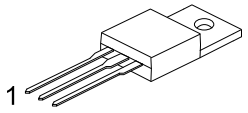
TIP110A **Preliminary** ***PNP SILICON TRANSISTOR***

# LOW SATURATION VOLTAGE PNP DARLINGTON TRANSISTOR




TO-220

## ■ DESCRIPTION

The UTC **TIP110A** is designed for using in general purpose amplifier and switching applications.

## ■ FEATURES

* Low $V_{CE(SAT)}$
* High Current Gain

## ■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|---|---|---|---|---|---|---|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| TIP110AL-TA3-T | TIP110AG-TA3-T | TO-220 | B | C | E | Tube |

TIP110AL-AE3-T

(1)Packing Type
(2)Package Type
(3)Lead Plating

(1) T: Tube
(2) TA3: TO-220
(3) G: Halogen Free, L: Lead Free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## ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C, unless otherwise specified)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| Collector to Base Voltage | $V_{CBO}$ | -45 | V |
| Collector to Emitter Voltage | $V_{CEO}$ | -35 | V |
| Emitter to Base Voltage | $V_{EBO}$ | -5 | V |
| Collector Current | $I_C$ | -10 | A |
| Power Dissipation | $P_D$ | 65 | W |
| Junction Temperature | $T_J$ | 150 | °C |
| Storage Temperature | $T_{STG}$ | -55 ~ +150 | °C |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

## ■ ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $BV_{CBO}$ | $I_C$=-10mA, $I_E$=0A | -45 | | | |
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C$ =-1mA, $I_B$ =0A | -35 | | | V |
| Emitter-Base Breakdown Voltage | $BV_{EBO}$ | $I_E$=-10mA, $I_C$=0A | -5 | | | |
| Collect Cut-off Current | $I_{CBO}$ | $V_{CB}$ =-45V, $I_E$ =0A | | | -4 | μA |
| Collector-Emitter Cut-Off Current | $I_{CEO}$ | $V_{CE}$ =-35V, $I_B$=0A | | | -10 | μA |
| Emitter Cut-off Current | $I_{EBO}$ | $V_{BE}$ =-5V, $I_C$=0A | | | -2.0 | mA |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C$ =-10A, $I_B$ =-0.1A | | | -2.0 | V |
| Base-Emitter On Voltage | $V_{BE(ON)}$ | $V_{CE}$ =-2.0V ,$I_C$ =-5mA | | | -2.0 | V |
| DC Current Gain | $h_{FE1}$ | $V_{CE}$ =-2.0V ,$I_C$ =-0.5A | 2000 | | 60000 | |
| | $h_{FE2}$ | $V_{CE}$ =-2.0V ,$I_C$ =-10A | 1000 | | 60000 | |

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