# 2SC3353, 2SC3353A

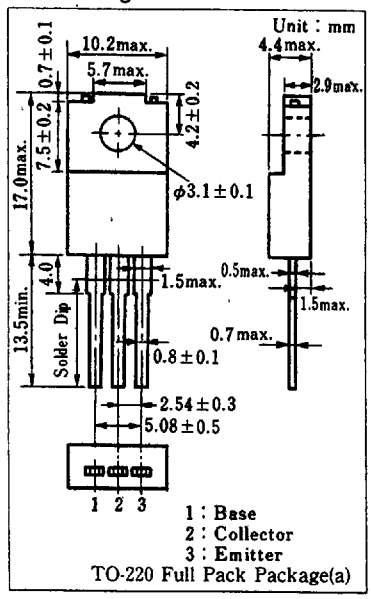
## Silicon NPN Triple-Diffused Junction Mesa Type

### High Breakdown Voltage, High Speed Switching

### ■ Features

- High speed switching
- High collector-base voltage ($V_{CBO}$)
- Low collector-emitter saturation voltage ($V_{CE\ (sat)}$)
- "Full Pack" package for simplified mounting on a heat sink with one screw

### ■ Package Dimensions



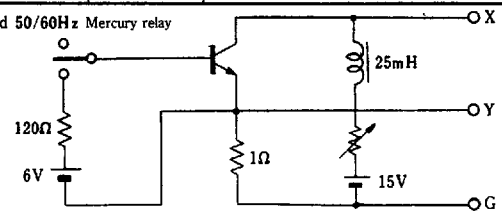

### ■ Absolute Maximum Ratings (Tc=25°C)

| Item | | Symbol | Value | Unit |
|---|---|---|---|---|
| Collector-base voltage | 2SC3353 | $V_{CBO}$ | 800 | V |
| | 2SC3353A | | 900 | |
| Collector-emitter voltage | | $V_{CEO}$ | 500 | V |
| Emitter-base voltage | | $V_{EBO}$ | 8 | V |
| Peak collector current | | $I_{CP}$ | 10 | A |
| Collector current | | $I_C$ | 5 | A |
| Base current | | $I_B$ | 3 | A |
| Collector power dissipation | Tc=25°C | $P_C$ | 40 | W |
| | Ta=25°C | | 2 | |
| Junction temperature | | $T_j$ | 150 | °C |
| Storage temperature | | $T_{stg}$ | −55~+150 | °C |

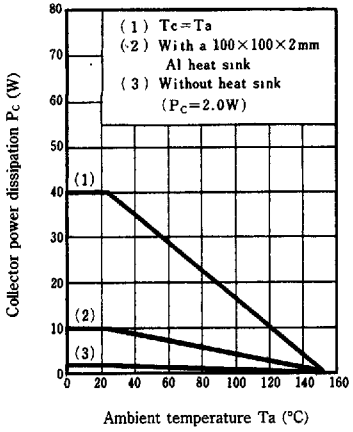
### ■ Electrical Characteristics (Tc=25°C)

| Item | | Symbol | Condition | min. | typ. | max. | Unit |
|---|---|---|---|---|---|---|---|
| Collector cutoff current | 2SC3353 | $I_{CBO}$ | $V_{CB}$=800 V, $I_E$=0 | | | 100 | μA |
| | 2SC3353A | | $V_{CB}$=900 V, $I_E$=0 | | | 100 | |
| Emitter cutoff current | | $I_{EBO}$ | $V_{EB}$=5 V, $I_C$=0 | | | 100 | μA |
| Collector-emitter voltage | | $V_{CEO(sus)}$ | $I_C$=0.2 A, L=25 mH | 500 | | | V |
| DC current gain | | $h_{FE1}$ | $V_{CE}$=5 V, $I_C$=0.1 A | 15 | | | |
| | | $h_{FE2}$ | $V_{CE}$=5 V, $I_C$=3 A | 8 | | | |
| Collector-emitter saturation voltage | | $V_{CE(sat)}$ | $I_C$=3 A, $I_B$=0.6 A | | | 1 | V |
| Base-emitter saturation voltage | | $V_{BE(sat)}$ | $I_C$=3 A, $I_B$=0.6 A | | | 1.5 | V |
| Transition frequency | | $f_T$ | $V_{CE}$=10V, $I_C$=0.5A, f=1MHz | | 3 | | MHz |
| Turn-on time | 2SC3353 | $t_{on}$ | $I_C$=3 A<br>$I_{B1}$=0.6 A, $I_{B2}$=−0.6 A<br>$V_{CC}$=200 V | | | 1 | μs |
| | 2SC3353A | | | | | 1.2 | |
| Storage time | | $t_{stg}$ | | | | 3 | μs |
| Fall time | 2SC3353 | $t_f$ | | | | 1 | μs |
| | 2SC3353A | | | | | 1.2 | |

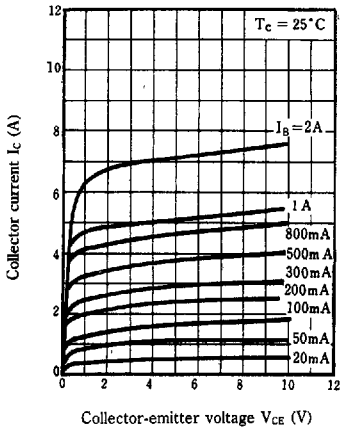
* $V_{CEO\ (sus)}$ Test method 50/60Hz Mercury relay



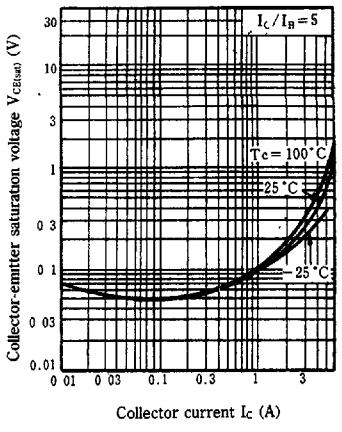
## $P_C - Ta$



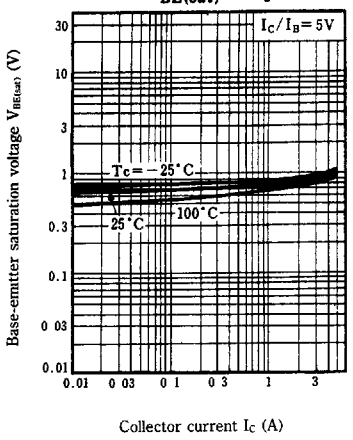

## $I_C - V_{CE}$



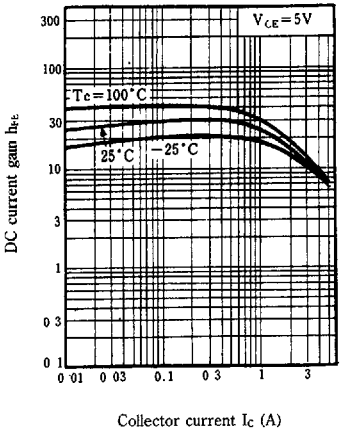

## $V_{CE(sat)} - I_C$



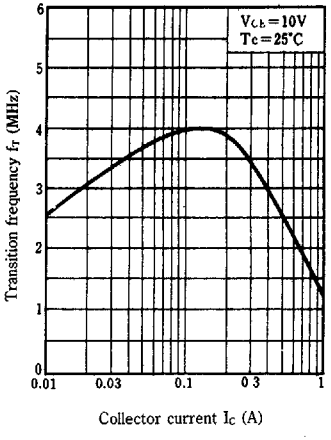

## $V_{BE(sat)} - I_C$



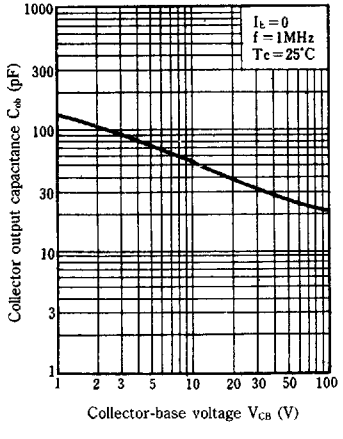

## $h_{FE} - I_C$



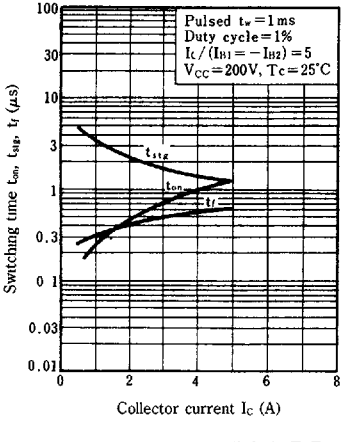

## $f_T - I_C$



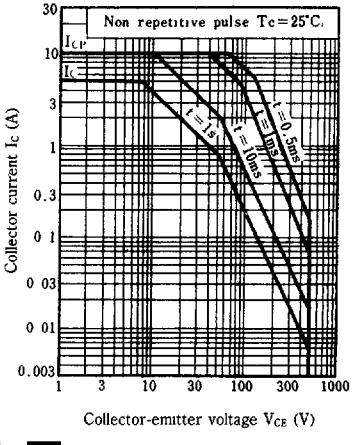

## $C_{ob} - V_{CB}$



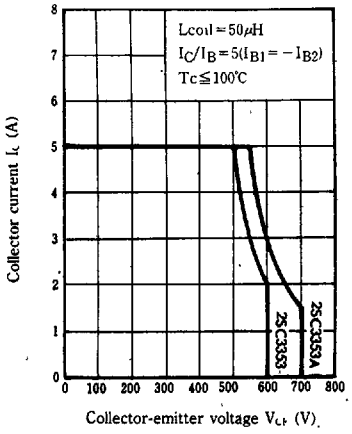

## $t_{on}, t_{stg}, t_f - I_C$



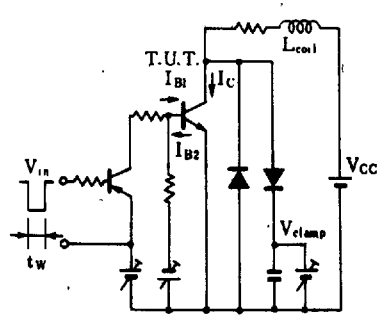

## Safety operation area-forward bias (ASO)



## Safety operation area-reverse bias (ASO)




## Measurement circuit of reverse bias ASO




## $R_{th(t)} - t$