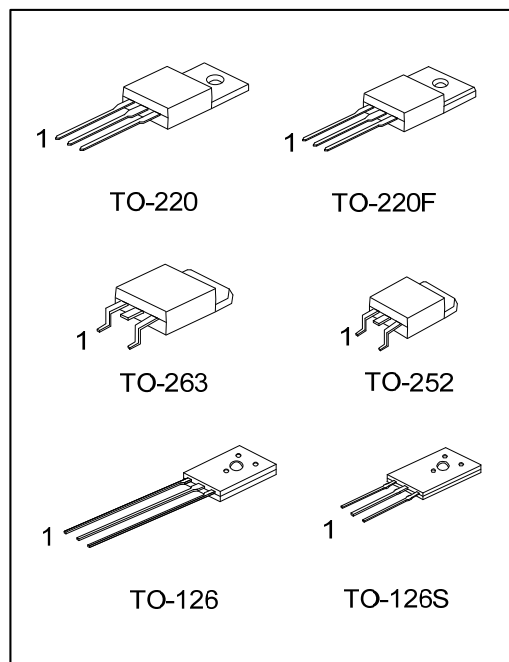


**TIP107****PNP SILICON TRANSISTOR****PNP EPITAXIAL TRANSISTOR****DESCRIPTION**

The UTC **TIP107** is designed for using in general purpose amplifier and switching applications.

**FEATURES**

- \* Low  $V_{CE(SAT)}$
- \* High Current Gain
- \* Complementary to TIP102

**ORDERING INFORMATION**

| Ordering Number |               | Package | Pin Assignment |   |   | Packing   |
|-----------------|---------------|---------|----------------|---|---|-----------|
| Lead Free       | Halogen Free  |         | 1              | 2 | 3 |           |
| TIP107L-TA3-T   | TIP107G-TA3-T | TO-220  | B              | C | E | Tube      |
| TIP107L-TF3-T   | TIP107G-TF3-T | TO-220F | B              | C | E | Tube      |
| TIP107L-TN3-R   | TIP107G-TN3-R | TO-252  | B              | C | E | Tape Reel |
| TIP107L-TQ2-T   | TIP107G-TQ2-T | TO-263  | B              | C | E | Tube      |
| TIP107L-TQ2-R   | TIP107G-TQ2-R | TO-263  | B              | C | E | Tape Reel |
| TIP107L-T60-K   | TIP107G-T60-K | TO-126  | E              | C | B | Bulk      |
| TIP107L-T6S-K   | TIP107G-T6S-K | TO-126S | E              | C | B | Bulk      |

Note: Pin Assignment: B: Base C: Collector E: Emitter

|                                                                                         |                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>TIP107G-TA3-T</p> <p>(1) Packing Type<br/>(2) Package Type<br/>(3) Green Package</p> | <p>(1) T: Tube, R: Tape Reel, K: Bulk<br/>(2) TA3: TO-220, TF3: TO-220F, TN3: TO-252<br/>TQ2: TO-263, T60: TO-126, T6S: TO-126S<br/>(3) G: Halogen Free and Lead Free, L: Lead Free</p> |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**MARKING**

| TO-220 / TO-220F / TO-252 / TO-263                                                    | TO-126 / TO-126S                                                         |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <p>UTC<br/>TIP107<br/>L: Lead Free<br/>G: Halogen Free<br/>Date Code<br/>Lot Code</p> | <p>UTC<br/>TIP107<br/>Date Code<br/>L: Lead Free<br/>G: Halogen Free</p> |

■ **ABSOLUTE MAXIMUM RATING** ( $T_C=25^{\circ}\text{C}$ , unless otherwise specified)

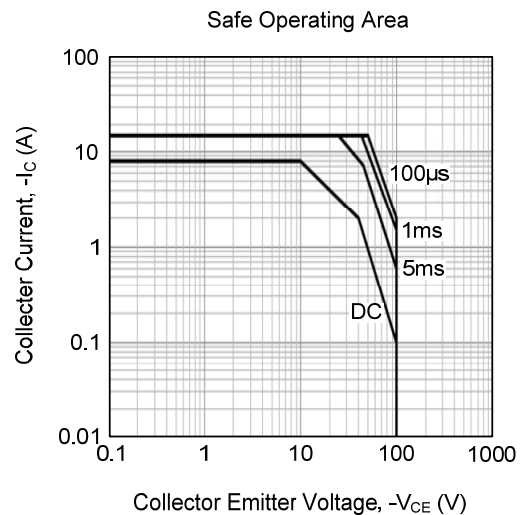
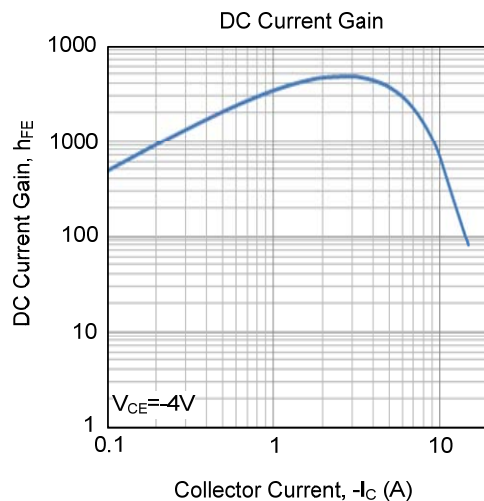
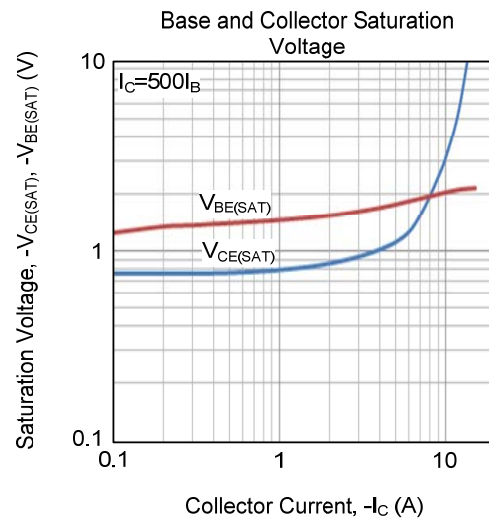
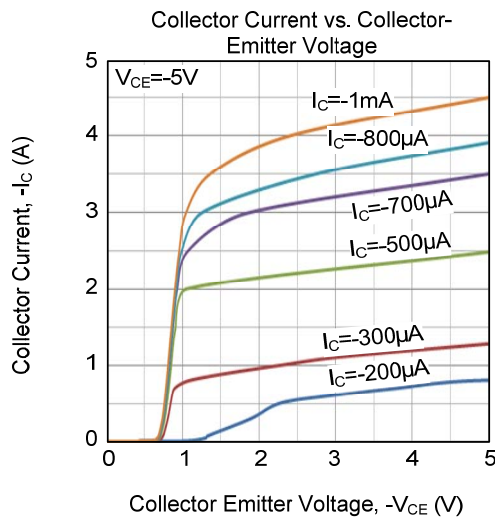
| PARAMETER                   |                | SYMBOL    | RATINGS    | UNIT               |
|-----------------------------|----------------|-----------|------------|--------------------|
| Collector-Base Voltage      |                | $V_{CBO}$ | -100       | V                  |
| Collector-Emitter Voltage   |                | $V_{CES}$ | -100       | V                  |
| Emitter-Base Voltage        |                | $V_{EBO}$ | -5         | V                  |
| Collector Current           | DC             | $I_C$     | -8         | A                  |
|                             | Pulse          | $I_{CP}$  | -15        | A                  |
| Base Current                |                | $I_B$     | -1         | A                  |
| Collector Power Dissipation | TO-220/TO-263  | $P_C$     | 80         | W                  |
|                             | TO-220F        |           |            |                    |
|                             | TO-252         |           | 41         | W                  |
|                             | TO-126/TO-126S |           | 10         | W                  |
| Junction Temperature        |                | $T_J$     | +150       | $^{\circ}\text{C}$ |
| Storage Temperature         |                | $T_{STG}$ | -65 ~ +150 | $^{\circ}\text{C}$ |

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** ( $T_C=25^{\circ}\text{C}$ , unless otherwise specified)

| PARAMETER                                | SYMBOL                | TEST CONDITIONS                                                                                                  | MIN  | TYP  | MAX   | UNIT |
|------------------------------------------|-----------------------|------------------------------------------------------------------------------------------------------------------|------|------|-------|------|
| Collector-Emitter Sustaining Voltage     | V <sub>CEQ(SUS)</sub> | I <sub>C</sub> =-30mA, I <sub>B</sub> =0A                                                                        | -100 |      |       | V    |
| Collector-Base Cut-Off Current           | I <sub>CBO</sub>      | V <sub>CB</sub> =-100V, I <sub>E</sub> =0A                                                                       |      |      | -50   | μA   |
| Collector-Emitter Cut-Off Current        | I <sub>CEO</sub>      | V <sub>CE</sub> =-50V, I <sub>B</sub> =0A                                                                        |      |      | 50    | μA   |
| Emitter-Base Cut-Off Current             | I <sub>EBO</sub>      | V <sub>EB</sub> =-5V, I <sub>C</sub> =0A                                                                         |      |      | -2    | mA   |
| ON CHARACTERISTICS                       |                       |                                                                                                                  |      |      |       |      |
| DC Current Gain                          | h <sub>FE1</sub>      | V <sub>CE</sub> =-4V, I <sub>C</sub> =-3A                                                                        | 1000 |      | 20000 |      |
|                                          | h <sub>FE2</sub>      | V <sub>CE</sub> =-4V, I <sub>C</sub> =-8A                                                                        | 200  |      |       |      |
| Collector-Emitter Saturation Voltage     | V <sub>CE(SAT)</sub>  | I <sub>C</sub> =-3A, I <sub>B</sub> =-6mA                                                                        |      |      | -2    | V    |
|                                          |                       | I <sub>C</sub> =-8A, I <sub>B</sub> =-80mA                                                                       |      |      | -2.5  | V    |
| Base Emitter Saturation Voltage          | V <sub>BE(SAT)</sub>  | I <sub>C</sub> =-8A, I <sub>B</sub> =-80mA                                                                       |      |      | -3.5  | V    |
| Base-Emitter ON Voltage                  | V <sub>BE(ON)</sub>   | V <sub>CE</sub> =-4V, I <sub>C</sub> =-8A                                                                        |      |      | -2.8  | V    |
| RESISTIVE-LOAD-SWITCHING CHARACTERISTICS |                       |                                                                                                                  |      |      |       |      |
| Delay time                               | t <sub>D</sub>        | V <sub>CC</sub> =-30V, I <sub>C</sub> =-5A, I <sub>B1</sub> =-20mA,<br>I <sub>B2</sub> =20mA, R <sub>L</sub> =6Ω |      | 0.25 |       | μs   |
| Rise time                                | t <sub>R</sub>        |                                                                                                                  |      | 4.1  |       | μs   |
| Storage time                             | t <sub>STG</sub>      |                                                                                                                  |      | 1.2  |       | μs   |
| Fall time                                | t <sub>F</sub>        |                                                                                                                  |      | 1.7  |       | μs   |
| SMALL-SIGNAL CHARACTERISTICS             |                       |                                                                                                                  |      |      |       |      |
| Output Capacitance                       | C <sub>ob</sub>       | V <sub>CB</sub> =-10V, I <sub>E</sub> =0A, f=0.1MHZ                                                              |      |      | 300   | pF   |

## ■ TYPICAL CHARACTERISTICS



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