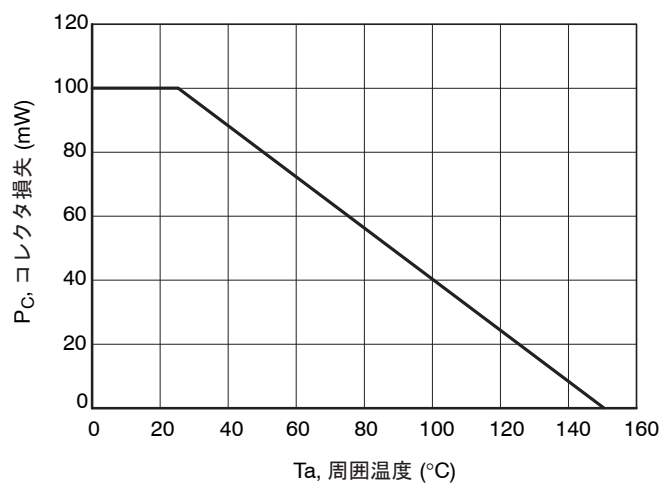


図 7. $P_C - T_a$

S パラメータ (エミッタ接地)

$V_{CE} = 5\text{ V}$, $I_C = 7\text{ mA}$, $Z_O = 50\ \Omega$

Freq(MHz)	S11	$\angle S11$	S21	$\angle S21$	S12	$\angle S12$	S22	$\angle S22$
100	0.786	-40.7	17.507	151.3	0.028	70.1	0.898	-20.4
200	0.677	-72.4	13.998	131.4	0.046	58.0	0.739	-33.4
400	0.546	-112.7	9.061	108.6	0.064	49.6	0.525	-43.7
600	0.492	-135.2	6.442	96.1	0.076	49.3	0.423	-46.7
800	0.473	-150.0	5.005	87.3	0.087	50.8	0.374	-44.4
1000	0.465	-160.0	4.073	80.4	0.099	52.6	0.346	-49.7
1200	0.457	-169.5	3.449	74.0	0.111	54.0	0.332	-51.6
1400	0.451	-176.2	2.989	68.6	0.124	55.2	0.321	-54.1
1600	0.449	177.8	2.658	63.8	0.138	56.6	0.319	-56.2
1800	0.454	172.5	2.378	58.4	0.151	56.7	0.313	-60.0
2000	0.460	167.1	2.154	54.0	0.166	56.7	0.311	-63.2

$V_{CE} = 5\text{ V}$, $I_C = 20\text{ mA}$, $Z_O = 50\ \Omega$

Freq(MHz)	S11	$\angle S11$	S21	$\angle S21$	S12	$\angle S12$	S22	$\angle S22$
100	0.601	-65.8	28.967	137.1	0.023	64.1	0.757	-32.9
200	0.497	-103.7	19.309	116.6	0.035	57.0	0.534	-50.3
400	0.435	-139.6	10.891	98.6	0.050	58.7	0.345	-50.3
600	0.419	-156.6	7.461	89.3	0.065	61.3	0.280	-50.7
800	0.414	-166.6	5.695	82.5	0.081	63.1	0.251	-51.3
1000	0.413	-174.0	4.613	77.0	0.098	63.8	0.235	-52.9
1200	0.413	178.6	3.870	71.8	0.114	63.9	0.226	-55.1
1400	0.411	173.8	3.345	66.9	0.131	63.6	0.221	-57.7
1600	0.413	169.6	2.960	62.7	0.148	63.2	0.220	-60.2
1800	0.416	165.1	2.655	58.0	0.165	61.8	0.219	-64.8
2000	0.422	160.3	2.406	54.0	0.182	60.6	0.218	-68.3

$V_{CE} = 2\text{ V}$, $I_C = 3\text{ mA}$, $Z_O = 50\ \Omega$

Freq(MHz)	S11	$\angle S11$	S21	$\angle S21$	S12	$\angle S12$	S22	$\angle S22$
100	0.888	-30.2	9.280	158.6	0.038	73.6	0.949	-15.1
200	0.815	-56.4	8.218	141.3	0.067	60.5	0.849	-26.9
400	0.690	-96.0	6.074	116.7	0.098	45.1	0.657	-41.1
600	0.616	-120.7	4.517	101.4	0.112	38.4	0.539	-47.6
800	0.584	-138.0	3.610	90.4	0.120	35.8	0.475	-51.2
1000	0.566	-150.7	2.995	81.9	0.125	35.7	0.434	-54.5
1200	0.555	-161.2	2.540	74.2	0.131	36.5	0.410	-57.5
1400	0.546	-169.3	2.213	67.5	0.137	38.4	0.393	-60.7
1600	0.541	-176.4	1.982	62.0	0.143	40.7	0.391	-64.0
1800	0.545	177.1	1.774	55.9	0.152	42.5	0.382	-67.8
2000	0.547	170.9	1.614	50.9	0.163	44.7	0.381	-72.1

Land Pattern Example

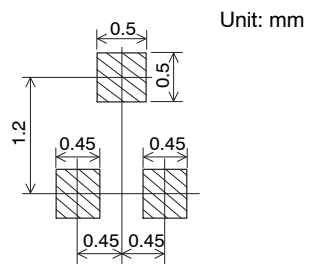
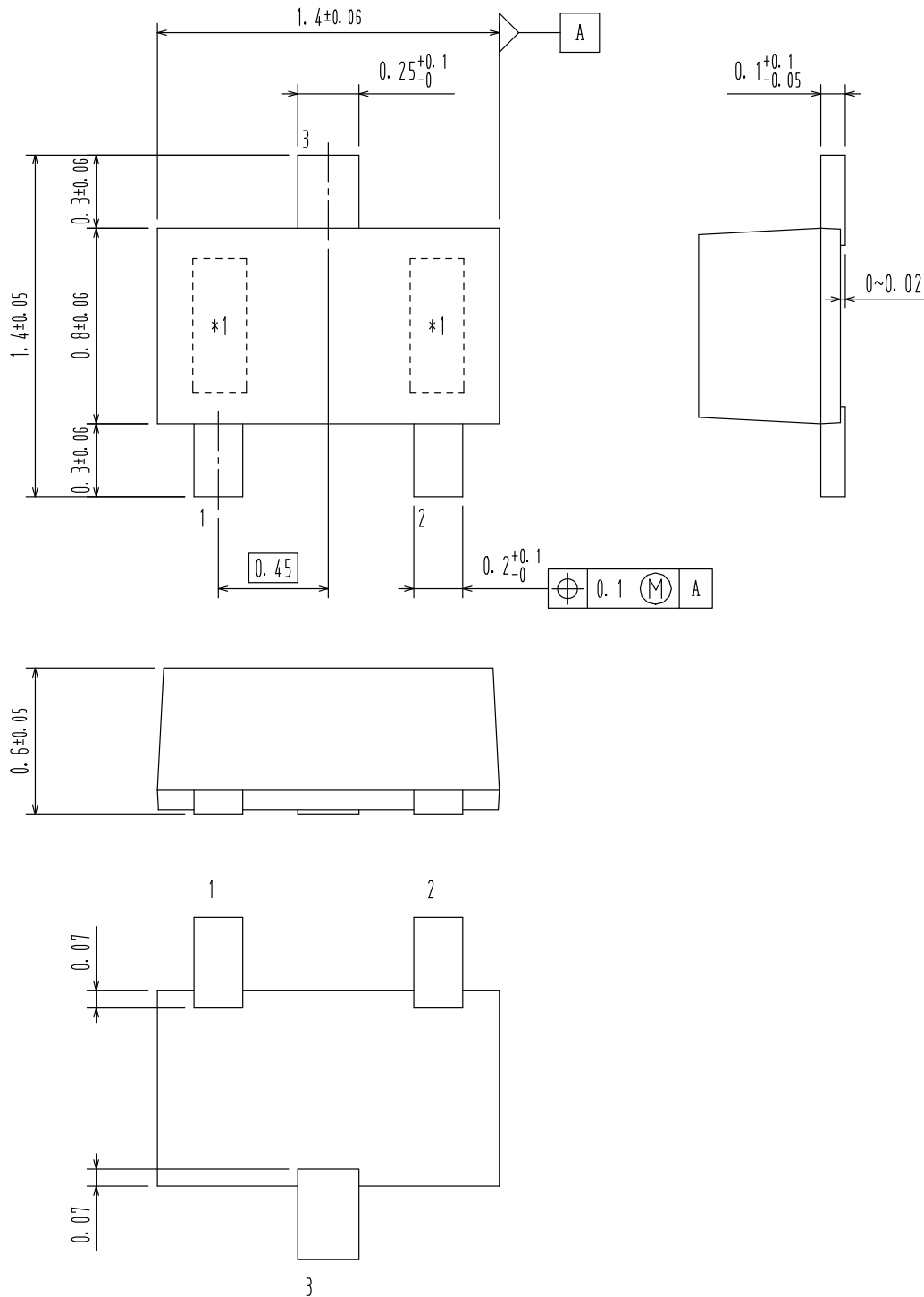



図 8. Land Pattern Example

ON

DATE 29 FEB 2012



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