



## UP2855

PNP SILICON TRANSISTOR

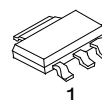
### PNP MEDIUM POWER LOW SATURATION TRANSISTOR

#### DESCRIPTION

The UTC **UP2855** is a transistor with low saturation voltage. It provides customers with very low on-state losses that makes it ideal for applications, such as driving and power management functions and DC-DC circuits.

#### FEATURES

- \* Extremely low saturation voltages
- \* Peak current up to 10A
- \* 4A continuous current



SOT-223

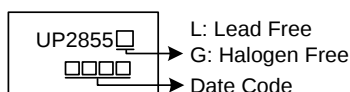
#### ORDERING INFORMATION

| Ordering Number |               | Package | Pin Assignment |   |   | Packing   |
|-----------------|---------------|---------|----------------|---|---|-----------|
| Lead Free       | Halogen Free  |         | 1              | 2 | 3 |           |
| UP2855L-AA3-R   | UP2855G-AA3-R | SOT-223 | B              | C | E | Tape Reel |

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

|                                                                                               |                                                                                                        |
|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <p>UP2855G-AA3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p> | <p>(1) R: Tape Reel</p> <p>(2) AA3: SOT-223</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p> |
|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|

#### MARKING



1

### ■ ABSOLUTE MAXIMUM RATING (T<sub>A</sub>=25°C, unless otherwise specified )

| PARAMETER                             | SYMBOL           | RATINGS      | UNIT |
|---------------------------------------|------------------|--------------|------|
| Collector-Base Voltage                | V <sub>CBO</sub> | -180         | V    |
| Collector-Emitter Voltage             | V <sub>CEO</sub> | -140         | V    |
| Emitter-Base Voltage                  | V <sub>EBO</sub> | -7           | V    |
| Continuous Collector Current (Note 1) | I <sub>C</sub>   | -4           | A    |
| Peak Pulse Current                    | I <sub>CM</sub>  | -10          | A    |
| Power Dissipation                     | P <sub>D</sub>   | 3.0 (Note 1) | W    |
|                                       |                  | 1.6 (Note 2) |      |
| Junction Temperature                  | T <sub>J</sub>   | +150         | °C   |
| Storage Temperature                   | T <sub>STG</sub> | -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.

### ■ THERMAL RESISTANCE

| PARAMETER           | SYMBOL          | RATINGS     | UNIT |
|---------------------|-----------------|-------------|------|
| Junction to Ambient | θ <sub>JA</sub> | 42 (Note 1) | °C/W |
|                     |                 | 78 (Note 2) |      |

Notes: 1. For a device surface mounted on 52mm x 52mm x 1.6mm FR4 PCB with high coverage of single sided 2oz copper, in still air conditions.

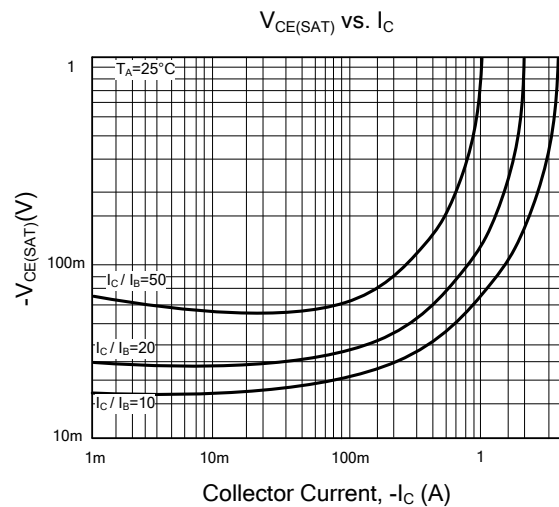
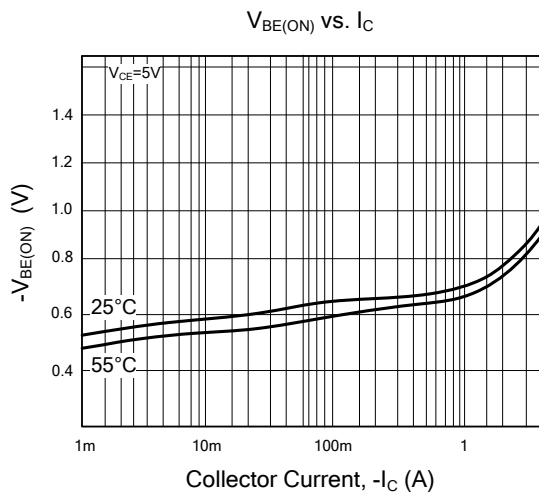
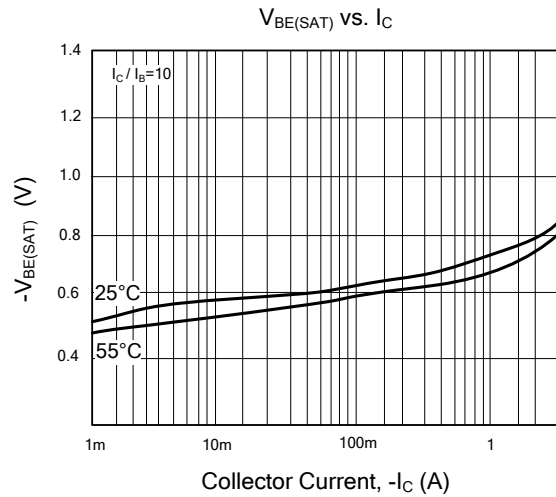
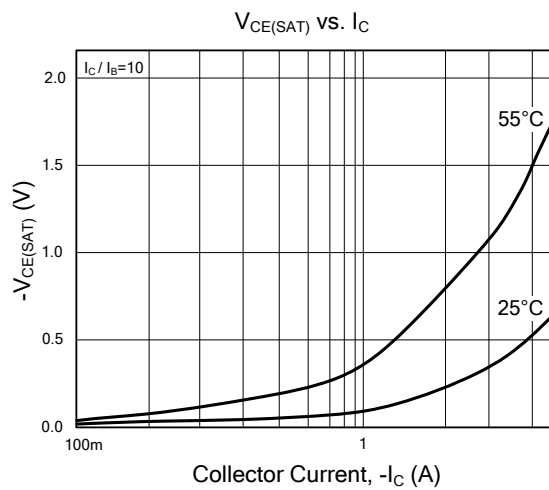
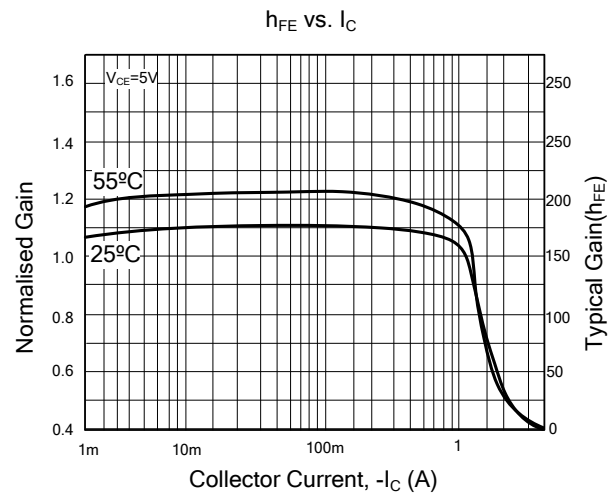
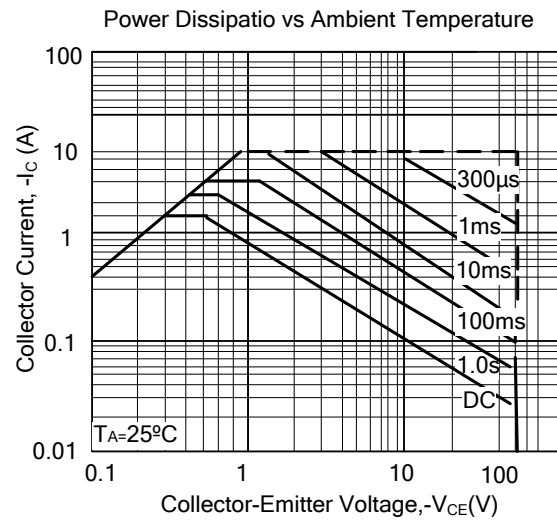
2. For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

### ■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise stated)

| PARAMETER                                      | SYMBOL               | TEST CONDITIONS                                          | MIN  | TYP  | MAX   | UNIT |
|------------------------------------------------|----------------------|----------------------------------------------------------|------|------|-------|------|
| Collector-Base Breakdown Voltage               | V <sub>CBO</sub>     | I <sub>C</sub> =-100μA                                   | -180 | -200 |       | V    |
| Collector-Emitter Breakdown Voltage            | V <sub>CER</sub>     | I <sub>C</sub> =-1μA, R <sub>B</sub> ≤1kΩ                | -180 | -200 |       | V    |
| Collector-Emitter Breakdown Voltage            | V <sub>CEO</sub>     | I <sub>C</sub> =-10mA (Note 1)                           | -140 | -160 |       | V    |
| Emitter-Base Breakdown Voltage                 | V <sub>EBO</sub>     | I <sub>E</sub> =-100μA                                   | -7.0 | -8.0 |       | V    |
| Collector Cut-Off Current                      | I <sub>CBO</sub>     | V <sub>CB</sub> =-150V                                   |      | <1   | -20   | nA   |
|                                                |                      | V <sub>CB</sub> =-150V, T <sub>A</sub> =100°C            |      |      | -0.5  | μA   |
| Collector Cut-Off Current                      | I <sub>CER</sub>     | V <sub>CB</sub> =-150V, R≤1kΩ                            |      | <1   | -20   | nA   |
|                                                |                      | T <sub>A</sub> =100°C                                    |      |      | -0.5  | μA   |
| Emitter Cut-Off Current                        | I <sub>EBO</sub>     | V <sub>EB</sub> =-6V                                     |      | <1   | -10   | nA   |
| Collector-Emitter Saturation Voltage (Note 1)  | V <sub>CE(SAT)</sub> | I <sub>C</sub> =-0.1A, I <sub>B</sub> =-5mA              |      | -40  | -60   | mV   |
|                                                |                      | I <sub>C</sub> =-0.5A, I <sub>B</sub> =-50mA             |      | -55  | -80   | mV   |
|                                                |                      | I <sub>C</sub> =-1A, I <sub>B</sub> =-100mA              |      | -85  | -120  | mV   |
|                                                |                      | I <sub>C</sub> =-3A, I <sub>B</sub> =-300mA              |      | -275 | -360  | mV   |
| Base-Emitter Saturation Voltage                | V <sub>BE(SAT)</sub> | I <sub>C</sub> =-3A, I <sub>B</sub> =-300mA (Note 1)     |      | -940 | -1040 | mV   |
| Base-Emitter Turn-On Voltage                   | V <sub>BE(ON)</sub>  | I <sub>C</sub> =-3A, V <sub>CE</sub> =-5V (Note 1)       |      | -830 | -930  | mV   |
| Static Forward Current Transfer Ratio (Note 1) | h <sub>FE</sub>      | I <sub>C</sub> =-10mA, V <sub>CE</sub> =-5V              | 100  | 225  |       |      |
|                                                |                      | I <sub>C</sub> =-1A, V <sub>CE</sub> =-5V                | 100  | 200  | 300   |      |
|                                                |                      | I <sub>C</sub> =-3A, V <sub>CE</sub> =-5V                | 45   | 100  |       |      |
|                                                |                      | I <sub>C</sub> =-10A, V <sub>CE</sub> =-5V               |      | 5    |       |      |
| Transition Frequency                           | f <sub>T</sub>       | I <sub>C</sub> =-100mA, V <sub>CE</sub> =-10V<br>f=50MHz |      | 120  |       | MHz  |
| Output Capacitance (Note 1)                    | C <sub>OBO</sub>     | V <sub>CB</sub> =-10V, f=1MHz                            |      | 33   |       | pF   |
| Switching Times                                | t <sub>ON</sub>      | I <sub>C</sub> =-1A, V <sub>CC</sub> =-50V,              |      | 42   |       | ns   |
|                                                | t <sub>OFF</sub>     | I <sub>B1</sub> =-I <sub>B2</sub> =-100mA                |      | 636  |       |      |

Note: 1. Measured under pulsed conditions. Pulse width≤300μs; duty cycle≤2%.

## ■ TYPICAL CHARACTERISTICS



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