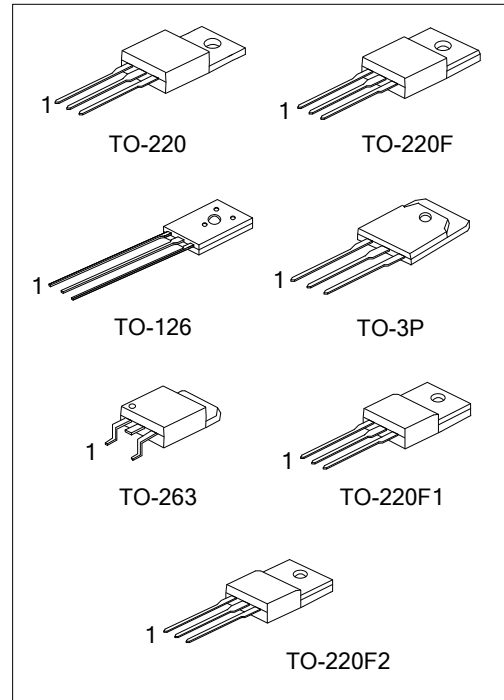




### SWITCHING REGULATOR APPLICATIONS

#### FEATURES

- \* High Speed.
- \* High Breakdown Voltage ( $V_{CBO}=1400V$ ).
- \* High Reliability.



#### ORDERING INFORMATION

| Ordering Number |                | Package  | Pin Description |   |   | Packing   |
|-----------------|----------------|----------|-----------------|---|---|-----------|
| Lead Free       | Halogen Free   |          | 1               | 2 | 3 |           |
| C6084L-x-TA3-T  | C6084G-x-TA3-T | TO-220   | B               | C | E | Tube      |
| C6084L-x-TF3-T  | C6084G-x-TF3-T | TO-220F  | B               | C | E | Tube      |
| C6084L-x-TF1-T  | C6084G-x-TF1-T | TO-220F1 | B               | C | E | Tube      |
| C6084L-x-TF2-T  | C6084G-x-TF2-T | TO-220F2 | B               | C | E | Tube      |
| C6084L-x-TQ2-T  | C6084G-x-TQ2-T | TO-263   | B               | C | E | Tube      |
| C6084L-x-TQ2-R  | C6084G-x-TQ2-R | TO-263   | B               | C | E | Tape Reel |
| C6084L-x-T3P-T  | C6084G-x-T3P-T | TO-3P    | B               | C | E | Tube      |
| C6084L-x-T60-K  | C6084G-x-T60-K | TO-126   | B               | C | E | Bulk      |

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

|                                                                                                       |                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>C6084L-x-TA3-T</p> <p>(1) Packing Type<br/>(2) Package Type<br/>(3) Rank<br/>(4) Green Package</p> | <p>(1) T: Tube, R: Tape Reel, K: Bulk<br/>(2) TA3: TO-220, TF3: TO-220F, TF2: TO-220F2<br/>TQ2: TO-263, T3P: TO-3P, T60: TO-126<br/>(3) x: refer to Classification of <math>h_{FE1}</math><br/>(4) L: Lead Free, G: Halogen Free and Lead Free</p> |
|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### MARKING

| TO-220 / TO-220F / TO-220F1<br>TO-220F2 / TO-263 / TO-3P                            | TO-126                                                                   |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <p>Lot Code → UTC → C6084 → Data Code</p> <p>1 L: Lead Free<br/>G: Halogen Free</p> | <p>UTC → C6084 → Data Code</p> <p>1 L: Lead Free<br/>G: Halogen Free</p> |

■ ABSOLUTE MAXIMUM RATING ( $T_A=25^\circ\text{C}$ )

| PARAMETER                 |                                                     | SYMBOL    | RATINGS    | UNIT             |
|---------------------------|-----------------------------------------------------|-----------|------------|------------------|
| Collector-Base Voltage    |                                                     | $V_{CBO}$ | 1.4        | KV               |
| Collector-Emitter Voltage |                                                     | $V_{CEO}$ | 800        | V                |
| Emitter-Base Voltage      |                                                     | $V_{EBO}$ | 5          | V                |
| Collector Current         | TO-3P/TO-263<br>TO-220/TO-220F<br>TO-220F1/TO-220F2 | $I_C$     | 5          | A                |
|                           | TO-126                                              |           | 3          |                  |
|                           | TO-3P/TO-263<br>TO-220/TO-220F<br>TO-220F1/TO-220F2 | $I_{CP}$  | 12         | A                |
|                           | TO-126                                              |           | 6          |                  |
|                           | TO-126                                              | $P_C$     | 1.25       | W                |
|                           | TO-3P                                               |           | 3.125      |                  |
| Collector Dissipation     | TO-220/ TO-263                                      |           | 1.75       |                  |
|                           | TO-220F                                             |           | 1.35       |                  |
|                           | TO-220F1/TO-220F2                                   |           | 1.45       |                  |
| Junction Temperature      |                                                     | $T_J$     | 150        | $^\circ\text{C}$ |
| Storage Temperature       |                                                     | $T_{STG}$ | -55 ~ +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.

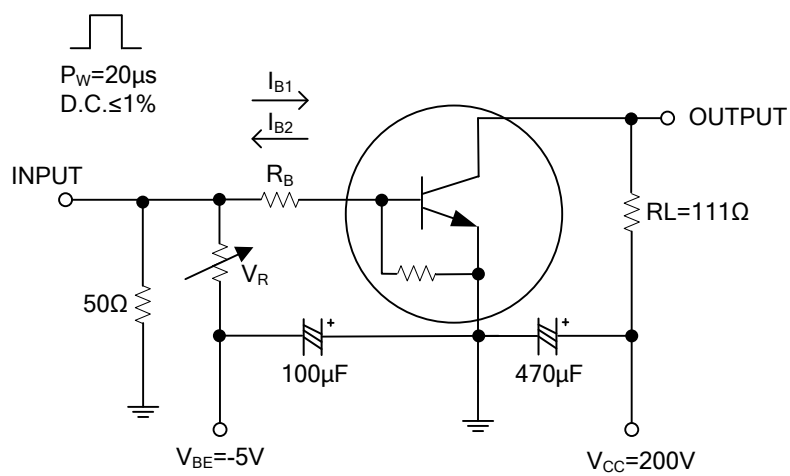
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

| PARAMETER                            |                                                  | SYMBOL         | TEST CONDITIONS                                                       | MIN | TYP | MAX | UNIT          |
|--------------------------------------|--------------------------------------------------|----------------|-----------------------------------------------------------------------|-----|-----|-----|---------------|
| Collector Cutoff Current             |                                                  | $I_{CBO}$      | $V_{CB}=800\text{V}$ , $I_E=0\text{A}$                                |     |     | 10  | $\mu\text{A}$ |
| Collector Cutoff Current             |                                                  | $I_{CES}$      | $V_{CE}=1400\text{V}$ , $R_{BE}=0\Omega$                              |     |     | 1.0 | mA            |
| Collector Sustain Voltage            |                                                  | $V_{CEO(SUS)}$ | $I_C=10\text{mA}$ , $I_B=0\text{A}$                                   | 800 |     |     | V             |
| Emitter Cutoff Current               |                                                  | $I_{EBO}$      | $V_{BE}=4\text{V}$ , $I_C=0\text{A}$                                  |     |     | 1.0 | mA            |
| Collector-Emitter Saturation Voltage | TO-220/TO-220F/TO-220F1<br>TO-220F2/TO-263/TO-3P | $V_{CE(SAT)}$  | $I_C=2.7\text{A}$ , $I_B=0.54\text{A}$                                |     |     | 3   | V             |
|                                      | TO-126                                           |                | $I_C=1.4\text{A}$ , $I_B=0.27\text{A}$                                |     |     | 3   |               |
|                                      |                                                  |                |                                                                       |     |     |     |               |
| Base-Emitter Saturation Voltage      | TO-220/TO-220F/TO-220F1<br>TO-220F2/TO-263/TO-3P | $V_{BE(SAT)}$  | $I_C=2.7\text{A}$ , $I_B=0.54\text{A}$                                |     |     | 1.5 | V             |
|                                      | TO-126                                           |                | $I_C=1.4\text{A}$ , $I_B=0.27\text{A}$                                |     |     | 1.5 |               |
|                                      |                                                  |                |                                                                       |     |     |     |               |
| DC Current Gain                      |                                                  | $h_{FE1}$      | $V_{CE}=5\text{V}$ , $I_C=0.5\text{A}$                                | 10  |     | 25  |               |
|                                      | TO-220/TO-220F/TO-220F1<br>TO-220F2/TO-263/TO-3P | $h_{FE2}$      | $V_{CE}=5\text{V}$ , $I_C=3\text{A}$                                  | 5   |     | 8   |               |
|                                      | TO-126                                           |                | $V_{CE}=5\text{V}$ , $I_C=1.8\text{A}$                                | 5   |     |     |               |
| Fall Time                            |                                                  | $T_F$          | $I_C=1.8\text{A}$ , $I_{B1}=0.36\text{A}$ ,<br>$I_{B2}=-0.72\text{A}$ |     |     | 0.2 | $\mu\text{S}$ |

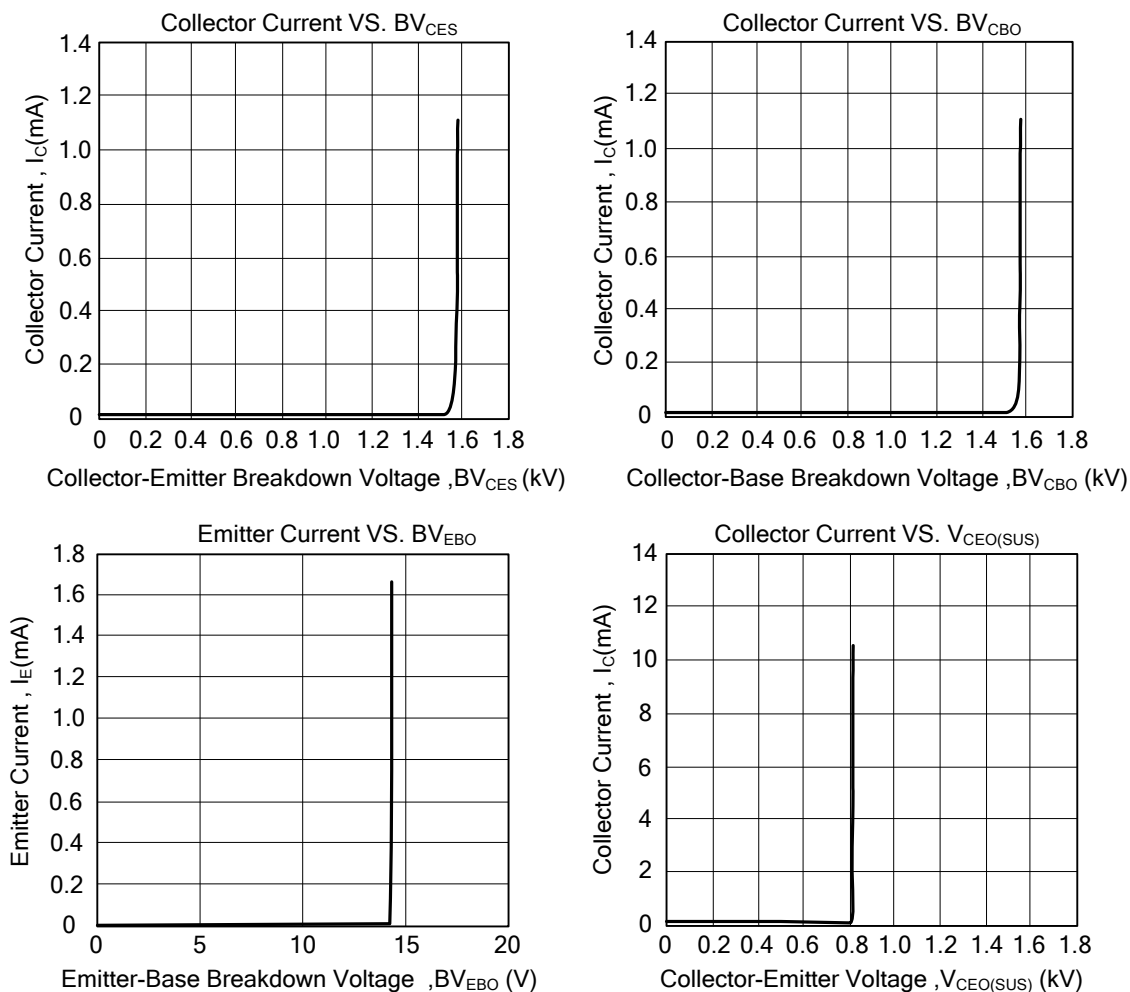
■ CLASSIFICATION OF  $h_{FE1}$

| RANK  | A       | B       | C       |
|-------|---------|---------|---------|
| RANGE | 10 ~ 15 | 15 ~ 20 | 20 ~ 25 |

## ■ TEST CIRCUIT



# TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.