

2SD1273, 2SD1273A

Silicon NPN Triple-Diffused Planar Type

High DC Current Gain (h_{FE}), Power Amplifier

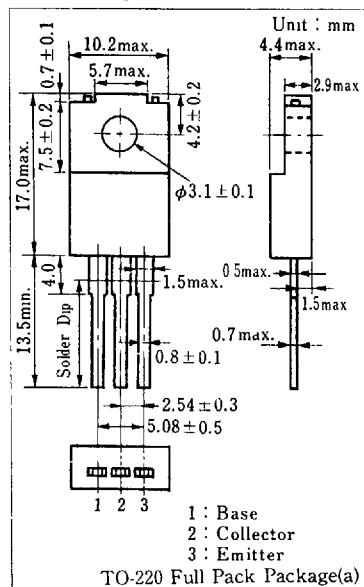
■ Features

- High DC current gain (h_{FE})
- Good linearity of DC current gain (h_{FE})
- "Full Pack" package for simplified mounting on a heat sink with one screw

■ Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)

| Item | | Symbol | Value | Unit |
|-----------------------------|----------------------------|-----------|-----------------|--------------------|
| Collector-base voltage | 2SD1273 | V_{CBO} | 80 | V |
| | 2SD1273A | | 100 | |
| Collector-emitter voltage | 2SD1273 | V_{CEO} | 60 | V |
| | 2SD1273A | | 80 | |
| Emitter-base voltage | | V_{EBO} | 6 | V |
| Peak collector current | | I_{CP} | 6 | A |
| Collector current | | I_C | 3 | A |
| Base current | | I_B | 1 | A |
| Collector power dissipation | $T_C = 25^{\circ}\text{C}$ | P_C | 40 | W |
| | $T_A = 25^{\circ}\text{C}$ | | 2 | |
| Junction temperature | | T_J | 150 | $^{\circ}\text{C}$ |
| Storage temperature | | T_{stg} | $-55 \sim +150$ | $^{\circ}\text{C}$ |

■ Package Dimensions



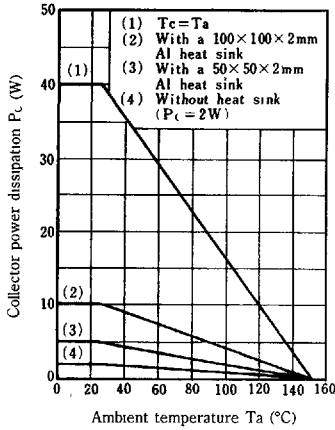
■ Electrical Characteristics ($T_c=25^\circ\text{C}$)

| Item | Symbol | Condition | min. | typ. | max. | Unit |
|--------------------------------------|---------------------|--|------|------|------|---------------|
| Collector cutoff current | 2SD1273 2SD1273A | I_{CBO} $V_{CB} = 80\text{ V}, I_F = 0$ $V_{CB} = 100\text{ V}, I_F = 0$ | | | 100 | μA |
| | | | | | 100 | μA |
| Collector cutoff current | I_{CBO} | $V_{CB} = 40\text{ V}, I_F = 0$ | | | 100 | μA |
| Emitter cutoff current | I_{EBO} | $V_{EB} = 6\text{ V}, I_C = 0$ | | | 100 | μA |
| Collector-emitter voltage | 2SD1273 2SD1273A | V_{CEO} $I_C = 25\text{ mA}, I_B = 0$ | 60 | | | V |
| | | | 80 | | | V |
| DC current gain | h_{FE}^* | $V_{CE} = 4\text{ V}, I_C = 0.5\text{ A}$ | 500 | | 2500 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 2\text{ A}, I_B = 0.05\text{ A}$ | | | 1 | V |
| Transition frequency | f_T | $V_{CE} = 12\text{ V}, I_C = 0.2\text{ A}, f = 10\text{ MHz}$ | | 50 | | MHz |

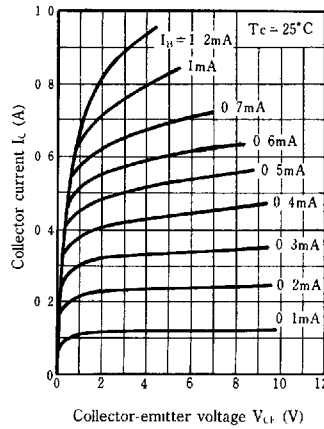
* h_{FE} Classifications

| Class | Q | P | O |
|----------|------------|------------|-------------|
| h_{FE} | 500 ~ 1000 | 800 ~ 1500 | 1200 ~ 2500 |

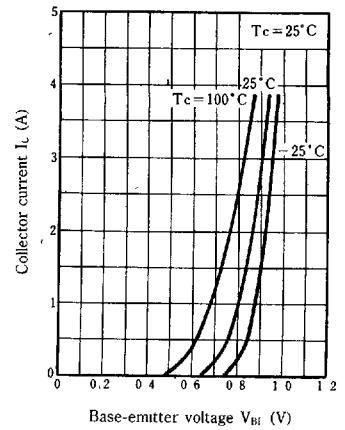
$P_C - T_a$



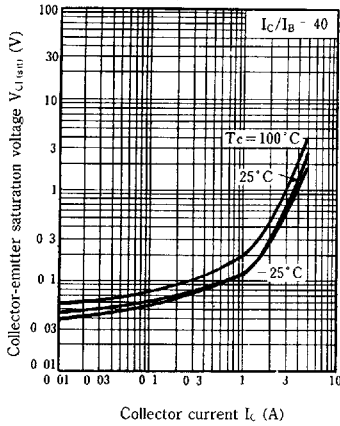
$I_C - V_{CE}$



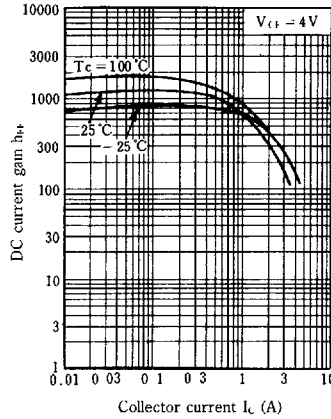
$I_C - V_{BE}$



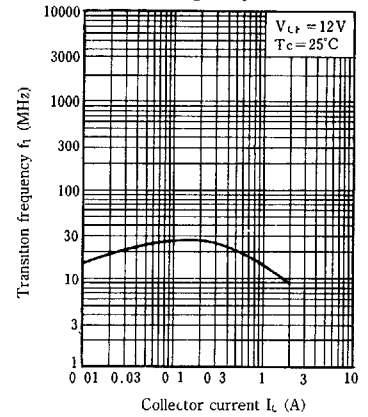
$V_{CE(sat)} - I_C$



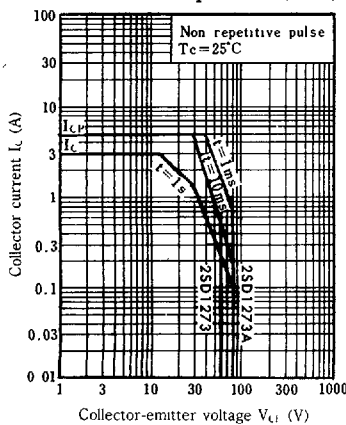
$h_{FE} - I_C$



$f_T - I_C$



Area of safe operation (ASO)



$R_{th(t)} - t$

