

Bipolar Transistor

30 V, 0.7 A, Low $V_{CE(sat)}$,
NPN Single MCPH3

30C02MH

特長

- 電流容量が大きい
- コレクタ・エミッタ飽和電圧（抵抗）が低い:
 $R_{CE(sat)} \text{ typ.} = 330 \text{ m}\Omega$ [$I_C = 0.7 \text{ A}$, $I_B = 35 \text{ mA}$]
- 超小型パッケージのためセットの小型化、薄型化が可能である
- R_{on} が小さい
- This is a Pb-Free Device

用途

- 低周波電力増幅
- 高速度スイッチング
- 小型モータのドライブ

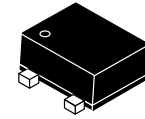
絶対最大定格 ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

記号	項目	条件	定格値	Unit
V_{CBO}	コレクタ・ベース電圧		40	V
V_{CEO}	コレクタ・エミッタ電圧		30	V
V_{EBO}	エミッタ・ベース電圧		5	V
I_C	コレクタ電流		700	mA
I_{CP}	コレクタ電流 (パルス)		1.4	A
P_C	コレクタ損失	セラミック基板 (600 mm ² × 0.8 mm) 装着時	600	mW
T_j	接合部温度		150	°C
T_{stg}	保存周囲温度		-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.

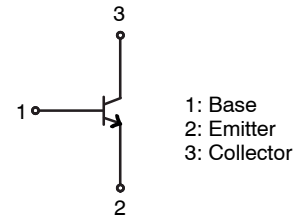
(参考訳)

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、ダメージが生じたり、信頼性に影響を及ぼす危険性があります。

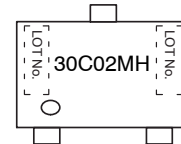


MCPH3
CASE 419AQ

電氣的接続図



製品と外形に伴う情報



30C02MH = Device Code

ORDERING INFORMATION

Device	Package	Shipping [†]
30C02MH-TL-E	MCPH3 (Pb-Free)	3000 / 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](#).

30C02MH

電気的特性 ELECTRICAL CHARACTERISTICS (Ta = 25°C)

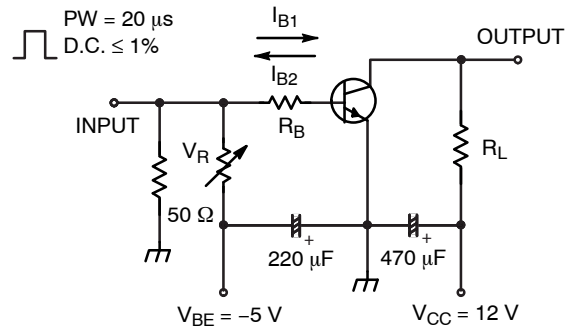
記号	項目	条件	Min	Typ	Max	Unit
I_{CBO}	コレクタしや断電流	$V_{CB} = 30\text{ V}, I_E = 0\text{ A}$	-	-	100	nA
I_{EBO}	エミッタしや断電流	$V_{EB} = 4\text{ V}, I_C = 0\text{ A}$	-	-	100	nA
h_{FE}	直流電流増幅率	$V_{CE} = 2\text{ V}, I_C = 50\text{ mA}$	300	-	800	
f_T	利得帯域幅積	$V_{CE} = 10\text{ V}, I_C = 50\text{ mA}$	-	540	-	MHz
Cob	出力容量	$V_{CB} = 10\text{ V}, f = 1\text{ MHz}$	-	3.3	-	pF
$V_{CE(sat)}$	コレクタ・エミッタ飽和電圧	$I_C = 200\text{ mA}, I_B = 10\text{ mA}$	-	85	190	mV
$V_{BE(sat)}$	ベース・エミッタ飽和電圧	$I_C = 200\text{ mA}, I_B = 10\text{ mA}$	-	0.9	1.2	V
$V_{(BR)CBO}$	コレクタ・ベース降伏電圧	$I_C = 10\text{ }\mu\text{A}, I_E = 0\text{ A}$	40	-	-	V
$V_{(BR)CEO}$	コレクタ・エミッタ降伏電圧	$I_C = 1\text{ mA}, R_{BE} = \infty$	30	-	-	V
$V_{(BR)EBO}$	エミッタ・ベース降伏電圧	$I_E = 10\text{ }\mu\text{A}, I_C = 0\text{ A}$	5	-	-	V
t_{on}	ターンオン時間	指定回路において		35	-	ns
t_{stg}	蓄積時間			255	-	ns
t_f	下降時間			40	-	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



$$I_C = 20 I_{B1} = -20 I_{B2} = 300\text{ mA}$$

図 1. スwitchingタイム測定回路図

TYPICAL CHARACTERISTICS

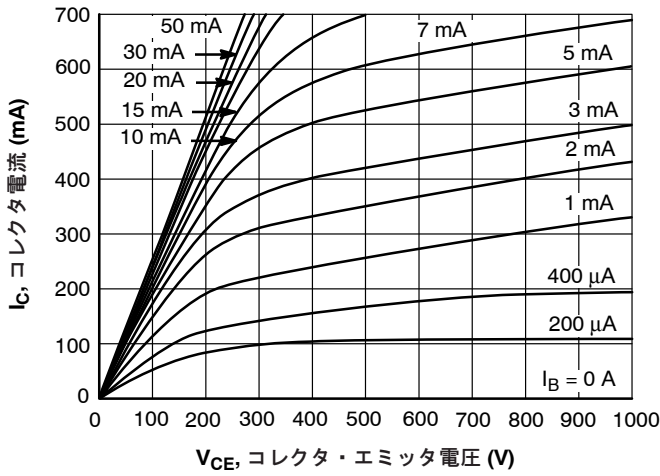


図 2. $I_C - V_{CE}$

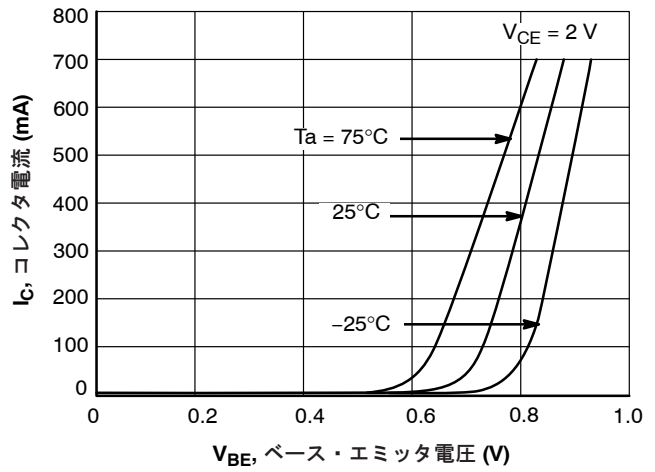


図 3. $I_C - V_{BE}$

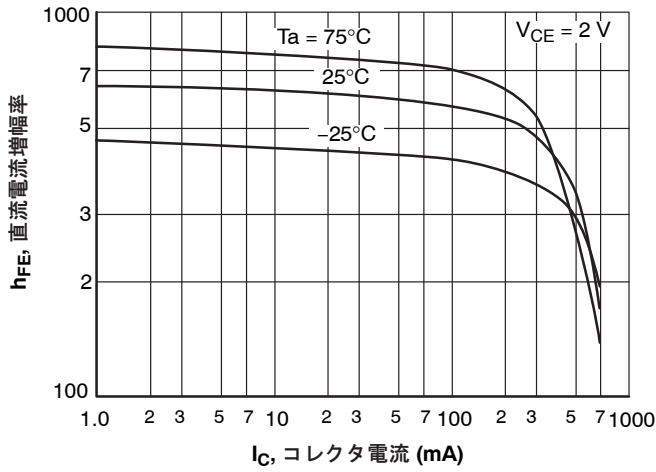


図 4. $h_{FE} - I_C$

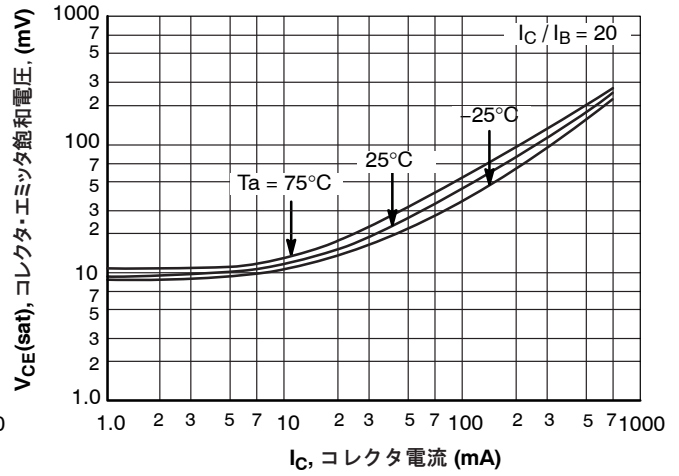


図 5. $V_{CE(sat)} - I_C$

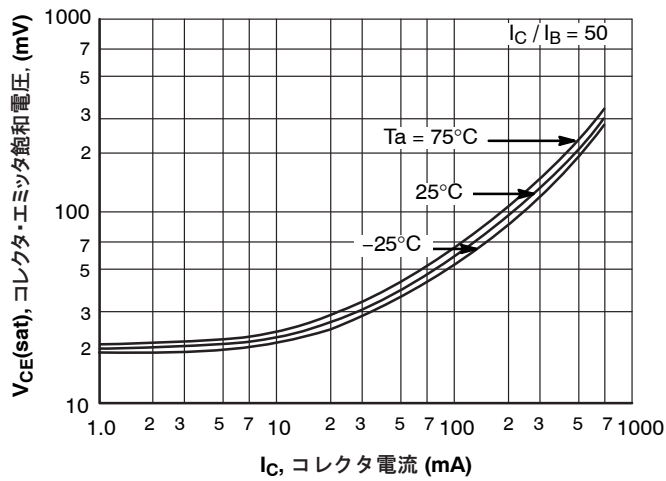


図 6. $V_{CE(sat)} - I_C$

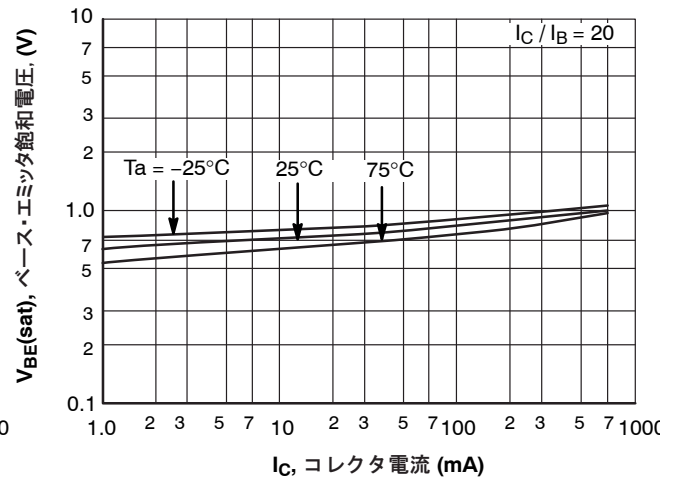


図 7. $V_{BE(sat)} - I_C$

30C02MH

TYPICAL CHARACTERISTICS (continued)

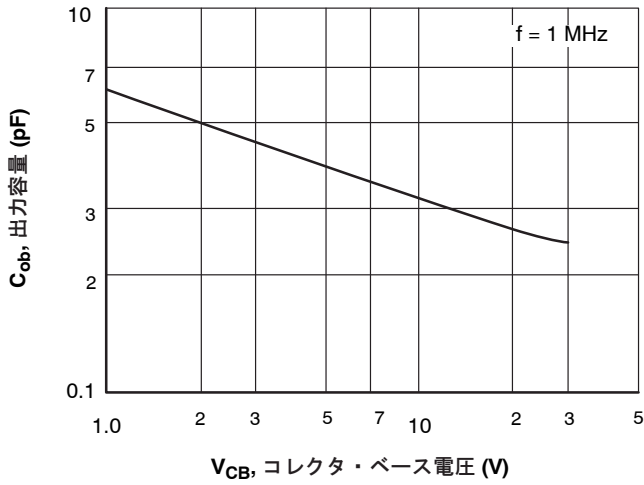


図 8. $C_{ob} - V_{CB}$

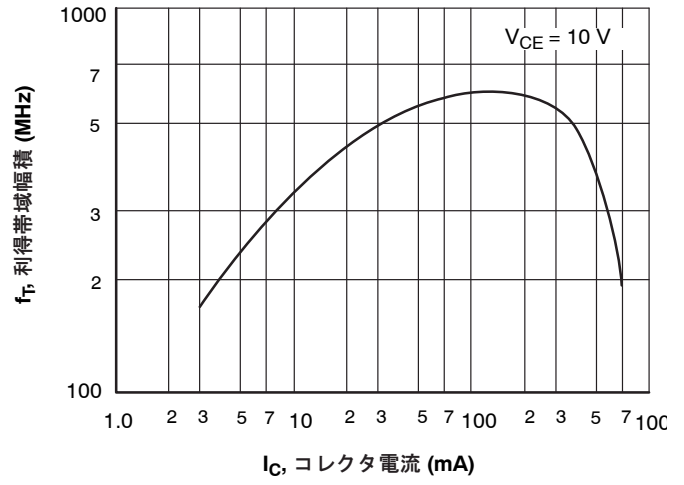
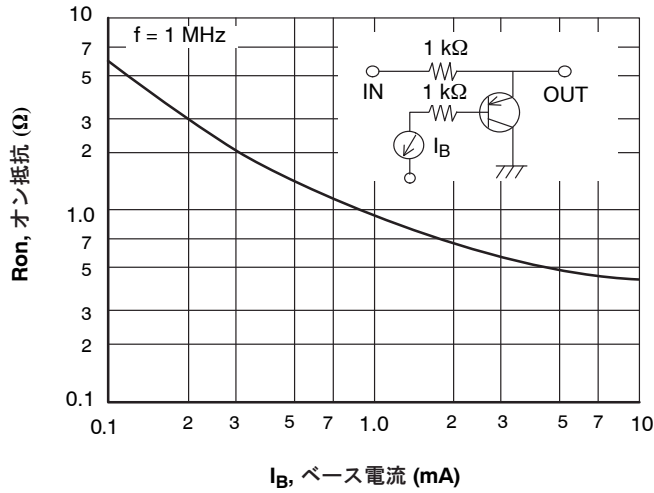
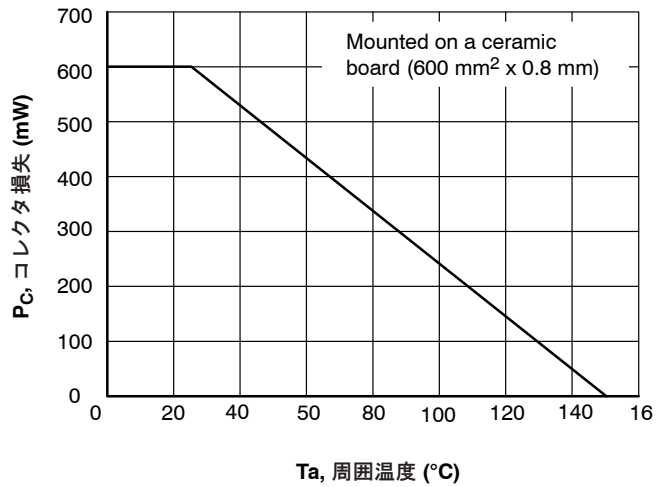


図 9. $f_T - I_C$



I_B , ベース電流 (mA)

図 10. $R_{on} - I_B$



T_a , 周囲温度 ($^{\circ}\text{C}$)

図 11. $P_C - T_a$

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