

## HIGH VOLTAGE NPN TRANSISTOR

**APT27H**

### General Description

The APT27H series are high voltage, high speed switching NPN power transistor specially designed for off-line switch mode power supplies with low output power.

The APT27H is available in TO-92 package.

### Features

- High Switching Speed
- High Collector-Emitter Voltage
- Low Cost

### Applications

- Battery Chargers for Mobile Phone
- Power Supply for DVD/STB

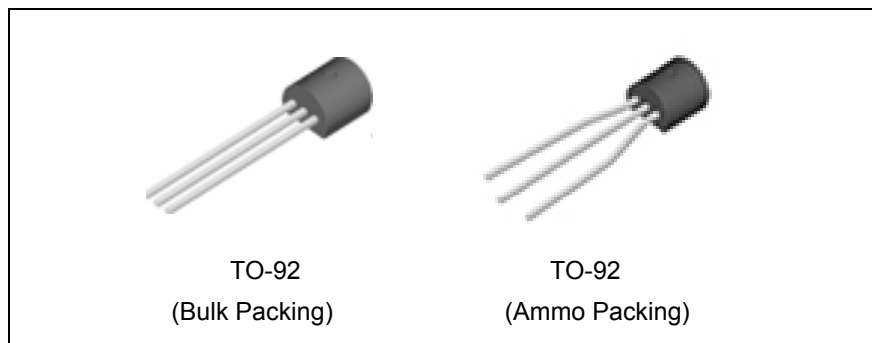


Figure 1. Package Types of APT27H

### Pin Configuration

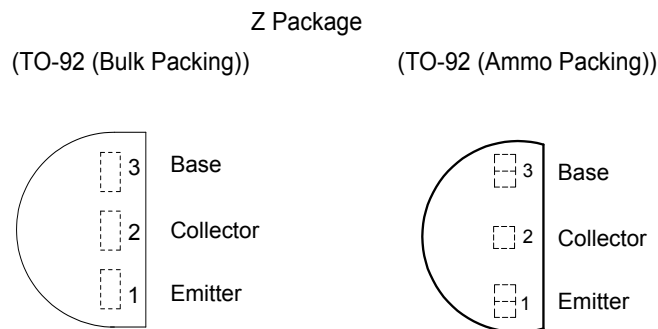
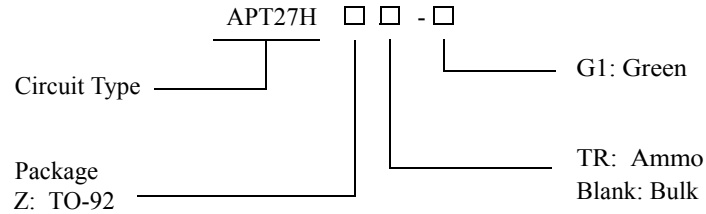


Figure 2. Pin Configuration of APT27H (Top View)

**HIGH VOLTAGE NPN TRANSISTOR****APT27H****Ordering Information**

| Package | Part Number  | Marking ID | Packing Type |
|---------|--------------|------------|--------------|
| TO-92   | APT27HZ-G1   | APT27HZ-G1 | Bulk         |
|         | APT27HZTR-G1 | APT27HZ-G1 | Ammo         |

BCD Semiconductor's products, as designated with "G1" suffix in the part number, are RoHS compliant and Green.

**Absolute Maximum Ratings (Note 1)**

| Parameter                                   | Symbol    | Value      | Unit               |
|---------------------------------------------|-----------|------------|--------------------|
| Collector-Emitter Voltage                   | $V_{CES}$ | 800        | V                  |
| Collector-Emitter Voltage                   | $V_{CEO}$ | 450        | V                  |
| Emitter-Base Voltage                        | $V_{EBO}$ | 9          | V                  |
| Collector Current                           | $I_C$     | 0.8        | A                  |
| Collector Peak Current                      | $I_{CM}$  | 1.6        | A                  |
| Base Current                                | $I_B$     | 0.4        | A                  |
| Base Peak Current                           | $I_{BM}$  | 0.8        | A                  |
| Power Dissipation, $T_A=25^{\circ}\text{C}$ | $P_{TOT}$ | 0.8        | W                  |
| Operating Junction Temperature              |           | 150        | $^{\circ}\text{C}$ |
| Storage Temperature Range                   |           | -55 to 150 | $^{\circ}\text{C}$ |

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

**HIGH VOLTAGE NPN TRANSISTOR****APT27H****Thermal Characteristics**

| Parameter                                | Symbol        | Value  | Unit                        |
|------------------------------------------|---------------|--------|-----------------------------|
| Thermal Resistance (Junction to Ambient) | $\theta_{JA}$ | 156.25 | $^{\circ}\text{C}/\text{W}$ |

**Electrical Characteristics**(  $T_C=25^{\circ}\text{C}$ , unless otherwise specified.)

| Parameter                                              | Symbol                | Conditions                               | Min | Typ | Max | Unit          |
|--------------------------------------------------------|-----------------------|------------------------------------------|-----|-----|-----|---------------|
| Collector Cut-off Current<br>( $V_{BE}=-1.5\text{V}$ ) | $I_{CEV}$             | $V_{CE}=800\text{V}$                     |     |     | 10  | $\mu\text{A}$ |
| Collector-Emitter Sustaining<br>Voltage ( $I_B=0$ )    | $V_{CEO}(\text{sus})$ | $I_C=0.1\text{mA}$                       | 450 |     |     | V             |
| Collector-Emitter Saturation<br>Voltage                | $V_{CE}(\text{sat})$  | $I_C=200\text{mA}$ , $I_B=40\text{mA}$   |     |     | 0.5 | V             |
| DC Current Gain                                        | $h_{FE}$              | $I_C=100\text{mA}$ , $V_{CE}=10\text{V}$ | 15  | 23  | 40  |               |
|                                                        |                       | $I_C=300\text{mA}$ , $V_{CE}=10\text{V}$ | 6   | 15  | 30  |               |

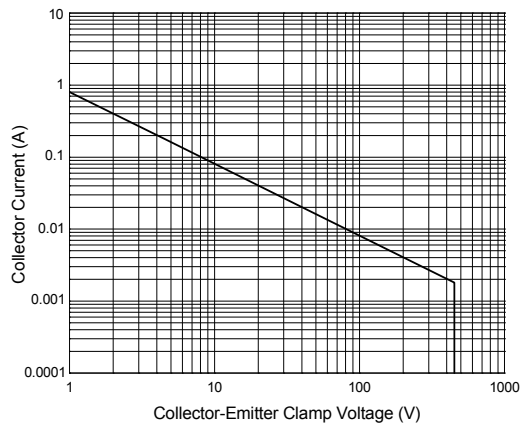
**HIGH VOLTAGE NPN TRANSISTOR****APT27H****Typical Performance Characteristics**

Figure 3. Safe Operating Areas

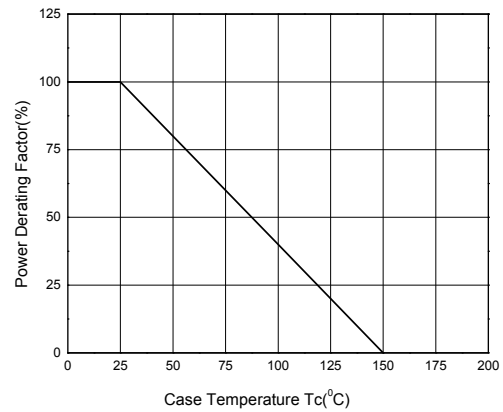


Figure 4. Power Derating Curve

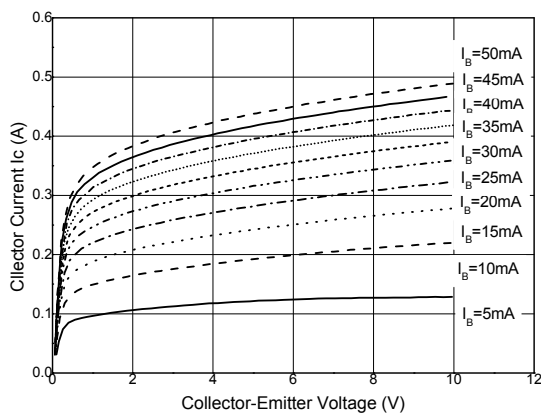


Figure 5. Static Characteristics

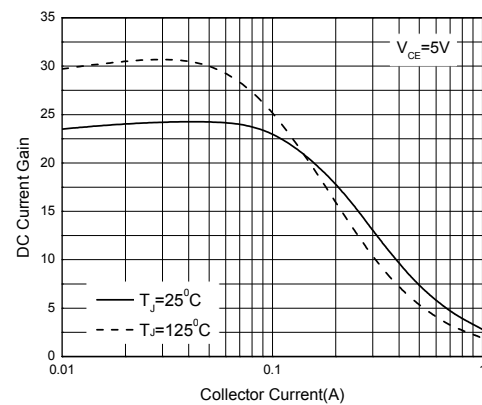


Figure 6. DC Current Gain

## HIGH VOLTAGE NPN TRANSISTOR

APT27H

## Typical Performance Characteristics (Continued)

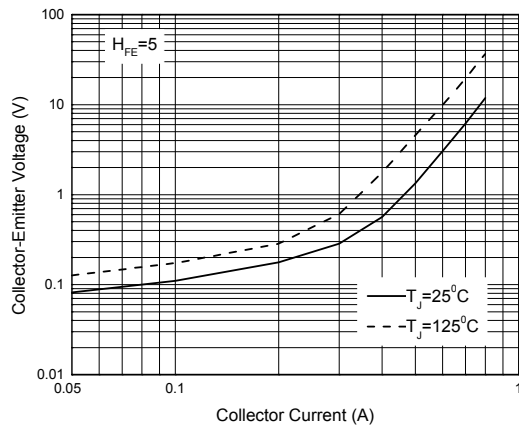


Figure 7. Collector-emitter Saturation Region

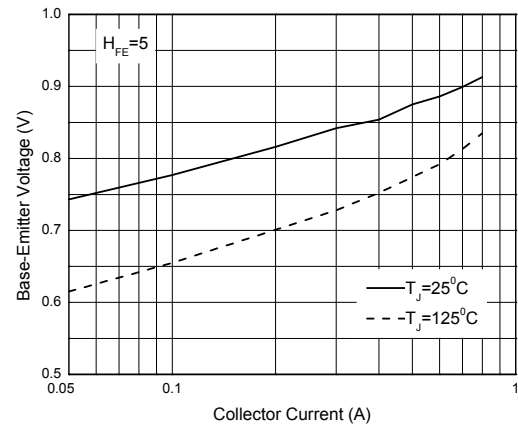
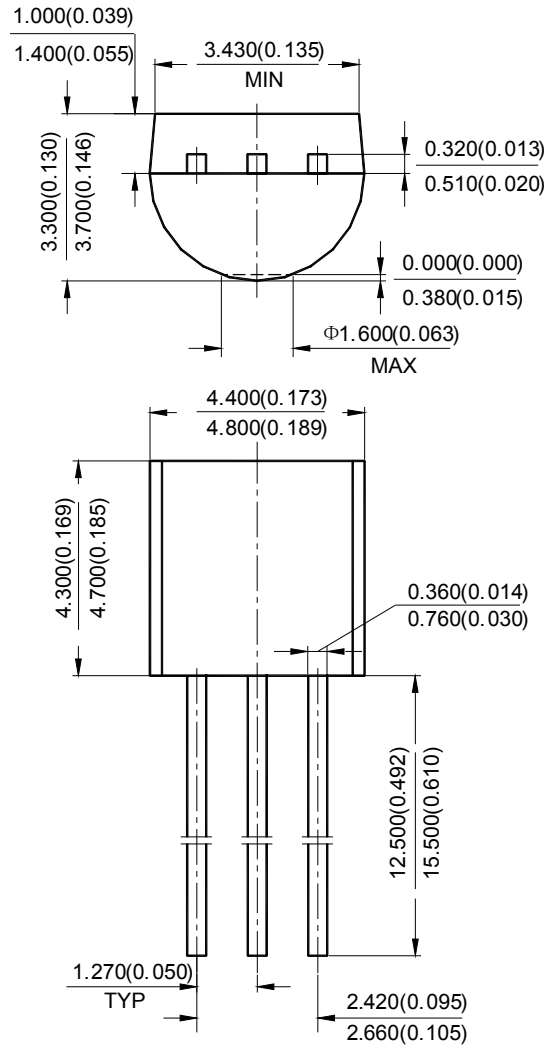


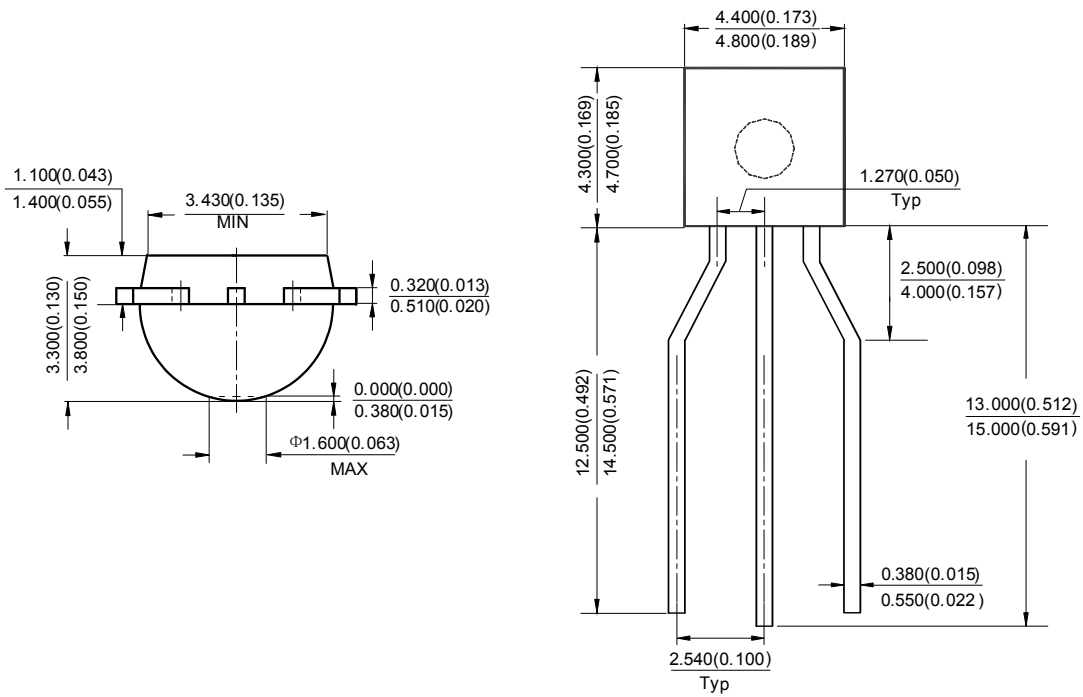
Figure 8. Base-Emitter Saturation Voltage

## Mechanical Dimensions

## TO-92 (Bulk Packing)

Unit: mm(inch)



**HIGH VOLTAGE NPN TRANSISTOR****APT27H****Mechanical Dimensions (Continued)****TO-92 ( Ammo Packing)****Unit: mm(inch)**



## BCD Semiconductor Manufacturing Limited

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#### MAIN SITE

##### - Headquarters

##### BCD Semiconductor Manufacturing Limited

No. 1600, Zi Xing Road, Shanghai ZiZhu Science-based Industrial Park, 200241, China  
Tel: +86-21-24162266, Fax: +86-21-24162277

##### - Wafer Fab

##### Shanghai SIM-BCD Semiconductor Manufacturing Co., Ltd.

800 Yi Shan Road, Shanghai 200233, China  
Tel: +86-21-6485 1491, Fax: +86-21-5450 0008

#### REGIONAL SALES OFFICE

##### Shenzhen Office

##### Shanghai SIM-BCD Semiconductor Manufacturing Co., Ltd., Shenzhen Office

Unit A Room 1203, Skyworth Bldg., Gaoxin Ave.1.S., Nanshan District, Shenzhen, China  
Tel: +86-755-8826 7951  
Fax: +86-755-8826 7865

##### Taiwan Office

##### BCD Semiconductor (Taiwan) Company Limited

4F, 298-1, Rui Guang Road, Nei-Hu District, Taipei, Taiwan  
Tel: +886-2-2656 2808  
Fax: +886-2-2656 2806

##### USA Office

##### BCD Semiconductor Corp.

30920 Huntwood Ave. Hayward, CA 94544, USA  
Tel : +1-510-324-2988  
Fax: +1-510-324-2788