

## HIGH-POWER PNP SILICON POWER TRANSISTORS

...designed for use in general-purpose amplifier and switching application .

### FEATURES:

- \* Recommend for 120W High Fidelity Audio Frequency Amplifier Output stage
- \* Complementary to 2SC4029

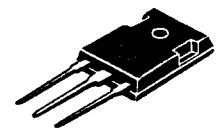
**PNP**  
**2SA1553**

**15 AMPERE**  
**POWER**  
**TRANSISTOR**

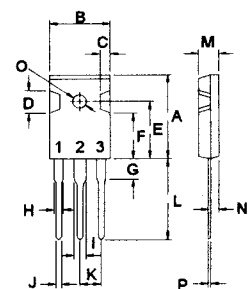
**230 VOLTS**  
**150 WATTS**

### MAXIMUM RATINGS

| Characteristic                                                                        | Symbol            | 2SA1553     | Unit                     |
|---------------------------------------------------------------------------------------|-------------------|-------------|--------------------------|
| Collector-Emitter Voltage                                                             | $V_{CEO}$         | 230         | V                        |
| Collector-Base Voltage                                                                | $V_{CBO}$         | 230         | V                        |
| Emitter-Base Voltage                                                                  | $V_{EBO}$         | 5.0         | V                        |
| Collector Current - Continuous<br>- Peak                                              | $I_C$<br>$I_{CM}$ | 15<br>20    | A                        |
| Base current                                                                          | $I_B$             | 2.0         | A                        |
| Total Power Dissipation @ $T_C = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$             | 150<br>1.2  | W<br>W/ $^\circ\text{C}$ |
| Operating and Storage Junction<br>Temperature Range                                   | $T_J, T_{STG}$    | -55 to +150 | $^\circ\text{C}$         |



**TO-247(3P)**

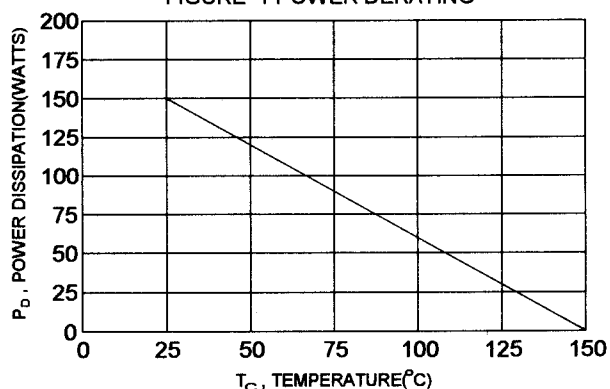


PIN 1.BASE  
2.COLLECTOR  
3.EMITTER

### THERMAL CHARACTERISTICS

| Characteristic                      | Symbol          | Max  | Unit               |
|-------------------------------------|-----------------|------|--------------------|
| Thermal Resistance Junction to Case | $R_{\theta jc}$ | 0.83 | $^\circ\text{C/W}$ |

FIGURE -1 POWER DERATING



| DIM | MILLIMETERS |       |
|-----|-------------|-------|
|     | MIN         | MAX   |
| A   | 20.63       | 22.38 |
| B   | 15.38       | 16.20 |
| C   | 1.90        | 2.70  |
| D   | 5.10        | 6.10  |
| E   | 14.81       | 15.22 |
| F   | 11.72       | 12.84 |
| G   | 4.20        | 4.50  |
| H   | 1.82        | 2.46  |
| I   | 2.92        | 3.23  |
| J   | 0.89        | 1.53  |
| K   | 5.26        | 5.66  |
| L   | 18.50       | 21.50 |
| M   | 4.68        | 5.36  |
| N   | 2.40        | 2.80  |
| O   | 3.25        | 3.65  |
| P   | 0.55        | 0.70  |

**ELECTRICAL CHARACTERISTICS** (  $T_c = 25^\circ\text{C}$  unless otherwise noted )

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

**OFF CHARACTERISTICS**

|                                                                             |               |     |    |               |
|-----------------------------------------------------------------------------|---------------|-----|----|---------------|
| Collector-Emitter Breakdown Voltage<br>( $I_C = 50\text{ mA}$ , $I_E = 0$ ) | $V_{(BR)CEO}$ | 230 |    | V             |
| Collector Cutoff Current<br>( $V_{CB} = 230\text{ V}$ , $I_E = 0$ )         | $I_{CBO}$     |     | 50 | $\mu\text{A}$ |
| Emitter Cutoff Current<br>( $V_{EB} = 5.0\text{ V}$ , $I_C = 0$ )           | $I_{EBO}$     |     | 20 | $\mu\text{A}$ |

**ON CHARACTERISTICS (1)**

|                                                                                                                               |                         |          |     |   |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------|-----|---|
| DC Current Gain<br>( $I_C = 1.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ ) *<br>( $I_C = 7.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ ) | $h_{FE(2)}$<br>$h_{FE}$ | 55<br>35 | 160 |   |
| Collector-Emitter Saturation Voltage<br>( $I_C = 8.0\text{ A}$ , $I_B = 800\text{ mA}$ )                                      | $V_{CE(sat)}$           |          | 3.0 | V |
| Base-Emitter On Voltage<br>( $I_C = 7.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ )                                                 | $V_{BE(on)}$            |          | 1.5 | V |

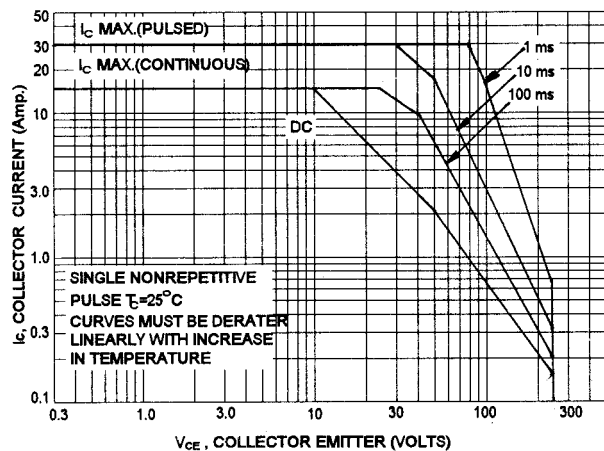
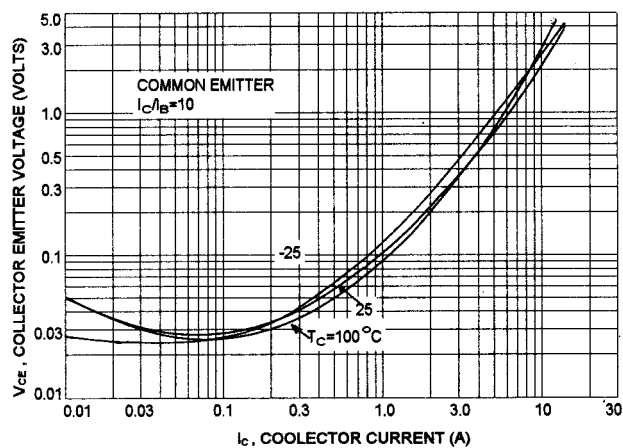
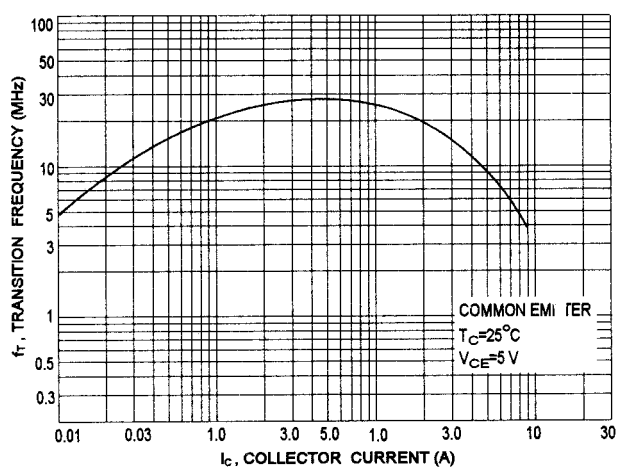
**DYNAMIC CHARACTERISTICS**

|                                                                                                             |       |    |  |     |
|-------------------------------------------------------------------------------------------------------------|-------|----|--|-----|
| Current-Gain-Bandwidth Product<br>( $I_C = 1.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ , $f = 1.0\text{ MHz}$ ) | $f_T$ | 10 |  | MHz |
|-------------------------------------------------------------------------------------------------------------|-------|----|--|-----|

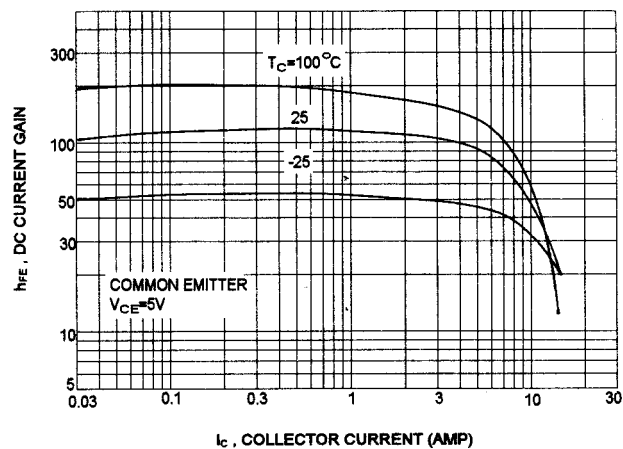
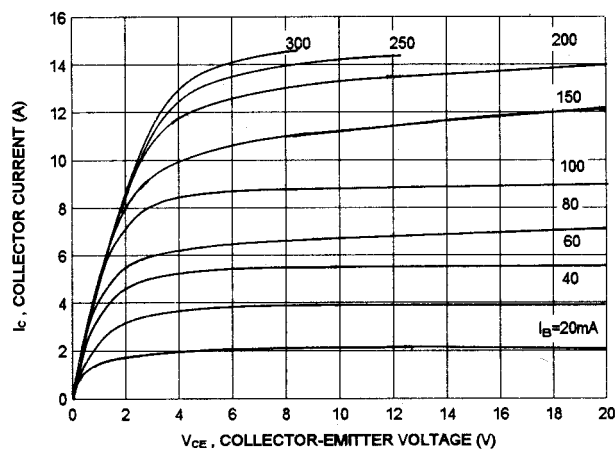
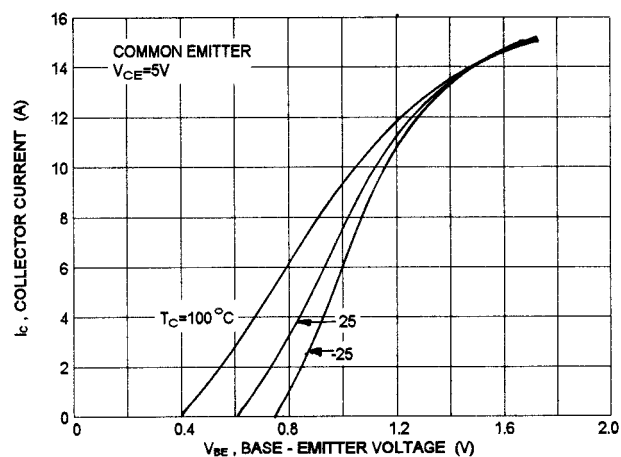
(1) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ \*  $h_{FE(2)}$  Classification :

|    |   |     |    |   |     |
|----|---|-----|----|---|-----|
| 55 | R | 110 | 80 | O | 160 |
|----|---|-----|----|---|-----|

ACTIVE REGION SAFE OPERATING AREA

 $V_{CE}(\text{sat}) - I_C$  $f_T - I_C$ 

DC CURRENT GAIN

 $I_C - V_{CE}$  $I_C - V_{BE}$ 

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