



YOUSHANG SEMICONDUCTOR

设计研发新型功率器件

各类小信号开关

中低压及高压大电流等场效应管

0755-83047638

ysbdt@szyoushang.cn

www.szyoushang.cn



企业微信二维码



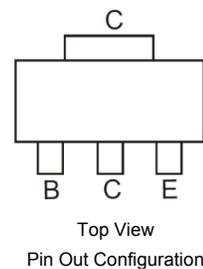
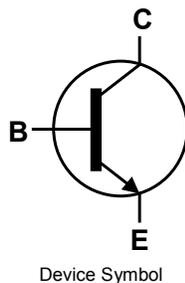
企业QQ二维码

Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (NK-DCP69)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications

Mechanical Data

- Case: SOT223
- Case Material: Molded Plastic, "Green Molding" Compound.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish—Matte Tin
- Solderable per MIL-STD -202, Method 208
- Weight: 0.112 grams (Approximate)



Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Value | Units |
|------------------------------|-----------|-------|-------|
| Collector-Base Voltage | V_{CBO} | 25 | V |
| Collector-Emitter Voltage | V_{CEO} | 20 | V |
| Emitter-Base Voltage | V_{EBO} | 5.0 | V |
| Continuous Collector Current | I_C | 1.0 | A |

Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

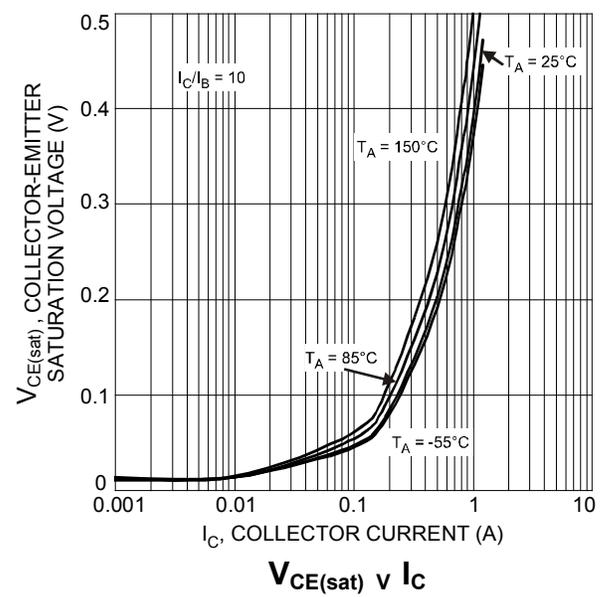
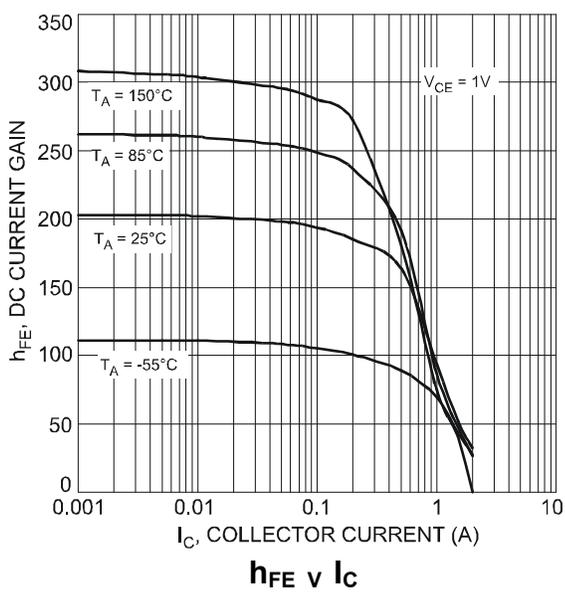
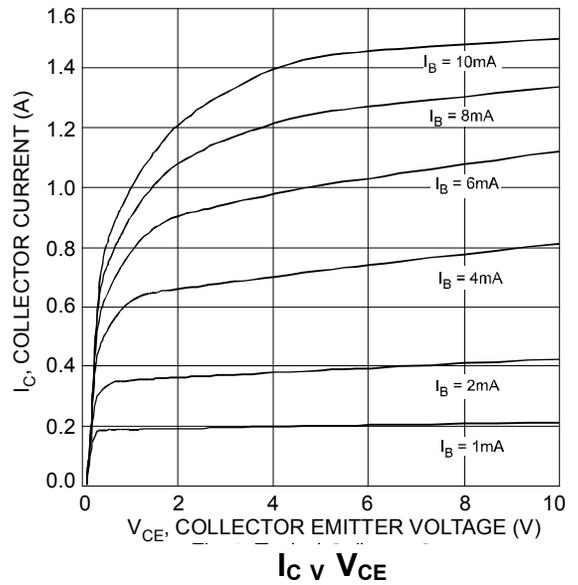
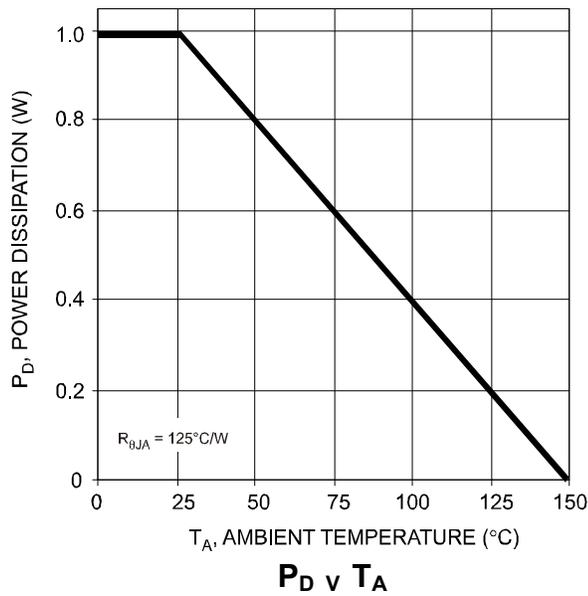
| Characteristic | Symbol | Value | Unit |
|------------------------------------------------------|-----------------|------------|--------------------|
| Power Dissipation (Note 5) | P_D | 1 | W |
| Thermal Resistance, Junction to Ambient Air (Note 5) | $R_{\theta JA}$ | 125 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to 150 | $^\circ\text{C}$ |

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

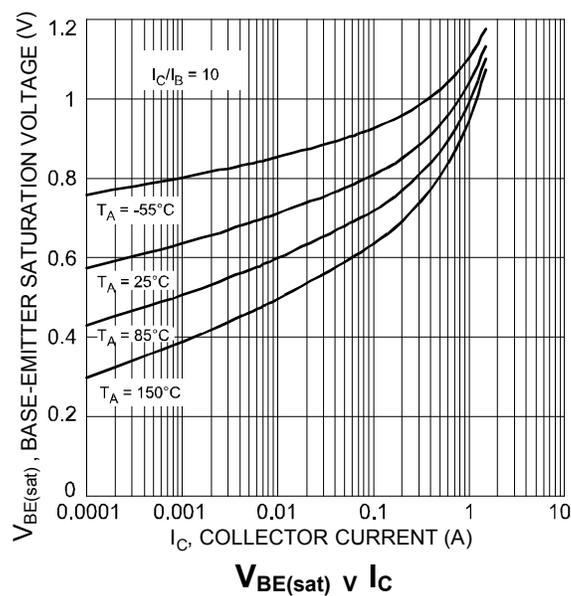
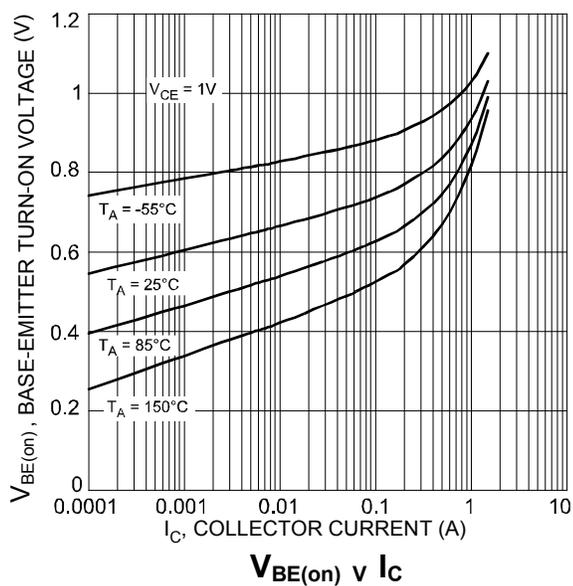
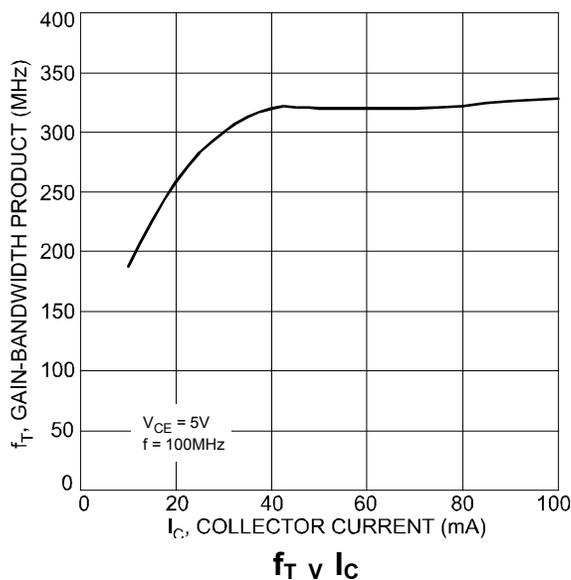
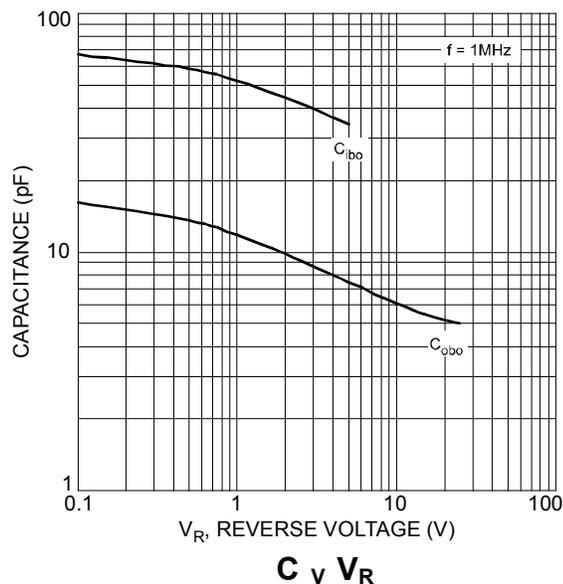
| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition | |
|--------------------------------------|--------------------|----------|-----|-----|---------------|-------------------------------------------------------------------|--------------------------------------------|
| OFF CHARACTERISTICS (Note 6) | | | | | | | |
| Collector-Emitter Breakdown Voltage | BV_{CES} | 25 | — | — | V | $I_C = 100\mu\text{A}, I_E = 0$ | |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | 20 | — | — | V | $I_C = 1.0\text{mA}, I_B = 0$ | |
| Collector-Base Breakdown Voltage | BV_{CBO} | 25 | — | — | V | $I_C = 10\mu\text{A}, I_E = 0$ | |
| Emitter-Base Breakdown Voltage | BV_{EBO} | 5.0 | — | — | V | $I_E = 10\mu\text{A}, I_C = 0$ | |
| Collector-Base Cut-Off Current | I_{CBO} | — | — | 100 | nA | $V_{CB} = 25\text{V}, I_E = 0$ | |
| Emitter-Base Cut-Off Current | I_{EBO} | — | — | 10 | μA | $V_{EB} = 5.0\text{V}, I_C = 0$ | |
| ON CHARACTERISTICS (Note 6) | | | | | | | |
| DC Current Gain | NK-DCP68, DCP68-25 | h_{FE} | 50 | — | — | — | $V_{CE} = 10\text{V}, I_C = 5.0\text{mA}$ |
| | | | 60 | — | — | | $V_{CE} = 1.0\text{V}, I_C = 1.0\text{A}$ |
| | | | 85 | — | 375 | | $V_{CE} = 1.0\text{V}, I_C = 500\text{mA}$ |
| | NK-DCP68-25 | | 160 | — | 375 | | $V_{CE} = 1.0\text{V}, I_C = 500\text{mA}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | — | — | 0.5 | V | $I_C = 1.0\text{A}, I_B = 100\text{mA}$ | |
| Base-Emitter Turn-On Voltage | $V_{BE(on)}$ | — | — | 1.0 | V | $V_{CE} = 1.0\text{V}, I_C = 1.0\text{A}$ | |
| SMALL SIGNAL CHARACTERISTICS | | | | | | | |
| Transition frequency | f_T | — | 330 | — | MHz | $I_C = 100\text{mA}, V_{CE} = 5.0\text{V}$ $f = 100\text{MHz}$ | |

- Notes:
- For a device mounted on minimum recommended pad layout 1oz weight copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 - Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

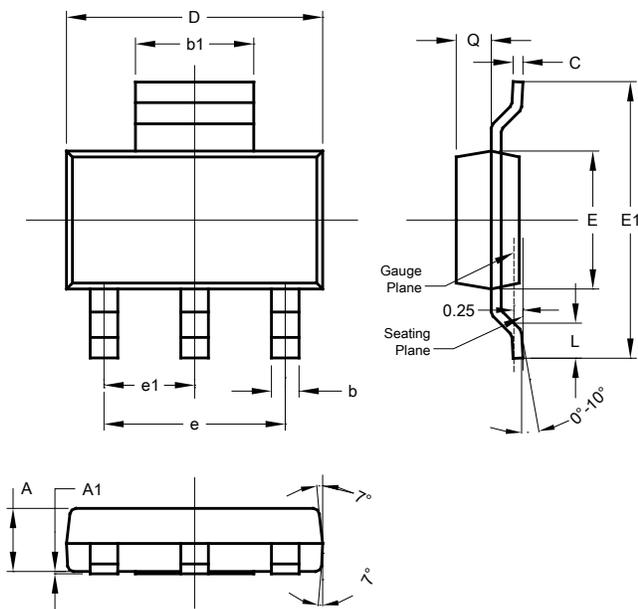


Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

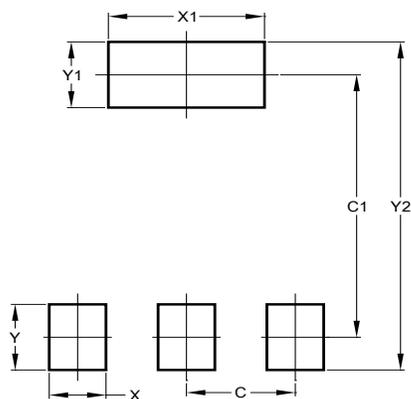
SOT223



| SOT223 | | | |
|----------------------|-------|------|------|
| Dim | Min | Max | Typ |
| A | 1.55 | 1.65 | 1.60 |
| A1 | 0.010 | 0.15 | 0.05 |
| b | 0.60 | 0.80 | 0.70 |
| b1 | 2.90 | 3.10 | 3.00 |
| C | 0.20 | 0.30 | 0.25 |
| D | 6.45 | 6.55 | 6.50 |
| E | 3.45 | 3.55 | 3.50 |
| E1 | 6.90 | 7.10 | 7.00 |
| e | — | — | 4.60 |
| e1 | — | — | 2.30 |
| L | 0.85 | 1.05 | 0.95 |
| Q | 0.84 | 0.94 | 0.89 |
| All Dimensions in mm | | | |

Suggested Pad Layout

SOT223



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 2.30 |
| C1 | 6.40 |
| X | 1.20 |
| X1 | 3.30 |
| Y | 1.60 |
| Y1 | 1.60 |
| Y2 | 8.00 |