

PNP Silicon Planar High Voltage Transistor

SOT-223



Pin Definition:

1. Base
2. Collector
3. Emitter

PRODUCT SUMMARY

| | |
|---------------|-------------------------------------|
| BV_{CBO} | -500V |
| BV_{CEO} | -500V |
| I_C | -150mA |
| $V_{CE(SAT)}$ | -0.5V @ $I_C / I_B = -50mA / -10mA$ |

Features

- Low Saturation Voltages
- Excellent gain characteristics specified up to -50mA

Structure

- Epitaxial Planar Type
- PNP Silicon Transistor

Ordering Information

| Part No. | Package | Packing |
|-------------|---------|--------------------|
| TSA874CW RP | SOT-223 | 2.5Kpcs / 13" Reel |

Absolute Maximum Rating (Ta = 25°C unless otherwise noted)

| Parameter | Symbol | Limit | Unit |
|--|-----------|--------------|------|
| Collector-Base Voltage | V_{CBO} | -500 | V |
| Collector-Emitter Voltage | V_{CEO} | -500 | V |
| Emitter-Base Voltage | V_{EBO} | -5 | V |
| Collector Current | I_C | DC | -150 |
| | | Pulse | -500 |
| Total Power Dissipation | P_{tot} | 1 | W |
| Operating Junction Temperature | T_J | +150 | °C |
| Operating Junction and Storage Temperature Range | T_{STG} | - 55 to +150 | °C |

Electrical Specifications (Ta = 25°C unless otherwise noted)

| Parameter | Conditions | Symbol | Min | Typ | Max | Unit |
|--------------------------------------|---------------------------------|-----------------|------|------|------|------|
| Collector-Base Breakdown Voltage | $I_C = -100\mu A, I_E = 0$ | BV_{CBO} | -500 | -- | -- | V |
| Collector-Emitter Breakdown Voltage | $I_C = -10mA, I_B = 0$ | BV_{CEO} | -500 | -- | -- | V |
| Emitter-Base Breakdown Voltage | $I_E = -100\mu A, I_C = 0$ | BV_{EBO} | -5 | -- | -- | V |
| Collector Cutoff Current | $V_{CB} = 120V, I_E = 0$ | I_{CBO} | -- | -- | -100 | nA |
| Emitter Cutoff Current | $V_{EB} = 6V, I_C = 0$ | I_{EBO} | -- | -- | -100 | nA |
| Collector-Emitter Saturation Voltage | $I_C = -20mA, I_B = -2mA$ | $V_{CE(SAT) 1}$ | -- | -- | -0.2 | V |
| | $I_C = -50mA, I_B = -10mA$ | $V_{CE(SAT) 2}$ | -- | -- | -0.5 | |
| Base-Emitter Saturation Voltage | $I_C = -50mA, I_B = -10mA$ | $V_{BE(SAT)}$ | -- | -- | -0.9 | V |
| Base-Emitter on Voltage | $V_{CE} = -10V, I_C = -50mA$ | $V_{BE(ON)}$ | -- | -- | -0.9 | V |
| DC Current Transfer Ratio | $V_{CE} = -10V, I_C = -1mA$ | $h_{FE 1}$ | 100 | -- | 300 | |
| | $V_{CE} = -10V, I_C = -50mA$ | $h_{FE 2}$ | 80 | -- | 300 | |
| | $V_{CE} = -10V, I_C = -100mA$ | $h_{FE 3}$ | -- | 15 | -- | |
| Transition Frequency | $V_{CE} = 10V, I_C = -100mA$ | f_T | -- | 50 | -- | MHz |
| Output Capacitance | $V_{CB} = 20V, f = 1MHz$ | C_{ob} | -- | -- | 8 | pF |
| Turn On Time | $V_{CE} = -100V, I_C = -50mA$ | T_{on} | -- | 110 | -- | nS |
| Turn Off Time | $I_{B1} = -5mA, I_{B2} = -10mA$ | T_{off} | -- | 1500 | -- | nS |

Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)

Figure 1. Static Characteristics

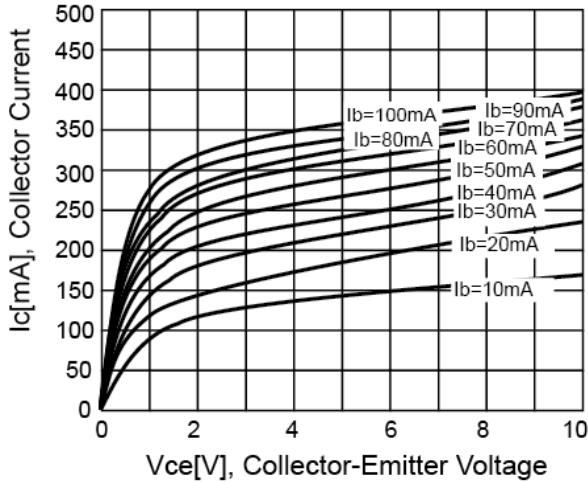


Figure 2. DC Current Gain

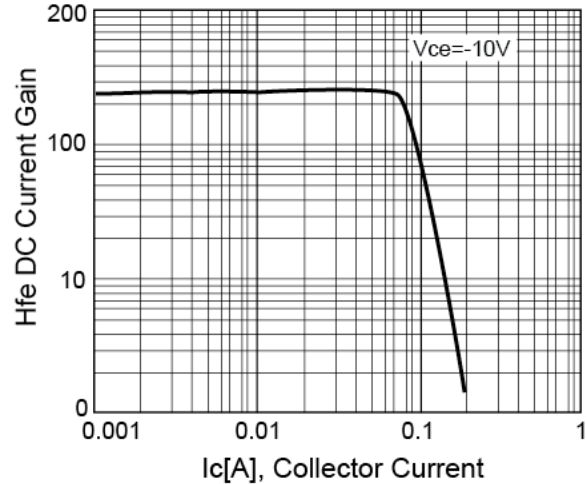


Figure 3. $V_{CE(SAT)}$ v.s. $V_{BE(SAT)}$

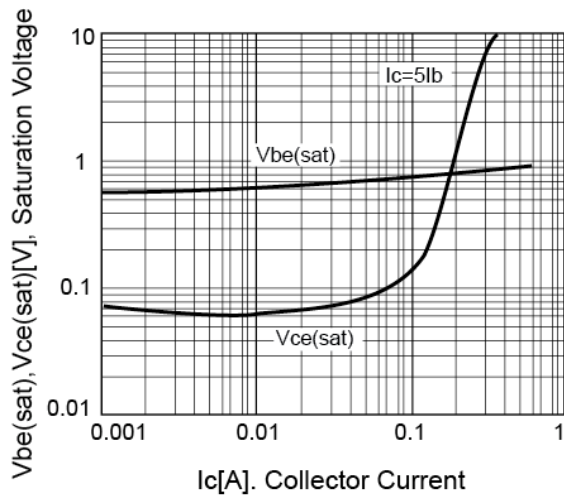
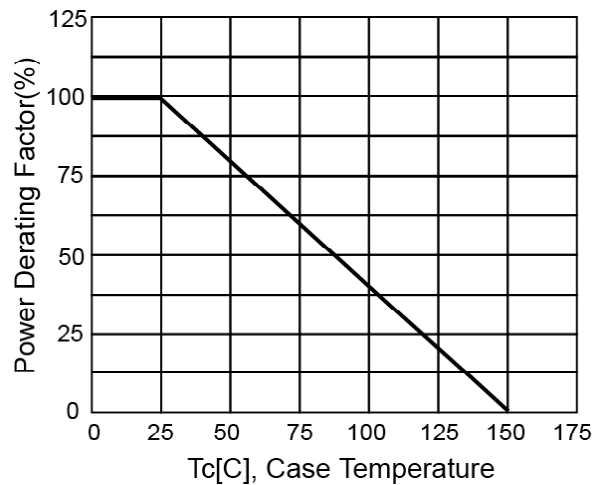
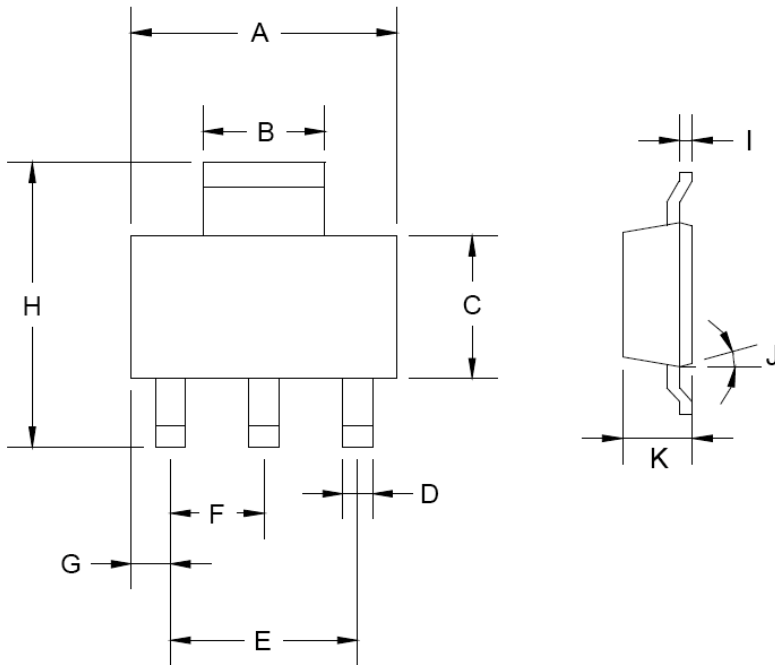


Figure 4. Power Derating

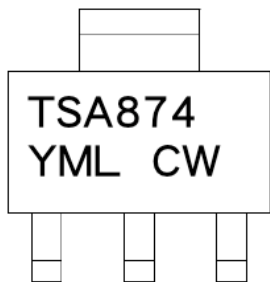


SOT-223 Mechanical Drawing



| SOT-223 DIMENSION | | | | |
|-------------------|-------------|-------|--------|-------|
| DIM | MILLIMETERS | | INCHES | |
| | MIN | MAX | MIN | MAX |
| A | 6.350 | 6.850 | 0.250 | 0.270 |
| B | 2.900 | 3.100 | 0.114 | 0.122 |
| C | 3.450 | 3.750 | 0.136 | 0.148 |
| D | 0.595 | 0.635 | 0.023 | 0.025 |
| E | 4.550 | 4.650 | 0.179 | 0.183 |
| F | 2.250 | 2.350 | 0.088 | 0.093 |
| G | 0.835 | 1.035 | 0.032 | 0.041 |
| H | 6.700 | 7.300 | 0.263 | 0.287 |
| I | 0.250 | 0.355 | 0.010 | 0.014 |
| J | 10° | 16° | 10° | 16° |
| K | 1.550 | 1.800 | 0.061 | 0.071 |

Marking Diagram



- Y** = Year Code
- M** = Month Code
(**A**=Jan, **B**=Feb, **C**=Mar, **D**=Apr, **E**=May, **F**=Jun, **G**=Jul, **H**=Aug, **I**=Sep, **J**=Oct, **K**=Nov, **L**=Dec)
- L** = Lot Code

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