

## / Descriptions

TO-251      NPN      Silicon NPN transistor in a TO-251 Plastic Package.

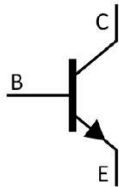
## / Features

, KTA1042I  
Low collector-emitter saturation voltage, complementary to KTA1042I.

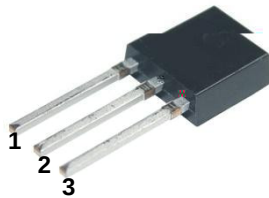
## / Applications

General purpose amplifier.

## / Equivalent Circuit



## / Pinning



PIN1    Base      PIN 2    Collector      PIN 3    Emitter

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

|                                    |           |            |
|------------------------------------|-----------|------------|
| $h_{FE}$ Classifications<br>Symbol | O         | Y          |
| $h_{FE}$ Range                     | 70    140 | 120    240 |

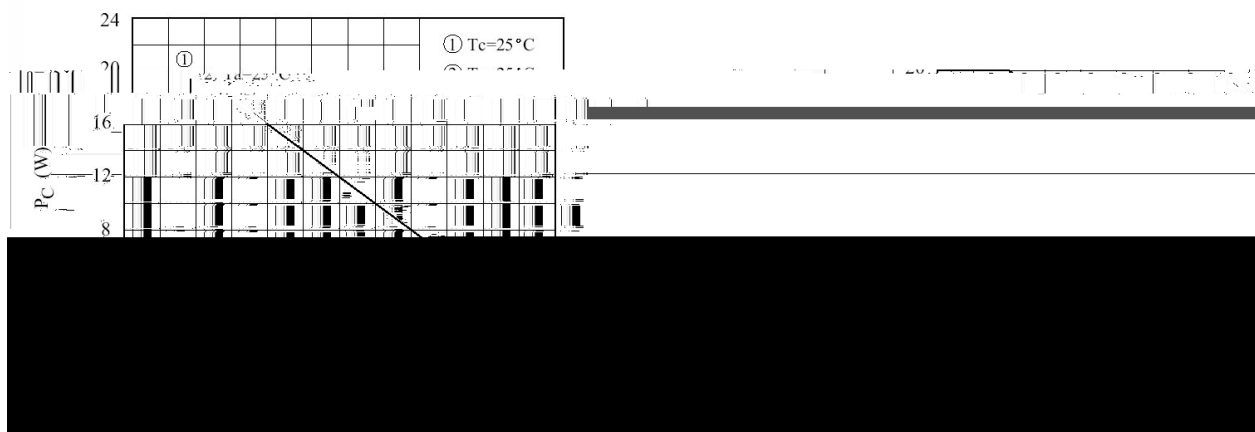
**/ Absolute Maximum Ratings(Ta=25 )**

| Parameter                      | Symbol    | Rating  | Unit |
|--------------------------------|-----------|---------|------|
| Collector to Base Voltage      | $V_{CBO}$ | 100     | V    |
| Collector to Emitter Voltage   | $V_{CEO}$ | 100     | V    |
| Emitter to Base Voltage        | $V_{EBO}$ | 5       | V    |
| Collector Current - Continuous | $I_C$     | 5       | A    |
| Base Current - Continuous      | $I_B$     | 0.5     | A    |
| Collector Power Dissipation    | $P_C$     | 20      | W    |
| Junction Temperature           | $T_j$     | 150     |      |
| Storage Temperature Range      | $T_{stg}$ | -55 150 |      |

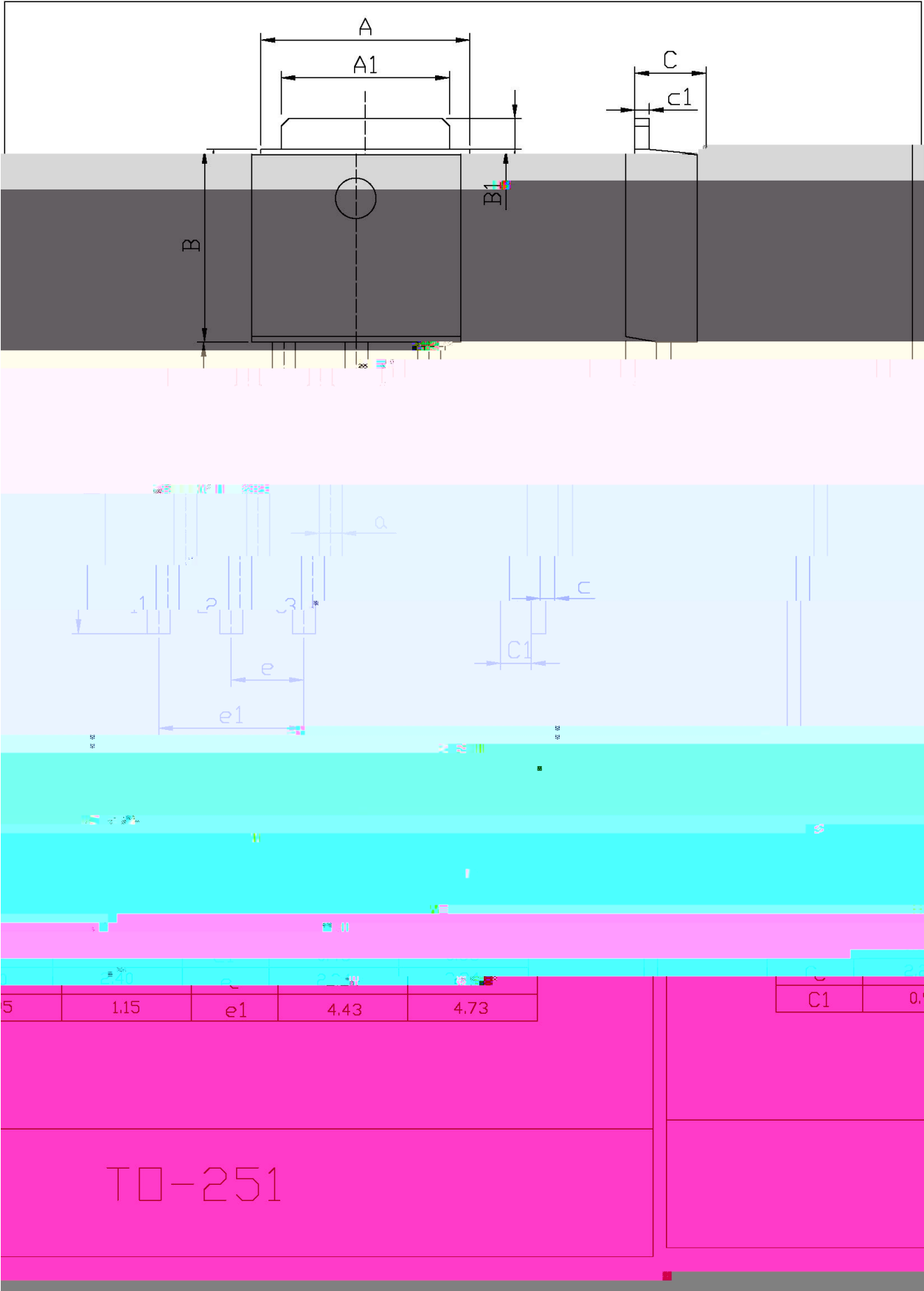
**/ Electrical Characteristics(Ta=25 )**

| Parameter                               | Symbol        | Test Conditions               | Min | Typ | Max | Unit    |
|-----------------------------------------|---------------|-------------------------------|-----|-----|-----|---------|
| Collector to Emitter Breakdown Voltage  | $V_{CEO}$     | $I_C=50mA$ $I_B=0$            | 100 |     |     | V       |
| Collector Cut-Off Current               | $I_{CBO}$     | $V_{CB}=100V$ $I_E=0$         |     |     | 100 | $\mu A$ |
| Emitter Cut-Off Current                 | $I_{EBO}$     | $V_{EB}=5V$ $I_C=0$           |     |     | 1   | mA      |
| DC Current Gain                         | $h_{FE(1)}$   | $V_{CE}=5V$ $I_C=1A$          | 70  |     | 240 |         |
|                                         | $h_{FE(2)}$   | $V_{CE}=5V$ $I_C=4A$          | 20  |     |     |         |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=4A$ $I_B=0.4A$           |     |     | 2   | V       |
| Base to Emitter Voltage                 | $V_{BE}$      | $V_{CE}=5V$ $I_C=1A$          |     |     | 1.5 | V       |
| Transition Frequency                    | $f_T$         | $V_{CE}=5V$ $I_C=1A$          |     | 30  |     | MHz     |
| Collector output capacitance            | $C_{ob}$      | $V_{CB}=10V$ $I_E=0$ $f=1MHz$ |     | 40  |     | pF      |

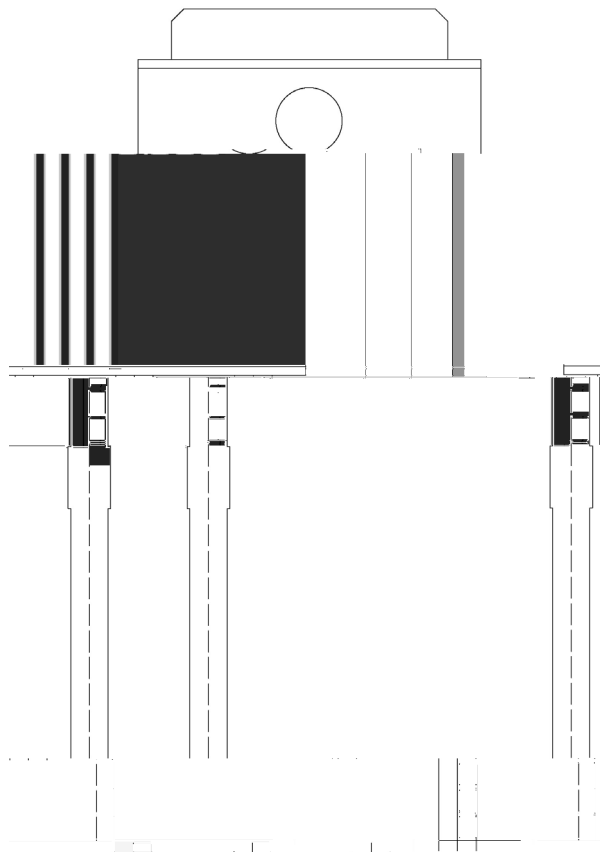
Figure 10 is a detailed circuit diagram of a common-emitter amplifier. The circuit features a 2N2222A NPN transistor. The base is connected to a 10kΩ resistor, which is in turn connected to a 5V supply. The collector is connected to a 100kΩ resistor, and the emitter is connected to a 100kΩ resistor. The input signal is applied to the base, and the output is taken from the collector. The circuit is labeled "COMMON-EMITTER" and "C/D=10". A frequency response curve is shown, indicating a gain of 10. The diagram also includes various component values and a frequency response curve.



/ Package Dimensions



/ Marking Instructions



BR

C2022I

Y:  $h_{FE}$

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Note:

BR: Company Code

C2022I: Product Type.

Y:  $h_{FE}$  Classifications Symbol

\*\*\*\*: Lot No. Code, code change with Lot No.

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