

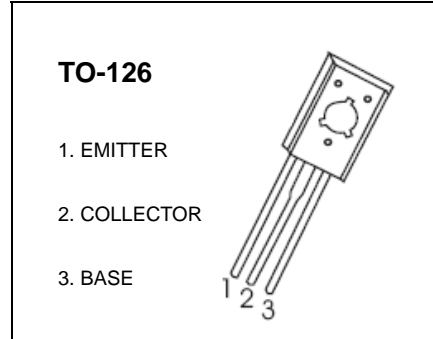


TO-126 Plastic-Encapsulate Transistors

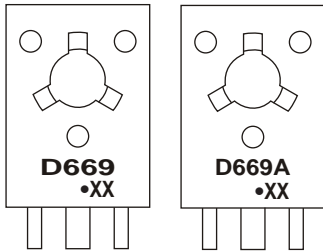
2SD669 / 2SD669A TRANSISTOR (NPN)

FEATURES

- Low Frequency Power Amplifier Complementary
- Pair with 2SB649 / 2SB649A

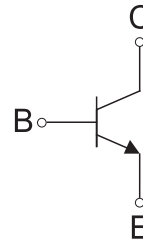


MARKING



D669,D669A=Device code
 Solid dot= Green molding compound device, if none, the normal device
 XX=Code

Equivalent Circuit



ORDERING INFORMATION

| Part Number | Package | Packing Method | Pack Quantity |
|-------------|---------|----------------|---------------|
| 2SD669 | TO-126 | Bulk | 200pcs/Bag |
| 2SD669A | TO-126 | Bulk | 200pcs/Bag |
| 2SD669-TU | TO-126 | Tube | 60pcs/Tube |
| 2SD669A-TU | TO-126 | Tube | 60pcs/Tube |

MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|-----------------------------------|--|---------|------|
| V _{CB0} | Collector- Base Voltage | 180 | V |
| V _{CEO} | Collector-Emitter Voltage | 2SD669 | 120 |
| | | 2SD669A | 160 |
| V _{EBO} | Emitter-Base Voltage | 5 | V |
| I _C | Collector Current -Continuous | 1.5 | A |
| P _C | Collector Dissipation | 1 | W |
| T _J , T _{stg} | Operation Junction and Storage Temperature Range | -55-150 | °C |

ELECTRICAL CHARACTERISTICS

$T_a=25^\circ\text{C}$ unless otherwise specified

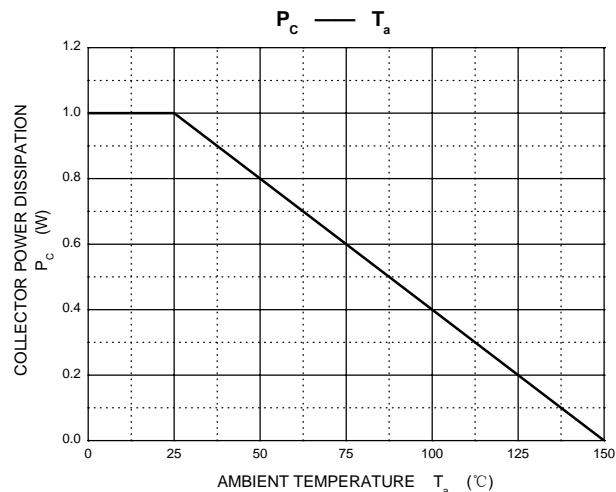
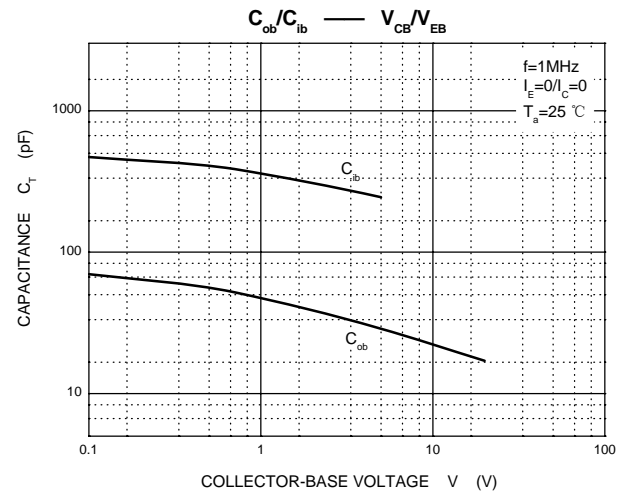
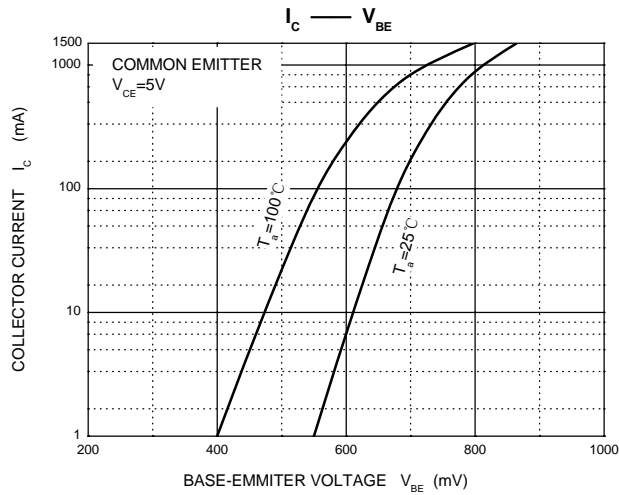
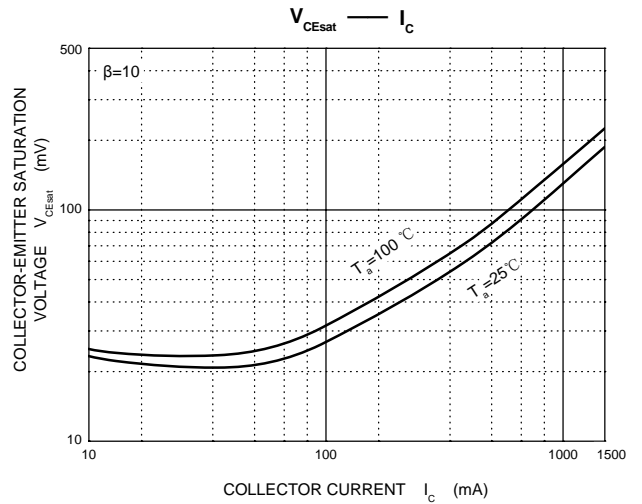
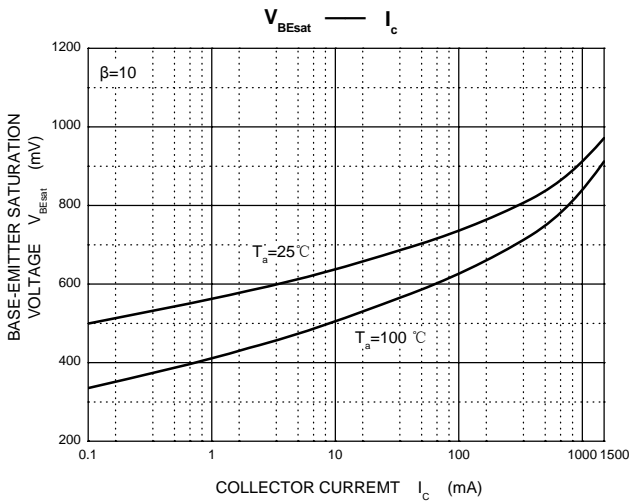
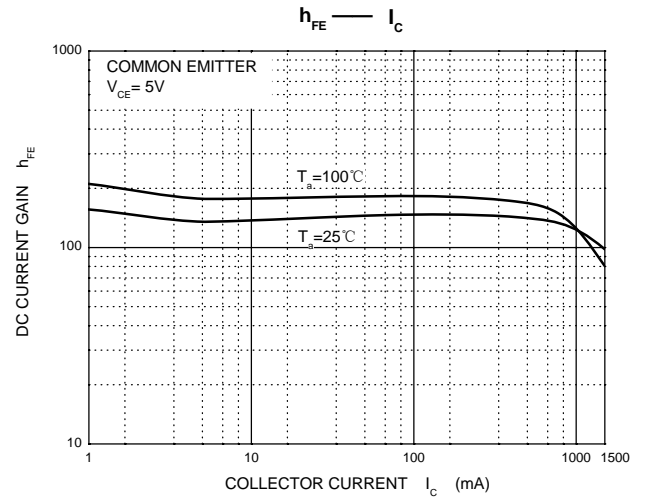
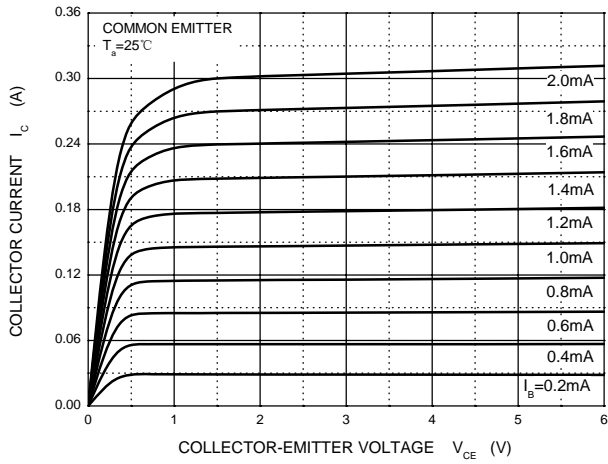
| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|---|---------|-----|-----|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=1\text{mA}, I_E=0$ | 180 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=10\text{mA}, I_B=0$ | 2SD669 | 120 | | V |
| | | | 2SD669A | 160 | | |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=1\text{mA}, I_C=0$ | 5 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=160\text{V}, I_E=0$ | | | 10 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=4\text{V}, I_C=0$ | | | 10 | μA |
| DC current gain | $h_{FE(1)}$ | $V_{CE}=5\text{V}, I_C=150\text{mA}$ | 2SD669 | 60 | 320 | |
| | | | 2SD669A | 60 | 200 | |
| | $h_{FE(2)}$ | $V_{CE}=5\text{V}, I_C=500\text{mA}$ | 30 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=500\text{mA}, I_B=50\text{mA}$ | | | 1 | V |
| Base-emitter voltage | V_{BE} | $V_{CE}=5\text{V}, I_C=150\text{mA}$ | | | 1.5 | V |
| Transition frequency | f_T | $V_{CE}=5\text{V}, I_C=150\text{mA}$ | | 140 | | MHz |
| Collector output capacitance | C_{ob} | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$ | | 14 | | pF |

CLASSIFICATION OF $h_{FE(1)}$

| Rank | | B | C | D |
|-------|---------|--------|---------|---------|
| Range | 2SD669 | 60-120 | 100-200 | 160-320 |
| | 2SD669A | 60-120 | 100-200 | 160-320 |

Typical Characteristics

Static Characteristic



TO-126 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|--------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 2.500 | 2.900 | 0.098 | 0.114 |
| A1 | 1.100 | 1.500 | 0.043 | 0.059 |
| b | 0.660 | 0.860 | 0.026 | 0.034 |
| b1 | 1.170 | 1.370 | 0.046 | 0.054 |
| c | 0.450 | 0.600 | 0.018 | 0.024 |
| D | 7.400 | 7.800 | 0.291 | 0.307 |
| E | 10.600 | 11.000 | 0.417 | 0.433 |
| e | 2.290 TYP | | 0.090 TYP | |
| e1 | 4.480 | 4.680 | 0.176 | 0.184 |
| h | 0.000 | 0.300 | 0.000 | 0.012 |
| L | 15.300 | 15.700 | 0.602 | 0.618 |
| L1 | 2.100 | 2.300 | 0.083 | 0.091 |
| P | 3.900 | 4.100 | 0.154 | 0.161 |
| Φ | 3.000 | 3.200 | 0.118 | 0.126 |