# THE DATASHEET OF

# 2SA1667

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# 2SA1667/1668

Silicon PNP Epitaxial Planar Transistor (Complement to type 2SC4381/4382)

**Application :** TV Vertical Output, Audio Output Driver and General Purpose

**■Absolute maximum ratings** (Ta=25°C)

| Symbol | Ratings 2SA1667 | Ratings 2SA1668 | Unit |
|---|---|---|---|
| $V_{CBO}$ | –150 | –200 | V |
| $V_{CEO}$ | –150 | –200 | V |
| $V_{EBO}$ | –6 | | V |
| $I_C$ | –2 | | A |
| $I_B$ | –1 | | A |
| $P_C$ | 25(Tc=25°C) | | W |
| Tj | 150 | | °C |
| Tstg | –55 to +150 | | °C |

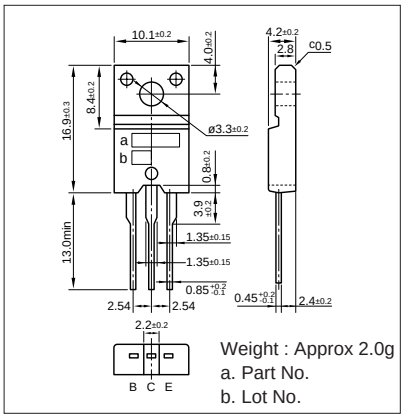
**■Electrical Characteristics** (Ta=25°C)

| Symbol | Conditions | Ratings 2SA1667 | Ratings 2SA1668 | Unit |
|---|---|---|---|---|
| $I_{CBO}$ | | –10max | –10max | μA |
| | $V_{CB}$= | –150 | –200 | V |
| $I_{EBO}$ | $V_{EB}$=–6V | –10max | | μA |
| $V_{(BR)CEO}$ | $I_C$=–25mA | –150min | –200min | V |
| $h_{FE}$ | $V_{CE}$=–10V, $I_C$=–0.7A | 60min | | |
| $V_{CE(sat)}$ | $I_C$=–0.7A, $I_B$=–0.07A | –1.0max | | V |
| $f_T$ | $V_{CE}$=–12V, $I_E$=0.2A | 20typ | | MHz |
| $C_{OB}$ | $V_{CB}$=–10V, f=1MHz | 60typ | | pF |

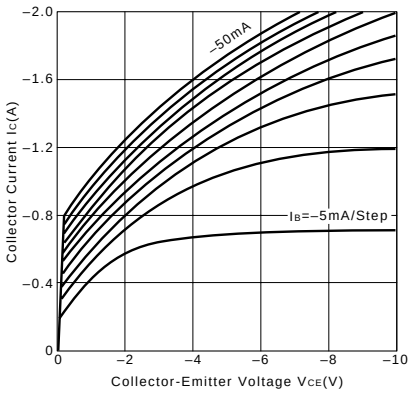
**■Typical Switching Characteristics (Common Emitter)**

| $V_{CC}$ (V) | $R_L$ (Ω) | $I_C$ (A) | $V_{BB1}$ (V) | $V_{BB2}$ (V) | $I_{B1}$ (mA) | $I_{B2}$ (mA) | ton (μs) | tstg (μs) | tf (μs) |
|---|---|---|---|---|---|---|---|---|---|
| –20 | 20 | –1 | –10 | 5 | –100 | 100 | 0.4typ | 1.5typ | 0.5typ |

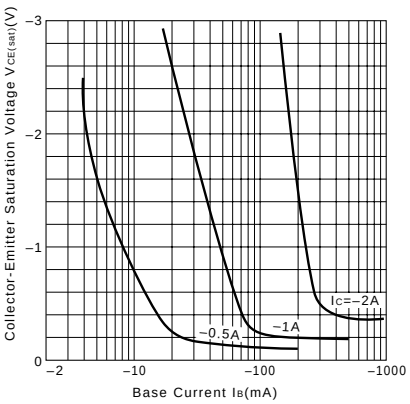
**External Dimensions** FM20 (TO220F)



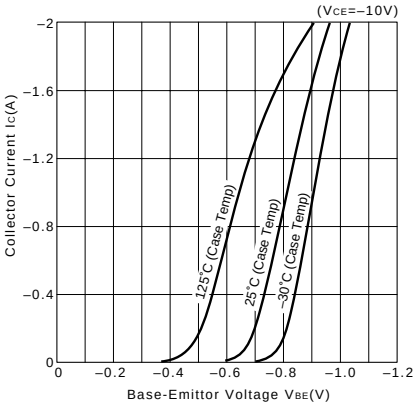

**$I_C$–$V_{CE}$ Characteristics** (Typical)



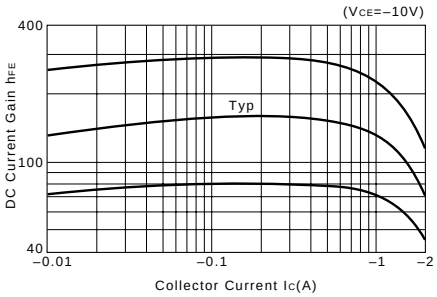

**$V_{CE}$(sat)–$I_B$ Characteristics** (Typical)



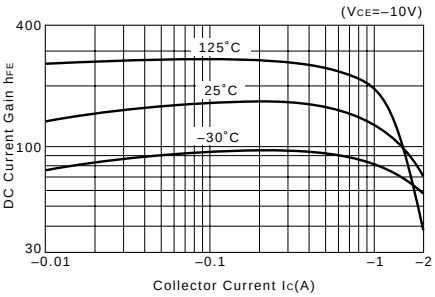

**$I_C$–$V_{BE}$ Temperature Characteristics** (Typical)



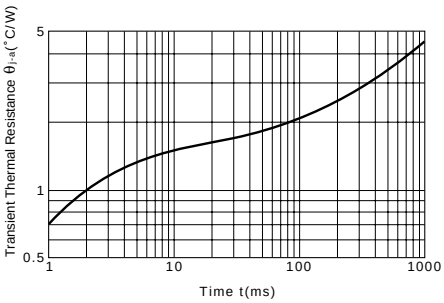

**$h_{FE}$–$I_C$ Characteristics** (Typical)



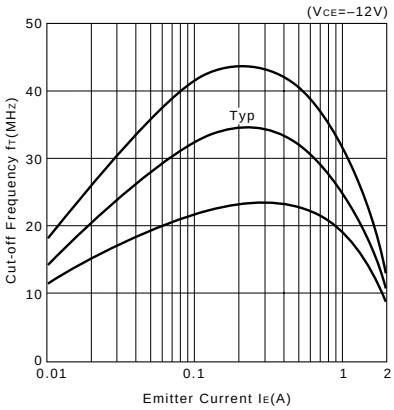

**$h_{FE}$–$I_C$ Temperature Characteristics** (Typical)



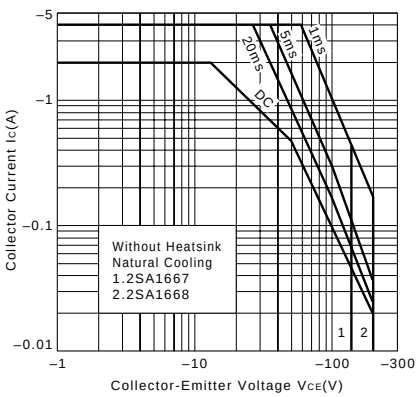

**$\theta_{j\text{-}a}$–t Characteristics**



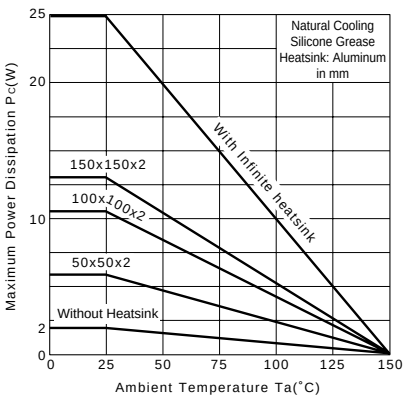

**$f_T$–$I_E$ Characteristics** (Typical)




**Safe Operating Area** (Single Pulse)




**Pc–Ta Derating**



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