

Bipolar Transistor

–50 V, –10 A, Low $V_{CE(sat)}$, PNP TO–220F–3FS

2SA2222SG

特長

- MBIT プロセス採用
- 電流容量が大きい ($I_C = -10\text{ A}$)
- コレクタ・エミッタ飽和電圧が低い
($V_{CE(sat)} = -250\text{ mV (Typ.)}$)
- スイッチングスピードが速い ($t_f = 22\text{ ns (Typ.)}$)
- This is a Pb-Free Device

用途

- リレードライブ, ランプドライブ, モータドライブ

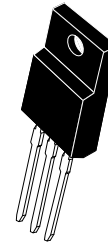
絶対最大定格 ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

記号	項目	条件	定格値	Unit
V_{CBO}	コレクタ・ベース電圧		–50	V
V_{CEO}	コレクタ・エミッタ電圧		–50	V
V_{EBO}	エミッタ・ベース電圧		–6	V
I_C	コレクタ電流		–10	A
I_{CP}	コレクタ電流 (パルス)	$PW \leq 10\text{ }\mu\text{s}$, duty cycle $\leq 1\%$	–13	A
I_B	ベース電流		–2	A
P_C	コレクタ損失	$T_c = 25^\circ\text{C}$, $P_T \leq 1\text{ s}$	25	W
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.

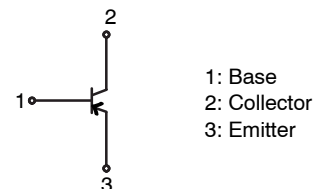
(参考訳)

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、信頼性に影響を及ぼす危険性があります。

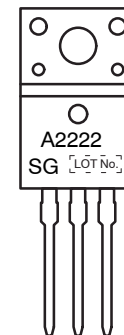


TO–220F–3FS
CASE 221AM

電氣的接続図



マーキング



ORDERING INFORMATION

Device	パッケージ名	最小梱包単位
2SA2222SG	TO–220F–3FS (Pb-Free)	50 Units/Tube

2SA2222SG

電氣的特性 ELECTRICAL CHARACTERISTICS / Ta = 25°C

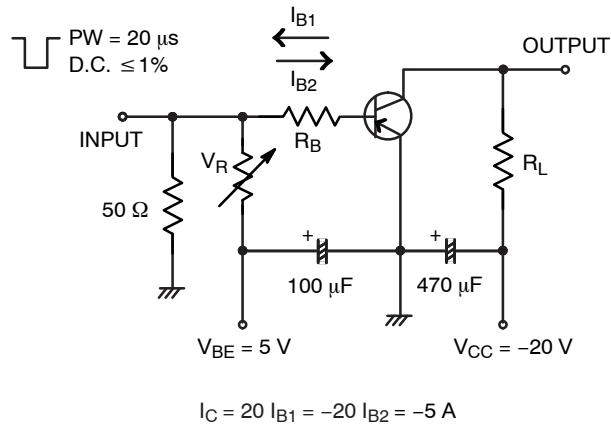
項目	記号	条件	定格値			Unit
			Min	Typ	Max	
コレクタシャ断電流	I_{CBO}	$V_{CB} = -40\text{ V}, I_E = 0\text{ A}$			-10	μA
エミッタシャ断電流	I_{EBO}	$V_{EB} = -4\text{ V}, I_C = 0\text{ A}$			-10	μA
直流電流増幅率	h_{FE}	$V_{CE} = -2\text{ V}, I_C = -270\text{ mA}$	150		450	
利得帯域幅積	f_T	$V_{CE} = -10\text{ V}, I_C = -1\text{ A}$		230		MHz
出力容量	C_{ob}	$V_{CB} = -10\text{ V}, f = 1\text{ MHz}$		115		pF
コレクタ・エミッタ飽和電圧	$V_{CE(sat)}$	$I_C = -6\text{ A}, I_B = -300\text{ mA}$		-250	-500	mV
ベース・エミッタ飽和電圧	$V_{BE(sat)}$	$I_C = -6\text{ A}, I_B = -300\text{ mA}$			-1.2	V
コレクタ・ベース降伏電圧	$V_{(BR)CBO}$	$I_C = -100\text{ }\mu\text{A}, I_E = 0\text{ A}$	-50			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	$V_{(BR)EBO}$	$I_E = -100\text{ }\mu\text{A}, I_C = 0\text{ A}$	-6			V
ターンオン時間	t_{on}	指定回路において		40		ns
蓄積時間	t_{stg}			240		ns
下降時間	t_f			22		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.

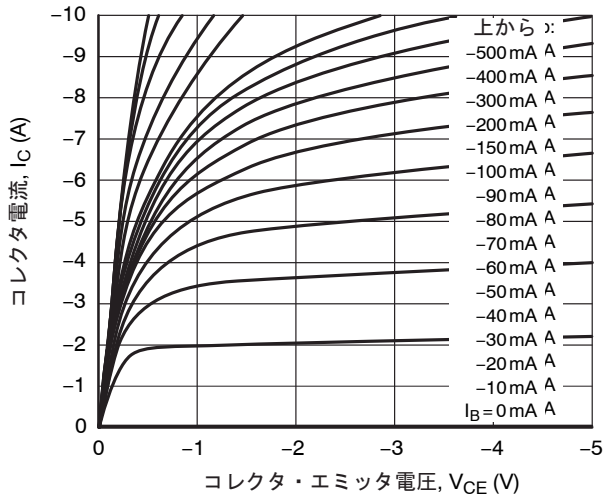
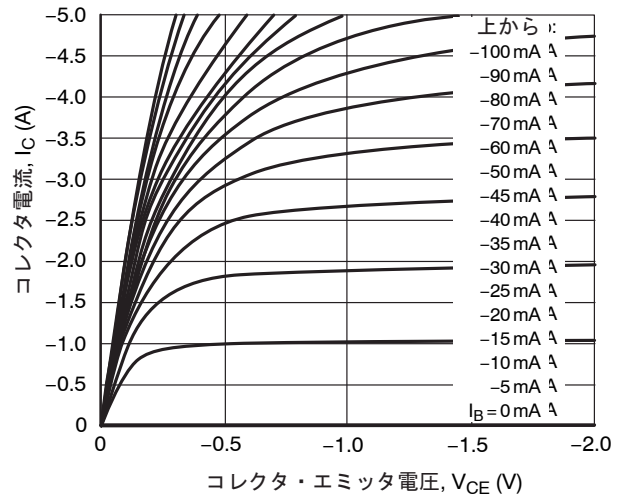
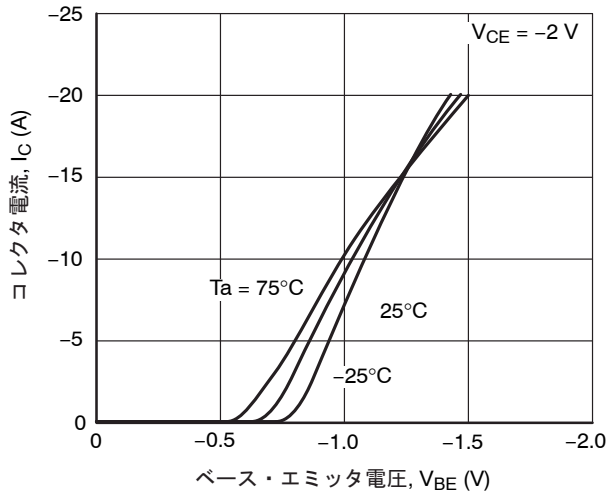
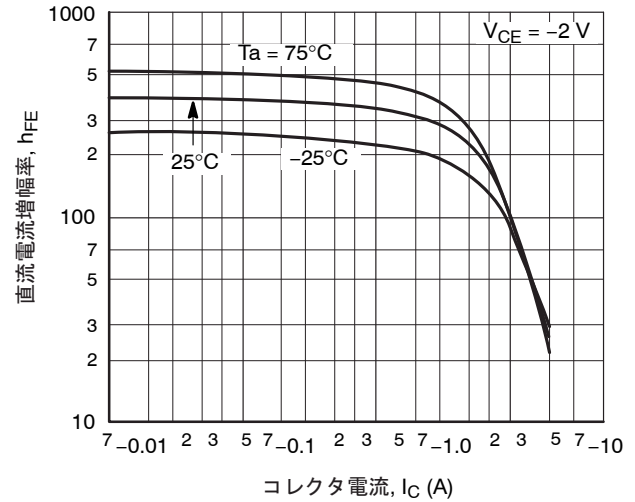
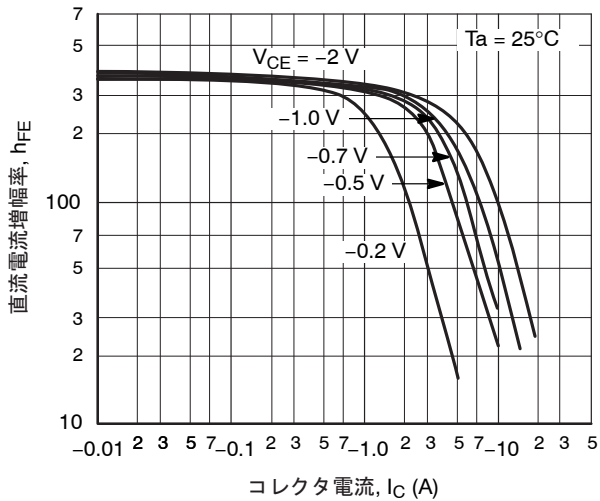
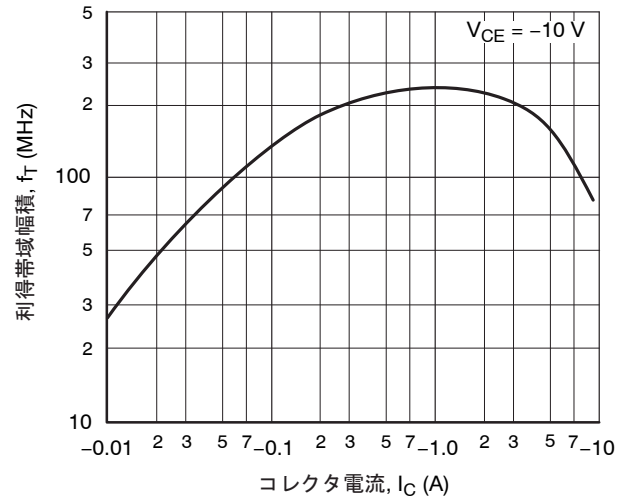
(参考図)

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。

スイッチングタイム測定回路図



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. $h_{FE} - I_C$ 図 6. $f_T - I_C$

TYPICAL CHARACTERISTICS (continued)

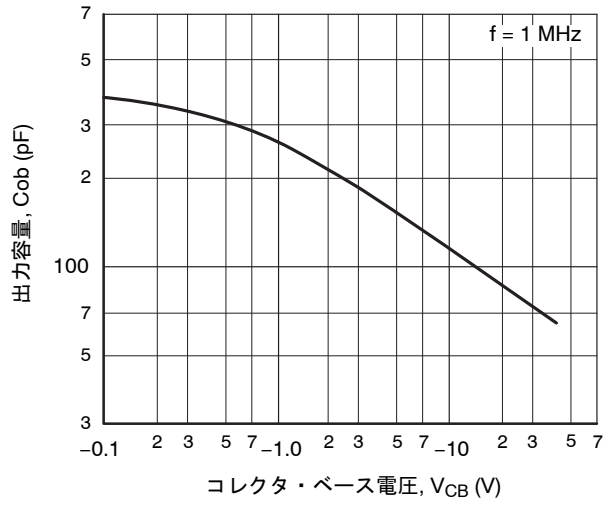


図 7. $C_{ob} - V_{CB}$

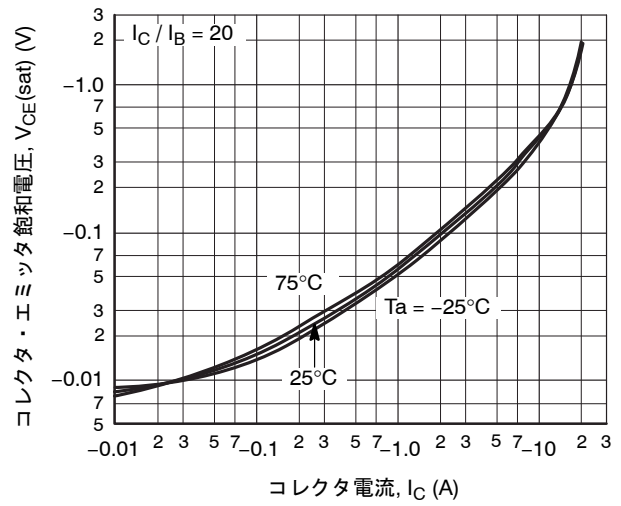


図 8. $V_{CE(sat)} - I_C$

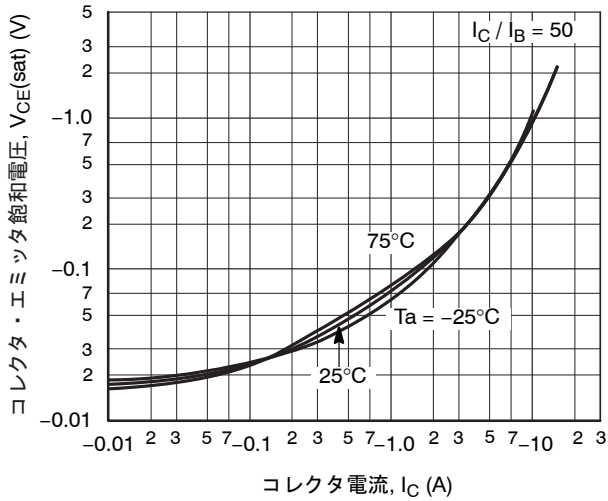


図 9. $V_{CE(sat)} - I_C$

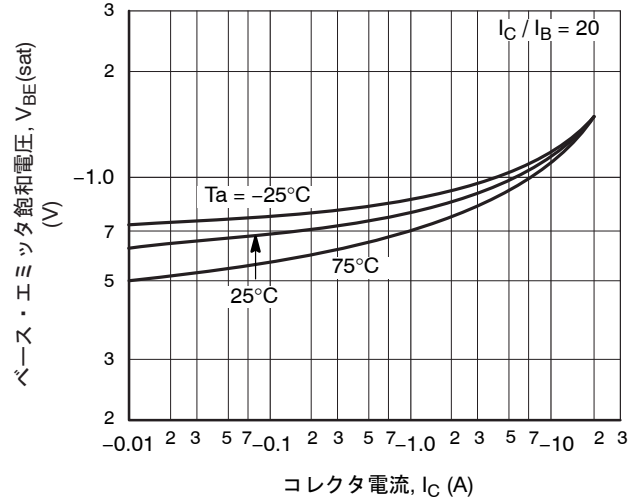


図 10. $V_{BE(sat)} - I_C$

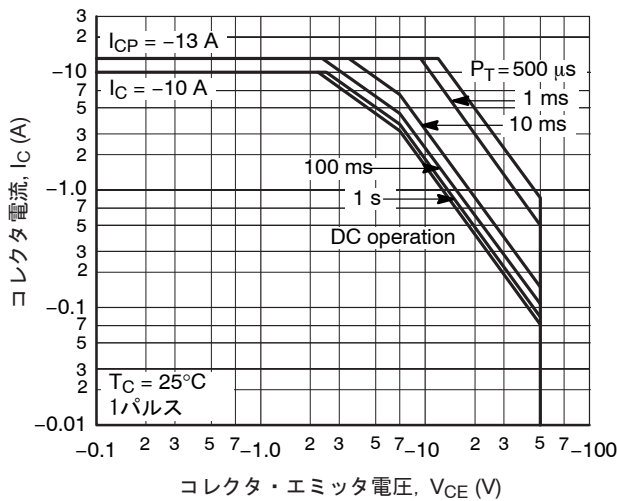


図 11. Forward Bias A S O

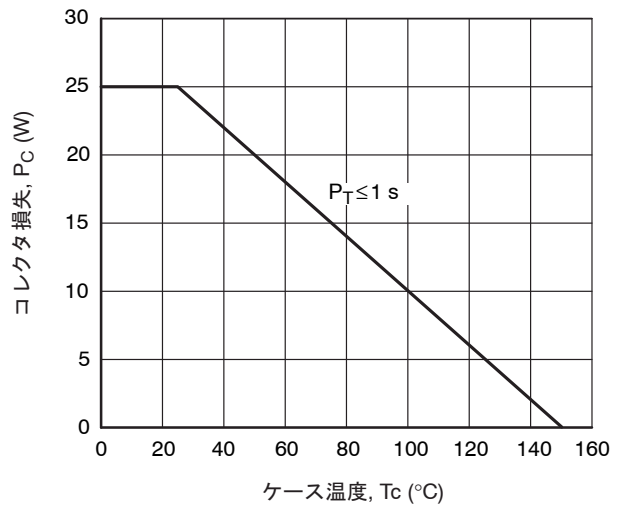
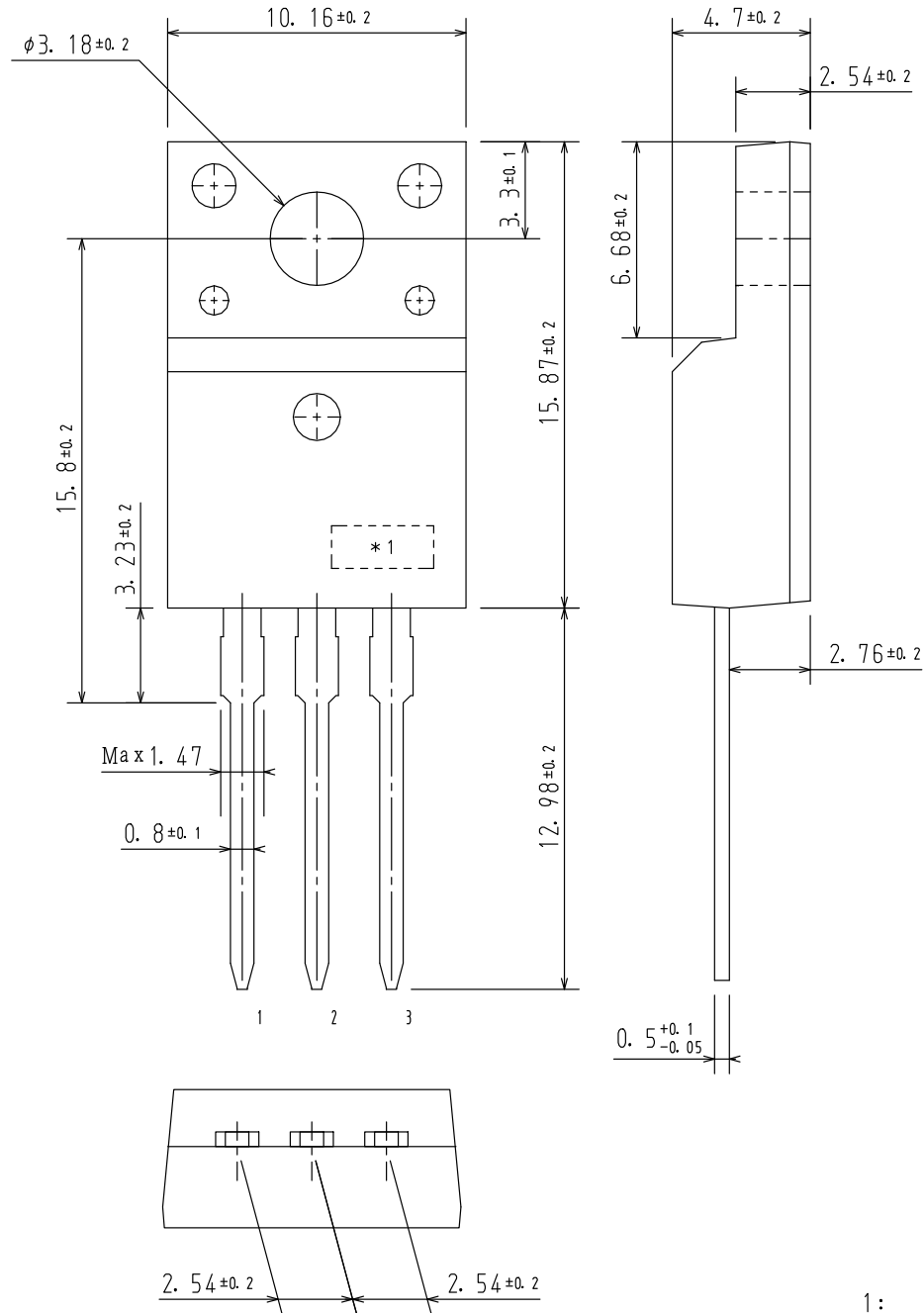


図 12. $P_C - T_c$

TO-220F-3FS
CASE 221AM
ISSUE O

DATE 30 JAN 2012



*1 Lot indication

- 1:
- 2:
- 3:

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