

Silicon NPN Power Transistors

2SD1444 2SD1444A

DESCRIPTION

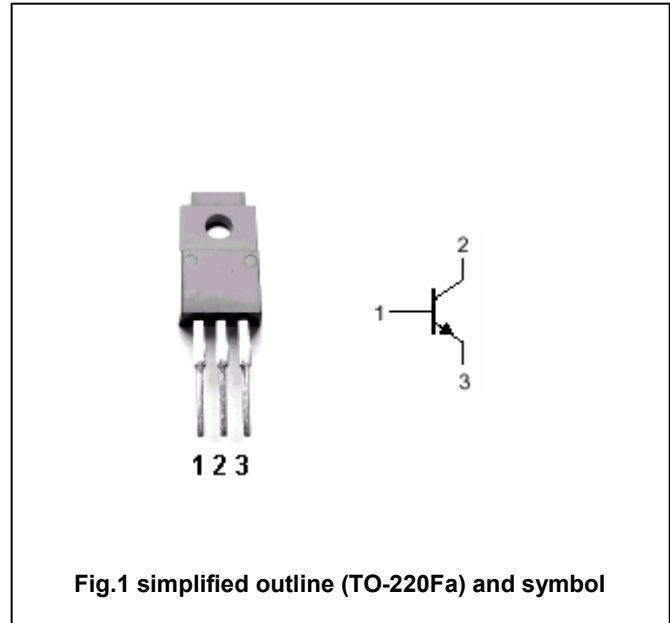
- With TO-220Fa package
- Low collector saturation voltage
- High speed switching
- High collector current
- Complement to type 2SB953/953A

APPLICATIONS

- Power amplifiers
- Low voltage switching

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | Base |
| 2 | Collector |
| 3 | Emitter |

Absolute maximum ratings($T_a=25^\circ\text{C}$)

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|-----------|-----------------------------|------------------------|---------|------------------|
| V_{CBO} | Collector-base voltage | 2SD1444 | 40 | V |
| | | 2SD1444A | 50 | |
| V_{CEO} | Collector-emitter voltage | 2SD1444 | 20 | V |
| | | 2SD1444A | 40 | |
| V_{EBO} | Emitter-base voltage | Open collector | 5 | V |
| I_C | Collector current (DC) | | 7 | A |
| I_{CM} | Collector current-peak | | 12 | A |
| P_C | Collector power dissipation | $T_C=25^\circ\text{C}$ | 30 | W |
| | | $T_a=25^\circ\text{C}$ | 2 | |
| T_j | Junction temperature | | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage temperature | | -55~150 | $^\circ\text{C}$ |

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CHARACTERISTICS

T_j=25°C unless otherwise specified

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| SYMBOL | PARAMETER | | CONDITIONS | MIN | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|----------|---|-----|------|-----|------|
| V _{(BR)CEO} | Collector-emitter breakdown voltage | 2SD1444 | I _C =10mA, I _B =0 | 20 | | | V |
| | | 2SD1444A | | 40 | | | |
| V _{CEsat} | Collector-emitter saturation voltage | | I _C =5A; I _B =0.16A | | | 0.6 | V |
| V _{BEsat} | Base-emitter saturation voltage | | I _C =5A; I _B =0.16A | | | 1.5 | V |
| I _{CBO} | Collector cut-off current | 2SD1444 | V _{CB} =40V; I _E =0 | | | 50 | μA |
| | | 2SD1444A | V _{CB} =50V; I _E =0 | | | | |
| I _{EBO} | Emitter cut-off current | | V _{EB} =5V; I _C =0 | | | 50 | μA |
| h _{FE-1} | DC current gain | | I _C =0.1A; V _{CE} =2V | 45 | | | |
| h _{FE-2} | DC current gain | | I _C =2A; V _{CE} =2V | 60 | | 260 | |
| f _T | Transition frequency | | I _C =0.5A; V _{CE} =10V | | 150 | | MHz |
| C _{OB} | Output capacitance | | I _E =0; V _{CB} =10V; f=1MHz | | 110 | | pF |

Switching times

| | | | | | | |
|------------------|--------------|---|--|-----|--|----|
| t _{on} | Turn-on time | I _C =2A; I _{B1} =-I _{B2} =66mA | | 0.3 | | μs |
| t _{stg} | Storage time | | | 0.3 | | μs |
| t _f | Fall time | | | 0.1 | | μs |

◆ h_{FE-2} Classifications

| R | Q | P |
|--------|--------|---------|
| 60-120 | 90-180 | 130-260 |

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PACKAGE OUTLINE

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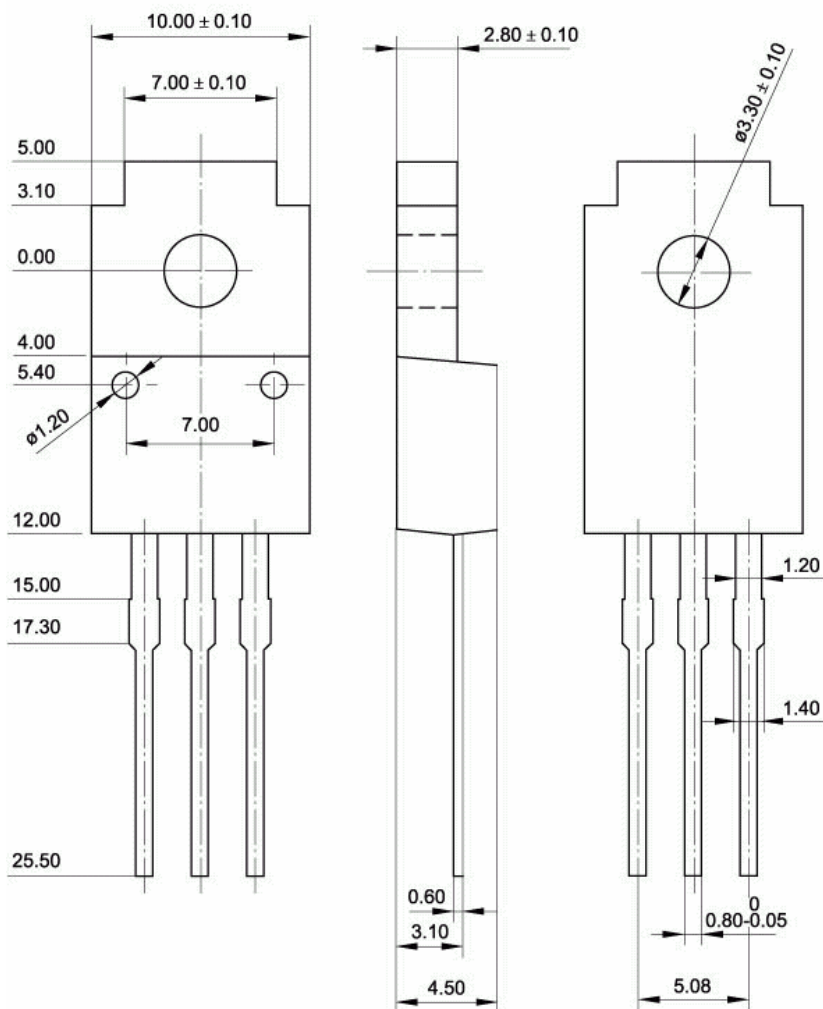


Fig.2 Outline dimensions (unindicated tolerance: ± 0.15 mm)