

### / Descriptions

TO-220F      NPN      Silicon NPN transistor in a TO-220F Plastic Package.

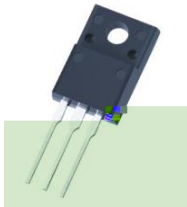
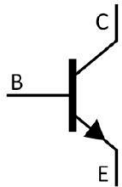
### / Features

$V_{CESAT}$   
High DC current gain ,low collector saturation voltage.

### / Applications

For power amplification.

### / Equivalent Circuit



PIN1   Base      PIN 2   Collector      PIN 3   Emitter

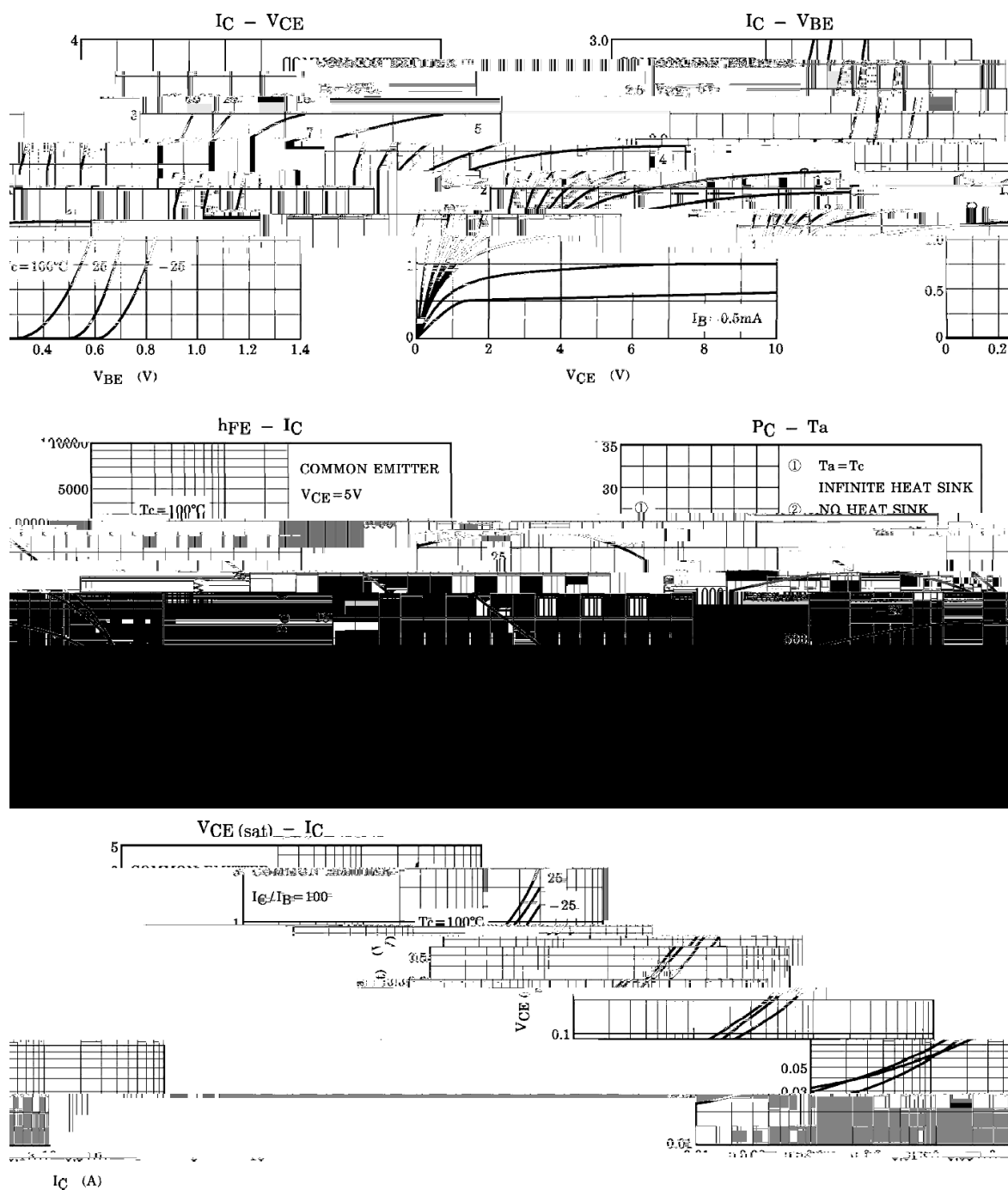
### / $h_{FE}$ Classifications & Marking

See Marking Instructions.

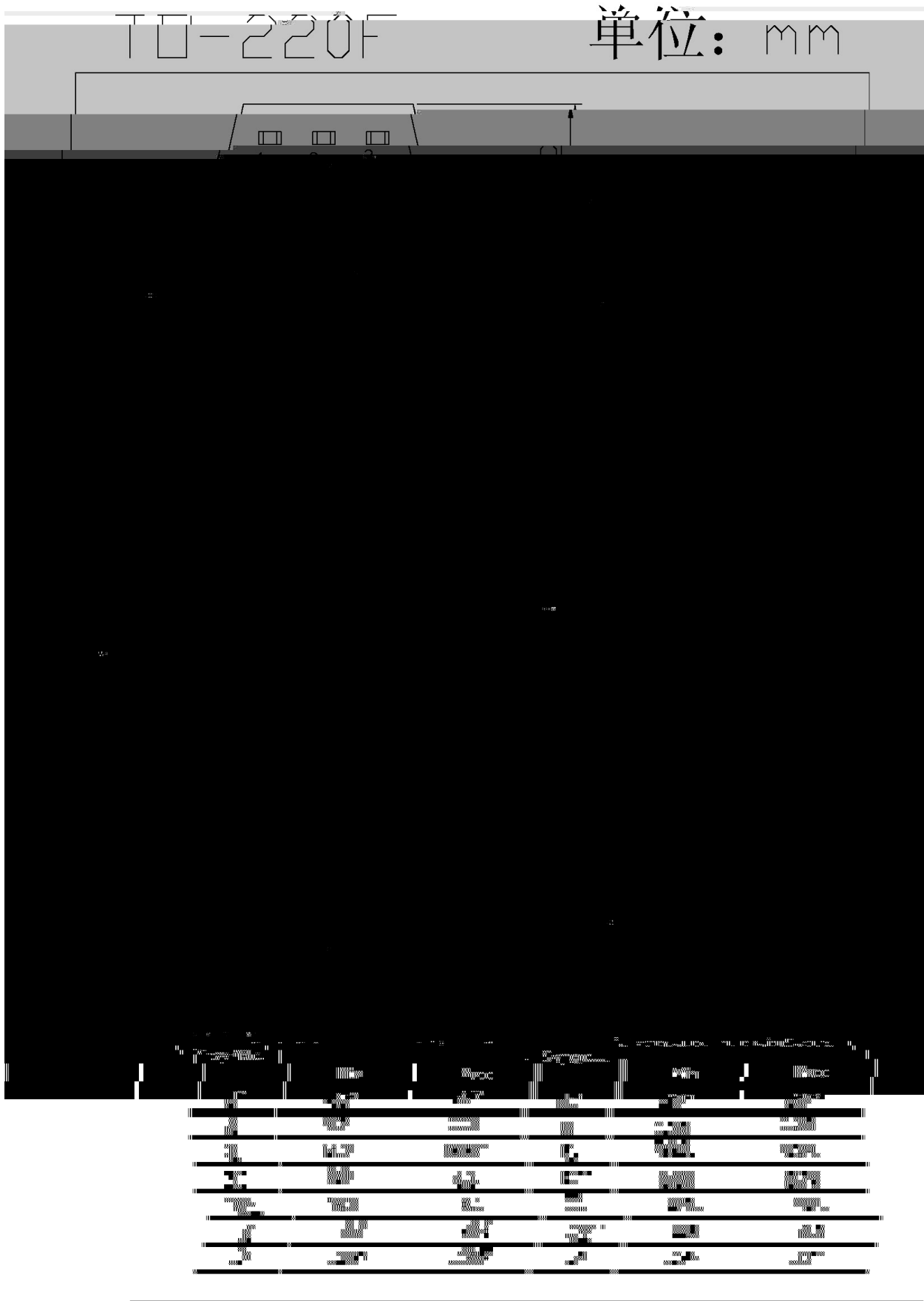
| Parameter                             | Symbol    | Rating  | Unit |
|---------------------------------------|-----------|---------|------|
| Collector to Base Voltage             | $V_{CBO}$ | 60      | V    |
| Collector to Emitter Voltage          | $V_{CEO}$ | 60      | V    |
| Emitter to Base Voltage               | $V_{EBO}$ | 7.0     | V    |
| Collector Current - Continuous        | $I_C$     | 3.0     | A    |
| Collector Current – Continuous(Pulse) | $I_{CP}$  | 6.0     | A    |
| Base Current                          | $I_B$     | 0.6     | A    |
| Collector Power Dissipation           | $P_C$     | 2.0     | W    |
| Junction Temperature                  | $T_j$     | 150     |      |
| Storage Temperature Range             | $T_{stg}$ | -55 150 |      |

| Parameter                               | Symbol        | Test Conditions          | Min | Typ | Max  | Unit |
|-----------------------------------------|---------------|--------------------------|-----|-----|------|------|
| Collector to Emitter Breakdown Voltage  | $V_{CEO}$     | $I_C=50mA$ $I_B=0$       | 60  |     |      | V    |
| Base to Emitter Voltage                 | $V_{BE}$      | $V_{CE}=5V$ $I_C=0.5A$   |     | 0.7 | 1.0  | V    |
| Collector Cut-Off Current               | $I_{CBO}$     | $V_{CB}=60V$ $I_E=0$     |     |     | 100  | A    |
| Emitter Cut-Off Current                 | $I_{EBO}$     | $V_{EB}=6.0V$ $I_C=0$    |     |     | 100  | A    |
| DC Current Gain                         | $h_{FE(1)}$   | $V_{CE}=5.0V$ $I_C=0.2A$ | 800 |     | 3200 |      |
|                                         | $h_{FE(2)}$   | $V_{CE}=5.0V$ $I_C=1.5A$ | 350 |     |      |      |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=1.0A$ $I_B=10mA$    |     | 0.4 | 1.0  | V    |
| Transition Frequency                    | $f_T$         | $V_{CE}=5.0V$ $I_C=0.5A$ |     | 18  |      | MHz  |

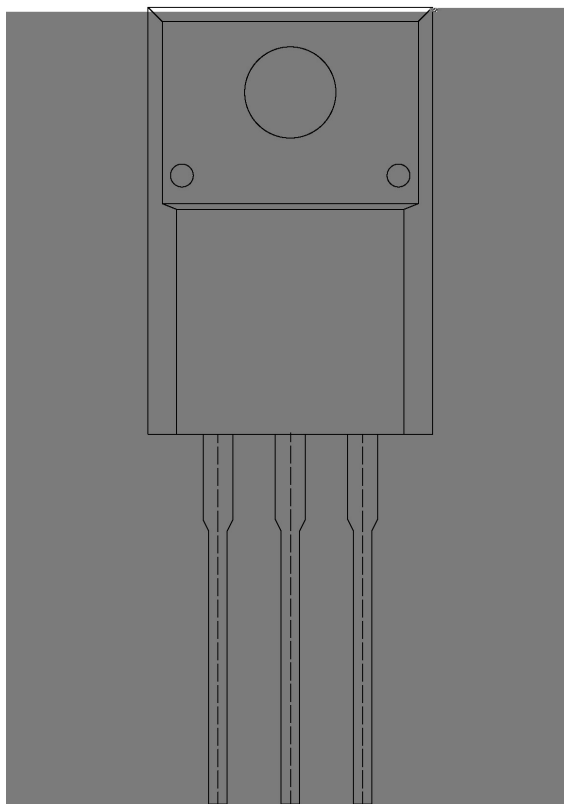
/ Electrical Characteristic Curve



/ Package Dimensions

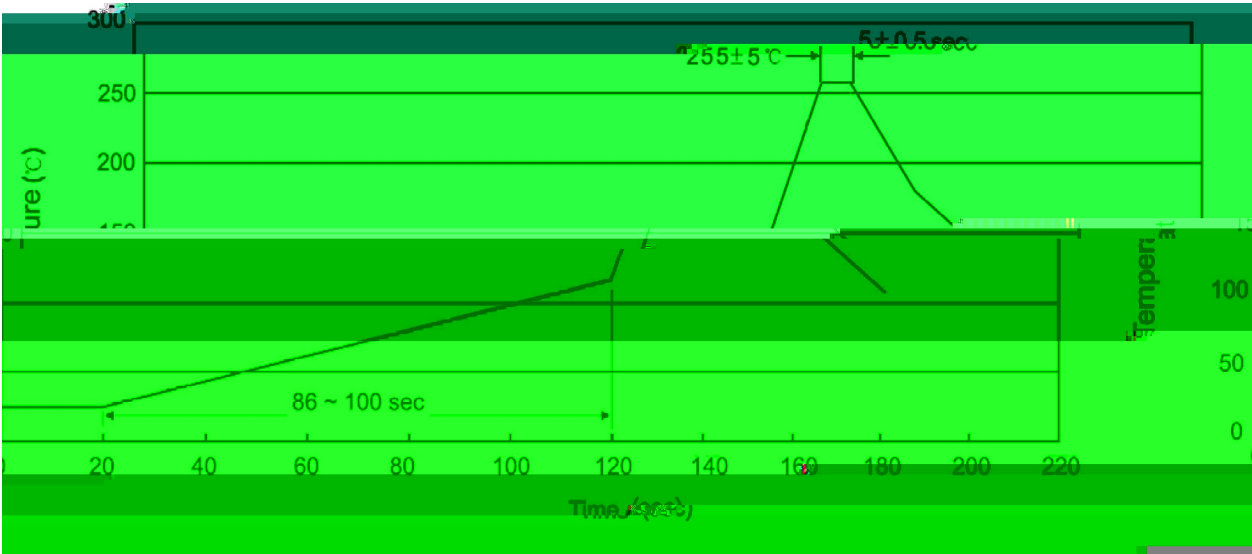


**/ Marking Instructions**



BR  
D2353

(     ) / Temperature Profile for Dip Soldering(Pb-Free)



- Note:
1. Preheating: 25~150 , Time: 60~90sec.

2. Peak Temp.: 255±5 , Duration: 5±0.5sec.

3. Cooling Speed: 2~10 /sec.

|   |   |   |   |      |
|---|---|---|---|------|
| 5 | · | q | Y | 255± |
|---|---|---|---|------|