



Micro Commercial Components



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**2SD669(A)**  
**2SD669(A)-B**  
**2SD669(A)-C**  
**2SD669-D**

## Features

- Lead Free Finish/RoHS Compliant (Note1) ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Capable of 1 Watts of Power Dissipation.
- Collector-current 1.5A
- Collector-base Voltage 180V
- Operating and storage junction temperature range: -55°C to +150°C

## Electrical Characteristics @ 25°C Unless Otherwise Specified

| Symbol | Parameter | Min | Max | Units |
|--------|-----------|-----|-----|-------|
|--------|-----------|-----|-----|-------|

### OFF CHARACTERISTICS

|               |                                                                        |                   |            |     |               |
|---------------|------------------------------------------------------------------------|-------------------|------------|-----|---------------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage<br>( $I_C=10\text{mA}$ , $I_E=0$ ) | 2SD669<br>2SD669A | 120<br>160 | --- | Vdc           |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage<br>( $I_C=1\text{mA}$ , $I_E=0$ )     |                   | 180        | --- | Vdc           |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage<br>( $I_E=1\text{mA}$ , $I_C=0$ )       |                   | 5.0        | --- | Vdc           |
| $I_{CBO}$     | Collector Cutoff Current<br>( $V_{CB}=160\text{Vdc}$ , $I_E=0$ )       |                   | ---        | 10  | $\mu\text{A}$ |
| $I_{EBO}$     | Emitter Cutoff Current<br>( $V_{EB}=4\text{Vdc}$ , $I_C=0$ )           |                   | ---        | 10  | $\mu\text{A}$ |

### ON CHARACTERISTICS

|               |                                                                                       |                   |          |            |     |
|---------------|---------------------------------------------------------------------------------------|-------------------|----------|------------|-----|
| $h_{FE-1}$    | DC Current Gain<br>( $I_C=150\text{mA}$ , $V_{CE}=5\text{Vdc}$ )                      | 2SD669<br>2SD669A | 60<br>60 | 320<br>200 | --- |
| $h_{FE-2}$    | DC Current Gain<br>( $I_C=500\text{mA}$ , $V_{CE}=5\text{Vdc}$ )                      |                   | 30       | ---        | --- |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage<br>( $I_C=500\text{mA}$ , $I_E=50\text{mA}$ )    |                   | ---      | 1.0        | Vdc |
| $V_{BE}$      | Base-Emitter Saturation Voltage<br>( $V_{CE}=5\text{Vdc}$ , $I_C=150\text{mA}$ )      |                   | ---      | 1.5        | Vdc |
| $f_T$         | Transition Frequency<br>( $V_{CE}=5\text{Vdc}$ , $I_C=150\text{mA}$ )                 |                   | 140(TYP) |            | MHz |
| $C_{ob}$      | Collector output capacitance<br>( $V_{CB}=10\text{Vdc}$ , $I_E=0$ , $f=1\text{MHz}$ ) |                   | 14(TYP)  |            | pF  |

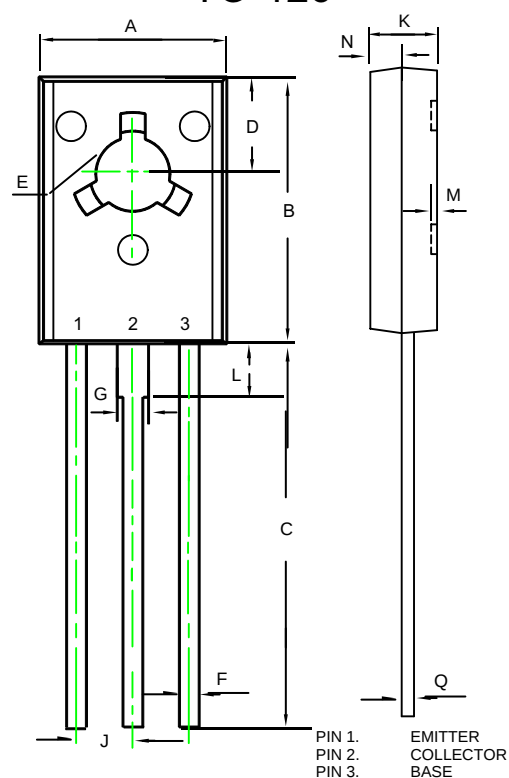
### CLASSIFICATION OF H<sub>T</sub>

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

Notes: 1. High Temperature Solder Exemption Applied, see EU Directive Annex Notes 7.

## NPN Silicon Plastic-Encapsulate Transistor

### TO-18



#### DIMENSIONS

| DIM | INCHES   |       | MM       |       | NOTE |
|-----|----------|-------|----------|-------|------|
|     | MIN      | MAX   | MIN      | MAX   |      |
| A   | 0.291    | 0.307 | 7.40     | 7.80  |      |
| B   | 0.417    | 0.433 | 10.60    | 11.00 |      |
| C   | 0.602    | 0.618 | 15.30    | 15.70 |      |
| D   | 0.154    | 0.161 | 3.90     | 4.10  |      |
| E   | 0.118    | 0.126 | 3.00     | 3.20  |      |
| F   | 0.026    | 0.034 | 0.66     | 0.86  |      |
| G   | 0.046    | 0.054 | 1.17     | 1.37  |      |
| J   | 0.090TYP |       | 2.290TYP |       |      |
| K   | 0.098    | 0.114 | 2.50     | 2.90  |      |
| L   | 0.083    | 0.091 | 2.10     | 2.30  |      |
| M   | 0.000    | 0.012 | 0.00     | 0.30  |      |
| N   | 0.043    | 0.059 | 1.10     | 1.50  |      |
| Q   | 0.018    | 0.024 | 0.45     | 0.60  |      |