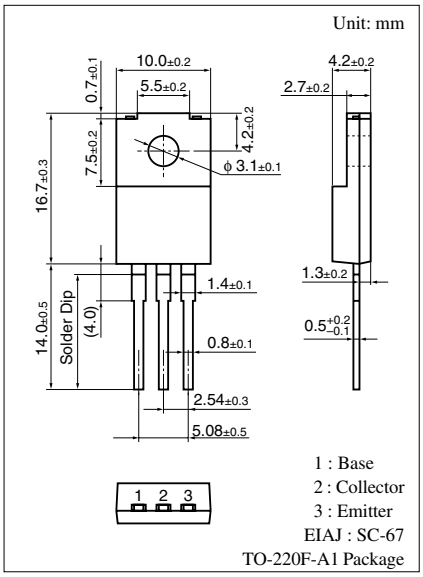
# 2SC3943

## Silicon NPN epitaxial planar type

For video amplifier




### ■ Features

- Small transition frequency $f_T$
- Small collector output capacitance $C_{ob}$
- Full-pack package which can be installed to the heat sink with one screw

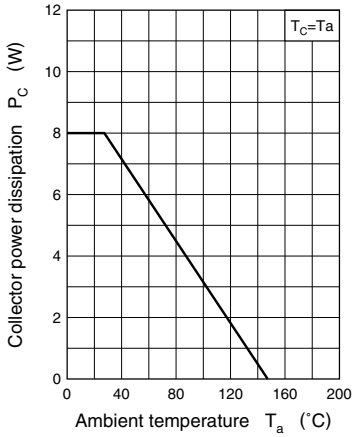
### ■ Absolute Maximum Ratings $T_C = 25°C$

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Collector to base voltage | | $V_{CBO}$ | 110 | V |
| Collector to emitter voltage | | $V_{CER}$ | 100 | V |
| | | $V_{CEO}$ | 50 | V |
| Emitter to base voltage | | $V_{EBO}$ | 3.5 | V |
| Peak collector current | | $I_{CP}$ | 300 | mA |
| Collector current | | $I_C$ | 150 | mA |
| Collector power dissipation | $T_C = 25°C$ | $P_C$ | 8 | W |
| | $T_a = 25°C$ | | 2.0 | |
| Junction temperature | | $T_j$ | 150 | °C |
| Storage temperature | | $T_{stg}$ | −55 to +150 | °C |

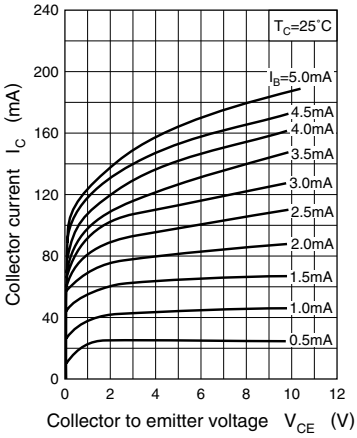
### ■ Electrical Characteristics $T_C = 25°C$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector cutoff current | $I_{CEO}$ | $V_{CE}$ = 35 V, $I_B$ = 0 | | | 10 | μA |
| Collector to base voltage | $V_{CBO}$ | $I_C$ = 100 μA, $I_E$ = 0 | 110 | | | V |
| Collector to emitter voltage | $V_{CER}$ | $I_C$ = 500 μA, $R_{BE}$ = 470 Ω | 100 | | | V |
| | $V_{CEO}$ | $I_C$ = 1 mA, $I_B$ = 0 | 50 | | | V |
| Emitter to base voltage | $V_{EBO}$ | $I_E$ = 100 μA, $I_C$ = 0 | 3.5 | | | V |
| Forward current transfer ratio | $h_{FE}$ | $V_{CE}$ = 5 V, $I_C$ = 100 mA | 20 | | | |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C$ = 150 mA, $I_B$ = 15 mA | | | 0.5 | V |
| Transition frequency | $f_{T1}$ | $V_{CE}$ = 10 V, $I_C$ = 10 mA, f = 10 MHz | | 300 | | MHz |
| | $f_{T2}$ | $V_{CE}$ = 10 V, $I_C$ = 110 mA, f = 10MHz | | 350 | | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$ = 30 V, $I_E$ = 0, f = 1 MHz | | 3.5 | | pF |

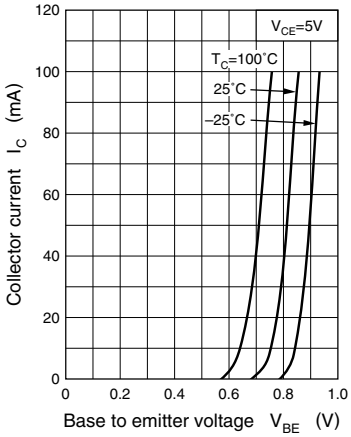
$P_C$ — $T_a$



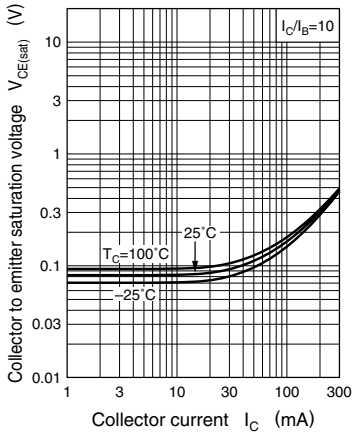

$I_C$ — $V_{CE}$



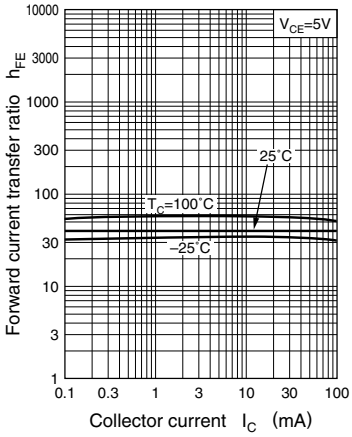

$I_C$ — $V_{BE}$



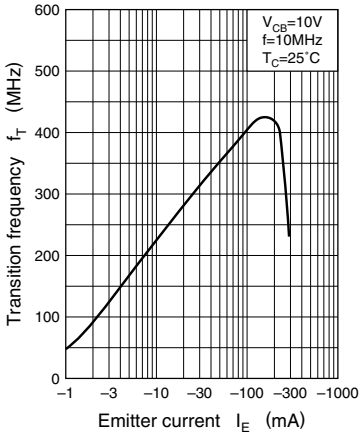

$V_{CE(sat)}$ — $I_C$



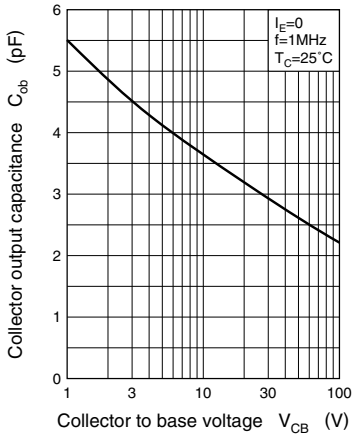

$h_{FE}$ — $I_C$



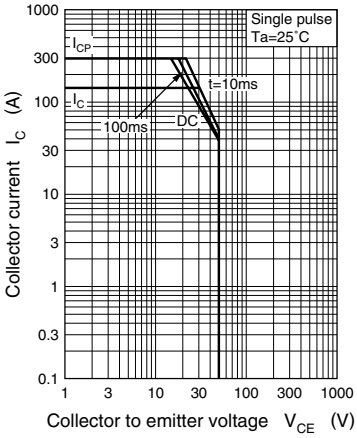

$f_T$ — $I_E$




$C_{ob}$ — $V_{CB}$




Area of safe operation (ASO)



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