

2SD667-HAF

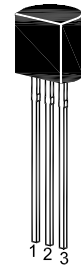
NPN Silicon Epitaxial Planar Transistor

Features

- High temperature characteristics
- Fast switching speed
- Halogen and Antimony Free(HAF), RoHS compliant

Applications

- Mainly used for chargers
- Emergency lights and electric toy control circuit



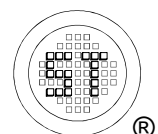
1. Emitter 2. Collector 3. Base
TO-92 Plastic Package

Absolute Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$)

| Parameter | Symbol | Value | Unit |
|---------------------------|-----------|---------------|------------------|
| Collector Base Voltage | V_{CBO} | 60 | V |
| Collector Emitter Voltage | V_{CEO} | 40 | V |
| Emitter Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 2 | A |
| Power Dissipation | P_{tot} | 800 | mW |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

Thermal Characteristics

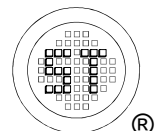
| Parameter | Symbol | Max. | Unit |
|------------------------------------------|-----------------|------|---------------------------|
| Thermal Resistance from Junction Ambient | $R_{\theta JA}$ | 156 | $^\circ\text{C}/\text{W}$ |



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Characteristics at $T_a = 25\text{ }^\circ\text{C}$

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|-----------------------------------------------------------------------------------------------------------------------|----------------------|------------|--------|----------|---------------|
| DC Current Gain at $V_{CE} = 3\text{ V}$, $I_C = 1\text{ mA}$ at $V_{CE} = 3\text{ V}$, $I_C = 300\text{ mA}$ | h_{FE} h_{FE} | 100 100 | - - | - 400 | - - |
| Collector Base Cutoff Current at $V_{CB} = 60\text{ V}$ | I_{CBO} | - | - | 100 | μA |
| Collector Emitter Cutoff Current at $V_{CE} = 40\text{ V}$ | I_{CEO} | - | - | 100 | μA |
| Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$ | I_{EBO} | - | - | 100 | μA |
| Collector Base Breakdown Voltage at $I_C = 1\text{ mA}$ | $V_{(BR)CBO}$ | 60 | - | - | V |
| Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$ | $V_{(BR)CEO}$ | 40 | - | - | V |
| Emitter Base Breakdown Voltage at $I_E = 1\text{ mA}$ | $V_{(BR)EBO}$ | 5 | - | - | V |
| Collector Emitter Saturation Voltage at $I_C = 2\text{ A}$, $I_B = 200\text{ mA}$ | $V_{CE(sat)}$ | - | - | 0.8 | V |
| Base Emitter Saturation Voltage at $I_C = 2\text{ A}$, $I_B = 200\text{ mA}$ | $V_{BE(sat)}$ | - | - | 1.2 | V |
| Transition Frequency at $V_{CE} = 5\text{ V}$, $I_C = 100\text{ mA}$, $f = 10\text{ MHz}$ | f_T | 50 | - | - | MHz |



Electrical Characteristics Curves

Fig. 1 Power Derating Curve

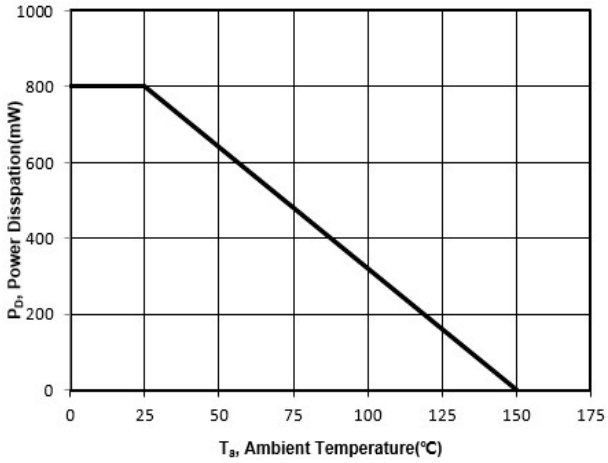


Fig. 2 Output Characteristics Curve

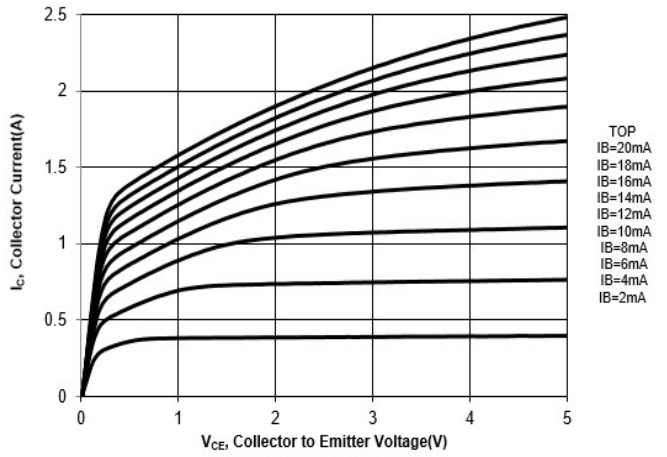


Fig. 3 Collector Current vs. V_{BE}

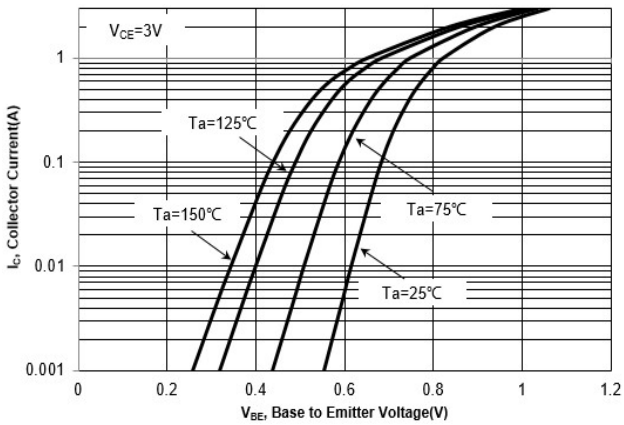
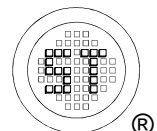
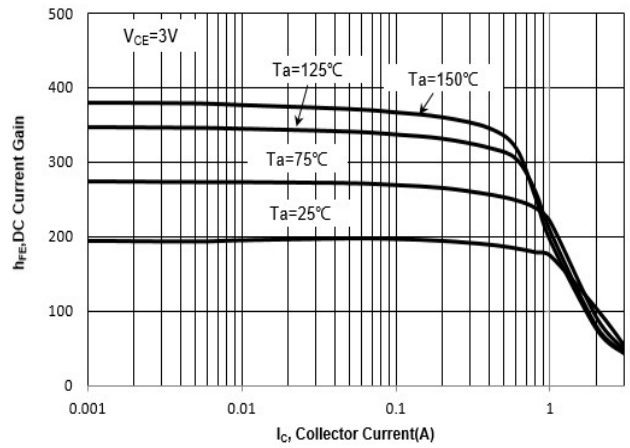


Fig 4. DC Current Gain vs. Collector Current



Electrical Characteristics Curves

Fig 5. $V_{BE(sat)}$ vs. Collector Current

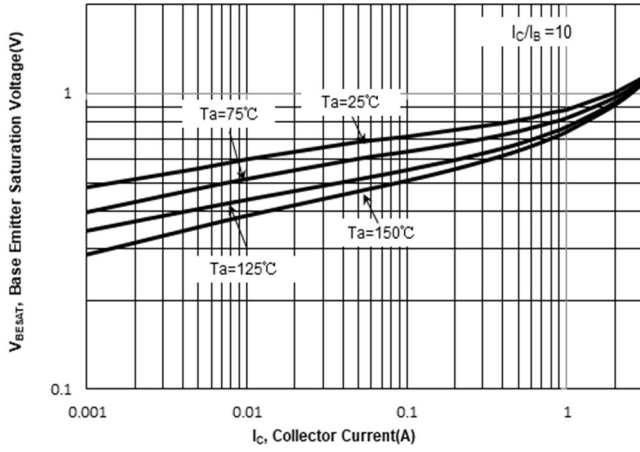


Fig 6. $V_{CE(sat)}$ vs. Collector Current

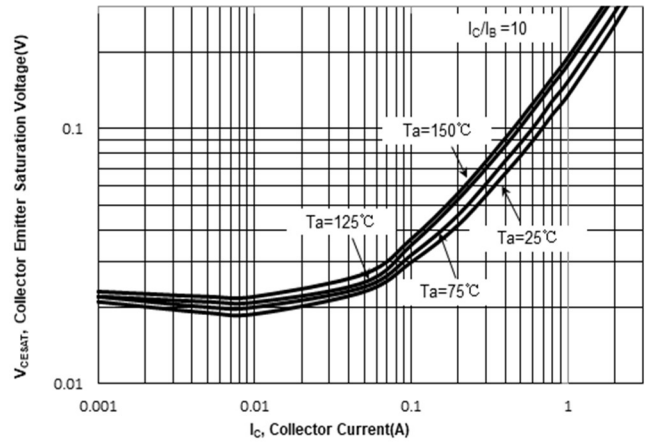
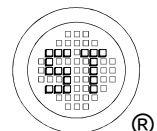
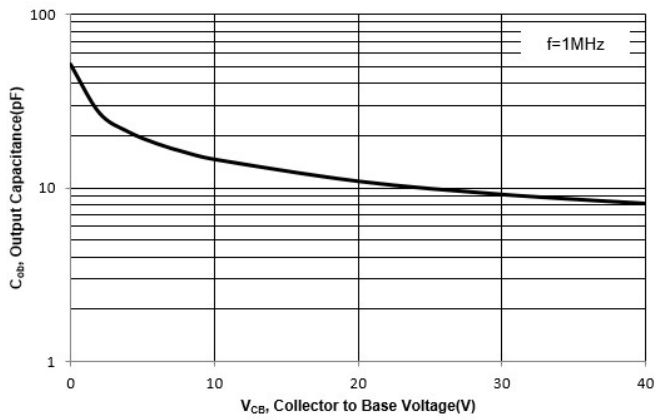
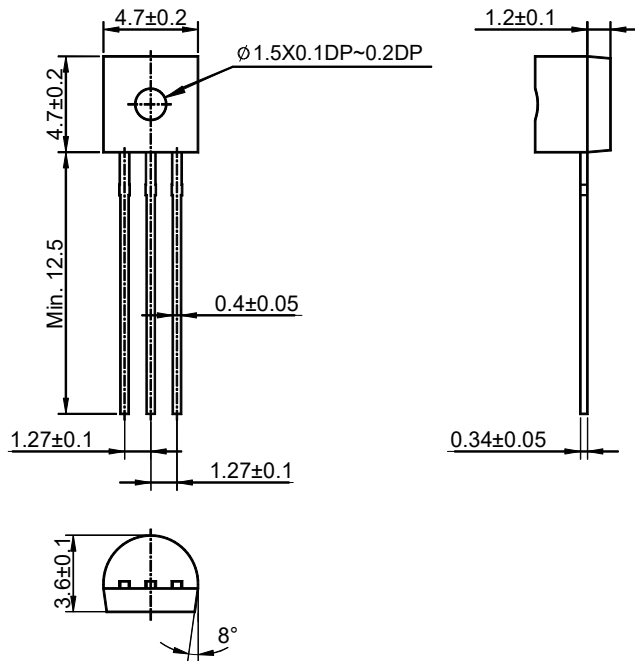


Fig 7. Capacitance Characteristics

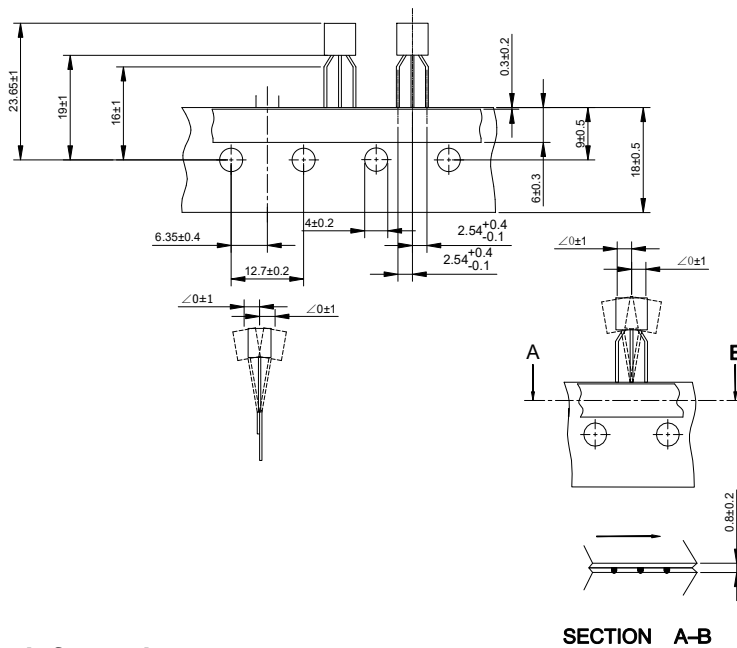


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TO-92 Package Outline (Dimensions in millimeters)



TO-92 Ammo-Pack Outline (Dimensions in millimeters)



SECTION A-B

Packing information

| Package | Bulk Packing | | | Ammo-Packing | |
|---------|--------------|-------------|----------------|--------------|----------------|
| | Per Bag Qty | Per Box Qty | Per Carton Qty | Per Box Qty | Per Carton Qty |
| TO-92 | 1,000 | 5,000 | 50,000 | 4,000 | 20,000 |

