

Bipolar Transistor

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

2SC6144SG

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
($V_{CE(sat)} = 180\text{ mV (typ.)}$)
- スイッチングスピードが速い ($t_f = 25\text{ ns (typ.)}$)

用途

- リレードライブ, ランプドライブ, モータドライブ

仕様書

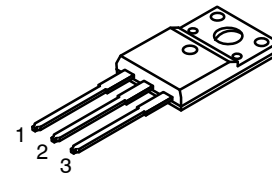
絶対最大定格 **ABSOLUTE MAXIMUM RATINGS** / $T_a = 25^\circ\text{C}$

項目	記号	条件	定格値	Units
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}		5	V
コレクタ電流	I_C		10	A
コレクタ電流 (パルス)	I_{CP}		13	A
ベース電流	I_B		2	A
コレクタ損失	P_C	$T_C = 25^\circ\text{C}$, $P_T \leq 1\text{ s}$	25	W
接合部温度	T_j		150	$^\circ\text{C}$
保存周囲温度	T_{stg}		-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)

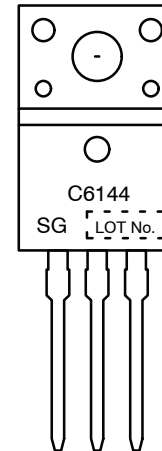
最大定格を超えるストレスは、デバイスにダメージを与える危険性があります。これらの定格値を超えた場合は、デバイスの機能性を損ない、ダメージが生じ、信頼性に影響を及ぼす危険性があります。



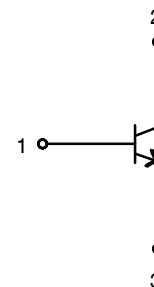
1: Base
2: Collector
3: Emitter

TO-220F-3FS
CASE 221AM

マーキング



電氣的接続図



ORDERING INFORMATION

Device	Package	Shipping
2SC6144SG	TO-220F-3FS (Pb-Free)	50 Units / Tube

2SC6144SG

電気的特性 ELECTRICAL CHARACTERISTICS / Ta = 25°C

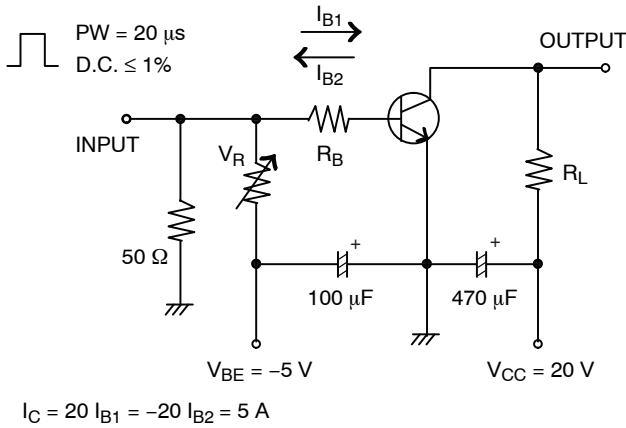
項目	記号	条件	定格値			Units
			Min	Typ	Max	
コレクタしや断電流	I_{CBO}	$V_{CB} = 40 \text{ V}, I_E = 0 \text{ A}$	–	–	10	μA
エミッタしや断電流	I_{EBO}	$V_{EB} = 4 \text{ V}, I_C = 0 \text{ A}$	–	–	10	μA
直流電流増幅率	h_{FE}	$V_{CE} = 2 \text{ V}, I_C = 270 \text{ mA}$	200	–	560	
利得帯域幅積	f_T	$V_{CE} = 10 \text{ V}, I_C = 3 \text{ A}$	–	330	–	MHz
出力容量	C_{ob}	$V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$	–	60	–	pF
コレクタ・エミッタ飽和電圧	$V_{CE(sat)}$	$I_C = 6 \text{ A}, I_B = 300 \text{ mA}$	–	180	360	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	$V_{(BR)CBO}$	$I_C = 100 \mu\text{A}, I_E = 0 \text{ A}$	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	$V_{(BR)EBO}$	$I_E = 100 \mu\text{A}, I_C = 0 \text{ A}$	5	–	–	V
ターンオン時間	t_{ON}	指定回路において	–	62	–	ns
蓄積時間	t_{stg}		–	350	–	ns
下降時間	t_f		–	25	–	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。

スイッチングタイム測定回路図



2SC6144SG

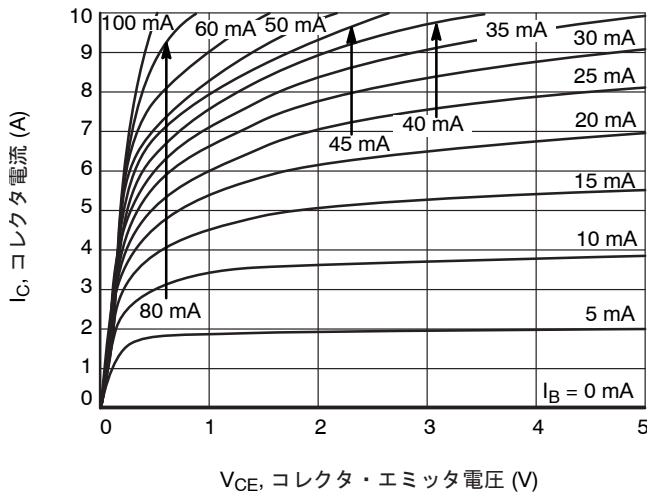


図 1. $I_C - V_{CE}$

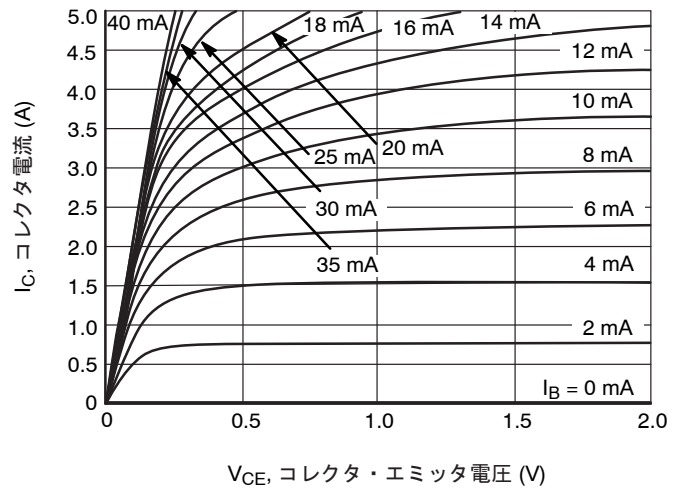


図 2. $I_C - V_{CE}$

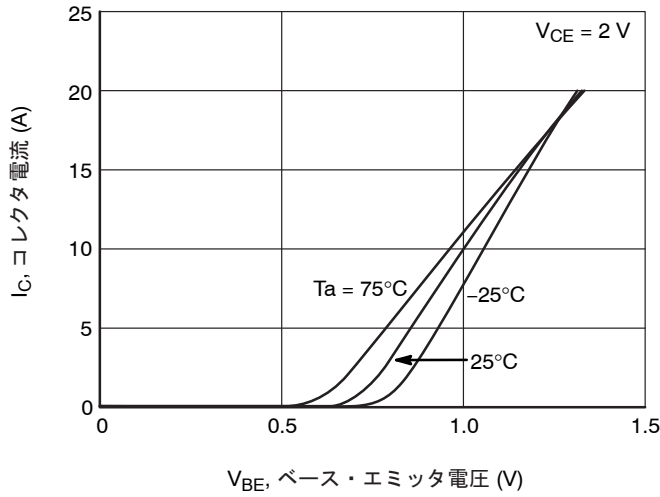


図 3. $I_C - V_{BE}$

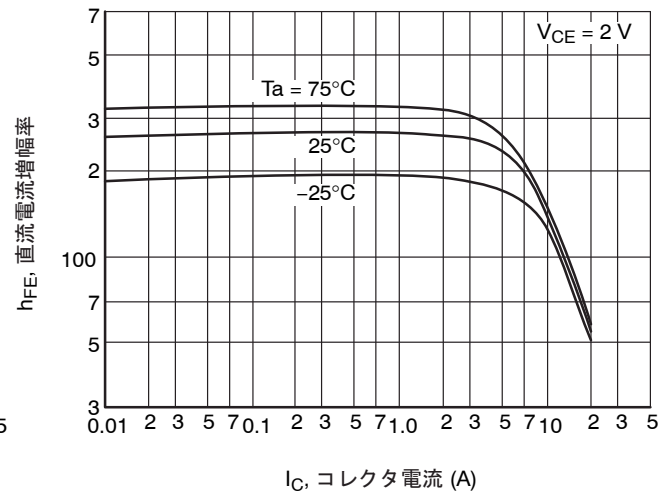


図 4. $h_{FE} - I_C$

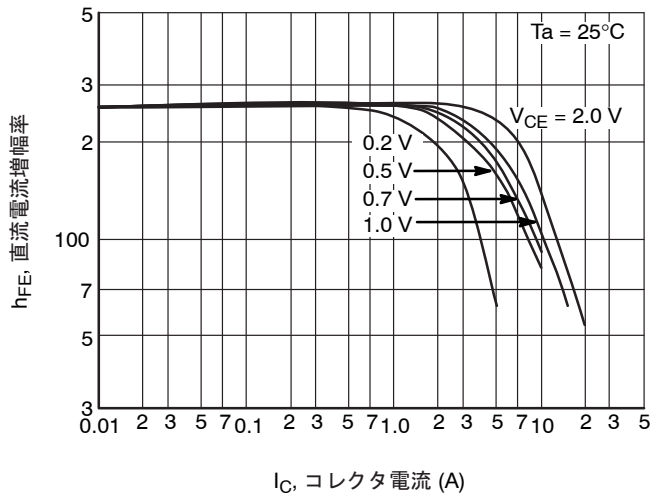


図 5. $h_{FE} - I_C$

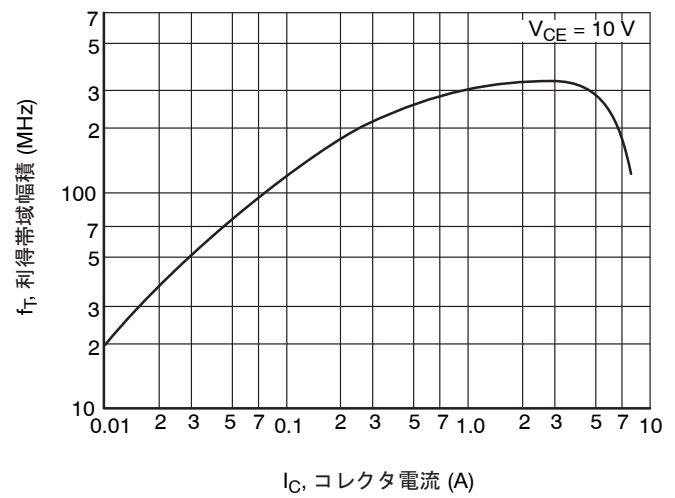


図 6. $f_T - I_C$

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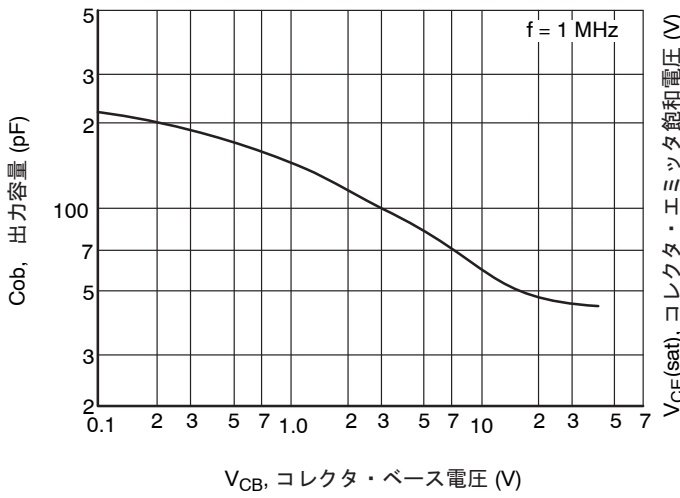


図 7. Cob - VCB

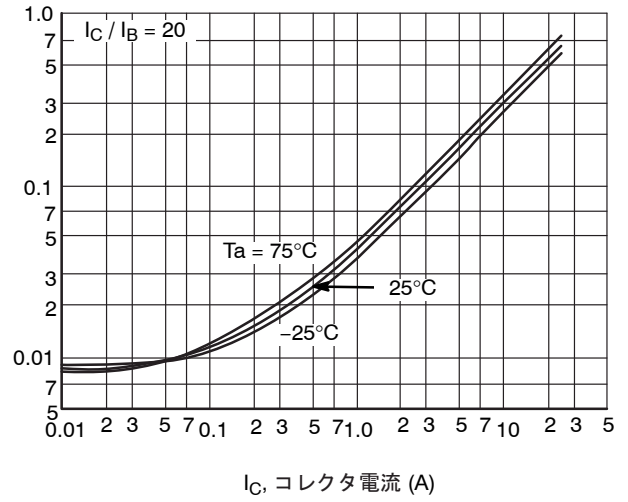


図 8. VCE(sat) - IC

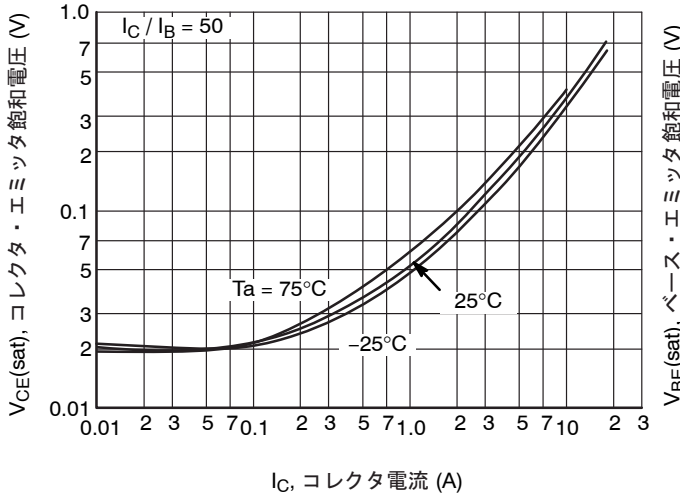


図 9. VCE(sat) - IC

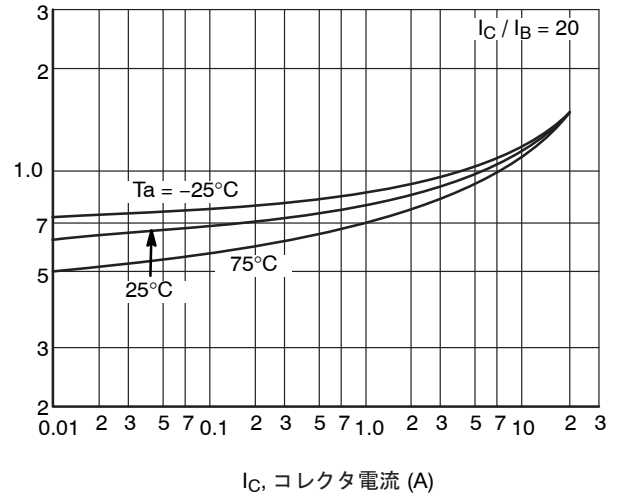


図 10. VBE(sat) - IC

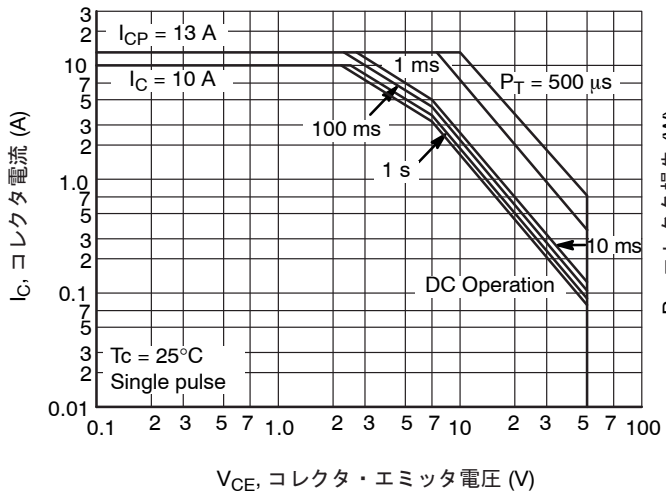


図 11. Forward Bias ASO

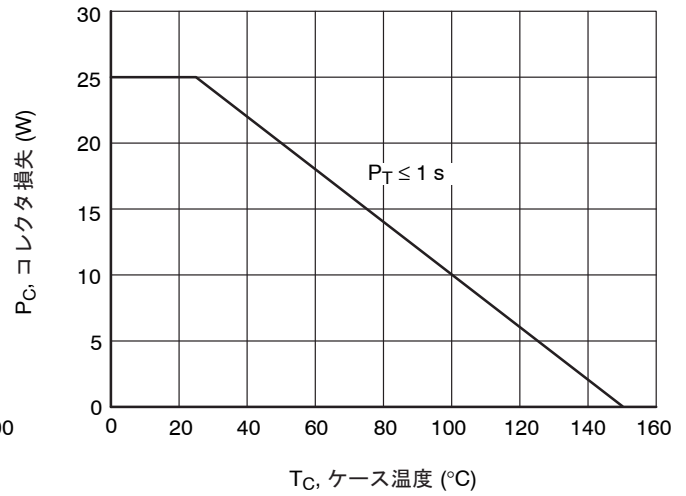
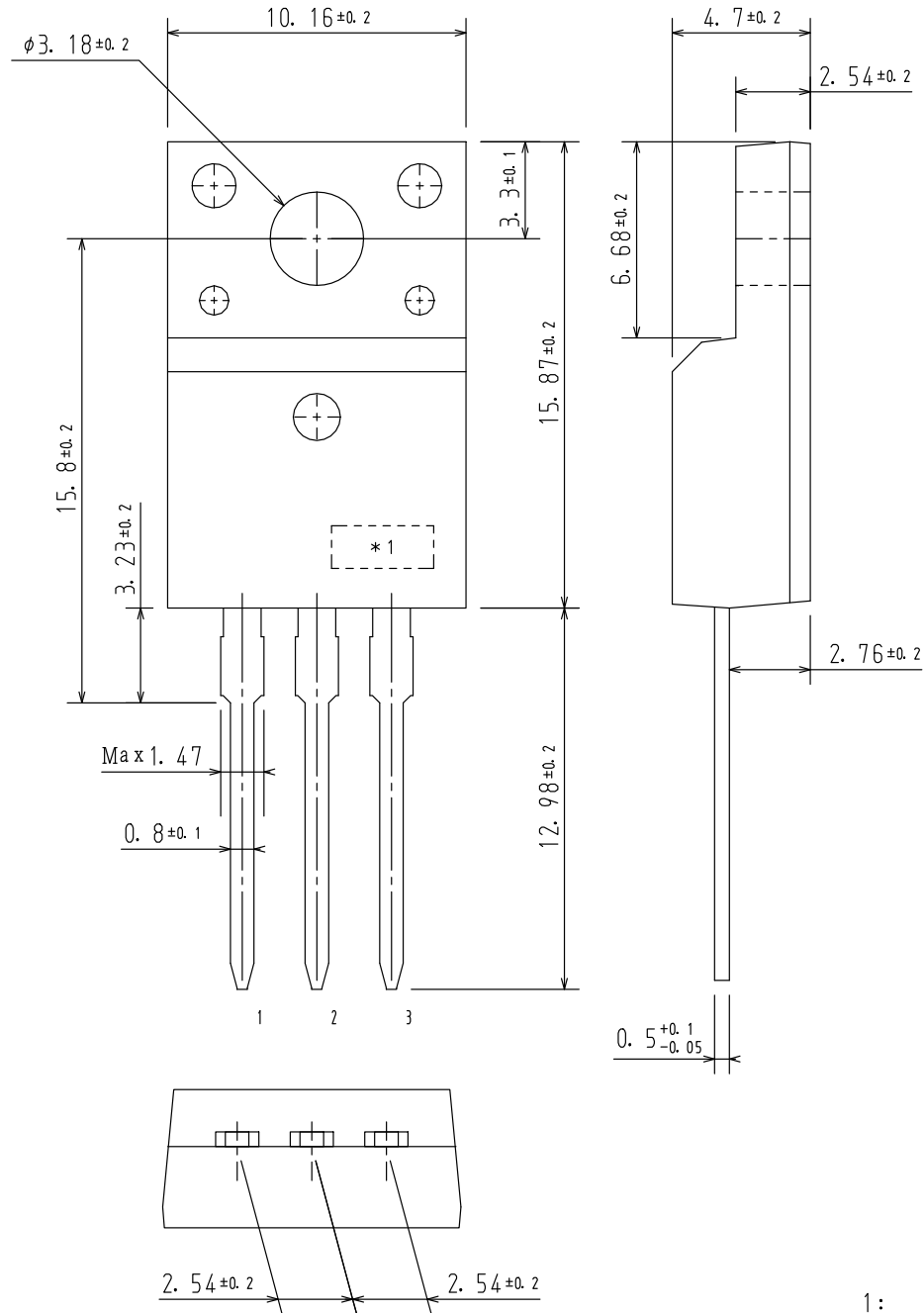


図 12. PC - TC

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

DATE 30 JAN 2012



*1 Lot indication

$$\begin{array}{l} 1: \\ 2: \\ 3: \end{array}$$

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