

# BFN18H6327XTSA1 Datasheet



<https://www.DiGi-Electronics.com>

|                              |   |
|------------------------------|---|
| DiGi Electronics Part Number | BFN18H6327XTSA1-DG  |
| Manufacturer                 | <a href="#">Infineon Technologies</a>   |
| Manufacturer Product Number  | BFN18H6327XTSA1   |
| Description                  | TRANS NPN 300V 0.2A SOT89   |
| Detailed Description         | Bipolar (BJT) Transistor NPN 300 V 200 mA 70MHz 1 .5 W Surface Mount PG-SOT89 |



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

DiGi is a global authorized distributor of electronic components.

## Purchase and inquiry

Manufacturer Product Number:

BFN18H6327XTSA1

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

300 V

Current - Collector Cutoff (Max):

100nA (ICBO)

Power - Max:

1.5 W

Operating Temperature:

150°C (TJ)

Qualification:

AEC-Q101

Package / Case:

TO-243AA

Base Product Number:

BFN18

Manufacturer:

Infineon Technologies

Product Status:

Obsolete

Current - Collector (Ic) (Max):

200 mA

Vce Saturation (Max) @ Ib, Ic:

500mV @ 2mA, 20mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

30 @ 30mA, 10V

Frequency - Transition:

70MHz

Grade:

Automotive

Mounting Type:

Surface Mount

Supplier Device Package:

PG-SOT89

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0075

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99



# BFN18

NPN Silicon High-Voltage Transistors

## Data Sheet

Revision 1.0, 2010-10-13

RF & Protection Devices

**Edition 2010-10-13**

**Published by  
Infineon Technologies AG  
81726 Munich, Germany**

**© 2010 Infineon Technologies AG  
All Rights Reserved.**

#### **Legal Disclaimer**

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

#### **Information**

For further information on technology, delivery terms and conditions and prices, please contact the nearest Infineon Technologies Office ([www.infineon.com](http://www.infineon.com)).

#### **Warnings**

Due to technical requirements, components may contain dangerous substances. For information on the types in question, please contact the nearest Infineon Technologies Office.

Infineon Technologies components may be used in life-support devices or systems only with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.




---

**Revision History**

| Page or Item | Subjects (major changes since previous revision) |
|--------------|--|
|--------------|--|

**Revision 1.0, 2010-10-13**

|  |                                    |
|--|------------------------------------|
|  | Converted to the new IFX Template. |
|  |                                    |
|  |                                    |

**Trademarks of Infineon Technologies AG**

AURIX™, BlueMoon™, COMNEON™, C166™, CROSSAVE™, CanPAK™, CIPOS™, CoolMOS™, CoolSET™, CORECONTROL™, DAVE™, EasyPIM™, EconoBRIDGE™, EconoDUAL™, EconoPACK™, EconoPIM™, EiceDRIVER™, EUPEC™, FCOS™, HITFET™, HybridPACK™, ISOFACE™, I<sup>2</sup>RF™, IsoPACK™, MIPAQ™, ModSTACK™, my-d™, NovalithIC™, OmniTune™, OptiMOS™, ORIGA™, PROFET™, PRO-SIL™, PRIMARION™, PrimePACK™, RASIC™, ReverSave™, SatRIC™, SIEGET™, SINDRION™, SMARTi™, SmartLEWIS™, TEMPFET™, thinQ!™, TriCore™, TRENCHSTOP™, X-GOLD™, XMM™, X-PMU™, XPOSYS™.

**Other Trademarks**

Advance Design System™ (ADS) of Agilent Technologies, AMBA™, ARM™, MULTI-ICE™, PRIMECELL™, REALVIEW™, THUMB™ of ARM Limited, UK. AUTOSAR™ is licensed by AUTOSAR development partnership. Bluetooth™ of Bluetooth SIG Inc. CAT-iq™ of DECT Forum. COLOSSUS™, FirstGPS™ of Trimble Navigation Ltd. EMV™ of EMVCo, LLC (Visa Holdings Inc.). EPCOS™ of Epcos AG. FLEXGO™ of Microsoft Corporation. FlexRay™ is licensed by FlexRay Consortium. HYPERTERMINAL™ of Hilgraeve Incorporated. IEC™ of Commission Electrotechnique Internationale. IrDA™ of Infrared Data Association Corporation. ISO™ of INTERNATIONAL ORGANIZATION FOR STANDARDIZATION. MATLAB™ of MathWorks, Inc. MAXIM™ of Maxim Integrated Products, Inc. MICROTEC™, NUCLEUS™ of Mentor Graphics Corporation. Mifare™ of NXP. MIPI™ of MIPI Alliance, Inc. MIPS™ of MIPS Technologies, Inc., USA. muRata™ of MURATA MANUFACTURING CO., MICROWAVE OFFICE™ (MWO) of Applied Wave Research Inc., OmniVision™ of OmniVision Technologies, Inc. Openwave™ Openwave Systems Inc. RED HAT™ Red Hat, Inc. RFMD™ RF Micro Devices, Inc. SIRIUS™ of Sirius Sattelite Radio Inc. SOLARIS™ of Sun Microsystems, Inc. SPANSION™ of Spansion LLC Ltd. Symbian™ of Symbian Software Limited. TAIYO YUDEN™ of Taiyo Yuden Co. TEAKLITE™ of CEVA, Inc. TEKTRONIX™ of Tektronix Inc. TOKO™ of TOKO KABUSHIKI KAISHA TA. UNIX™ of X/Open Company Limited. VERILOG™, PALLADIUM™ of Cadence Design Systems, Inc. VLYNQ™ of Texas Instruments Incorporated. VXWORKS™, WIND RIVER™ of WIND RIVER SYSTEMS, INC. ZETEX™ of Diodes Zetex Limited.

Last Trademarks Update 2010-06-09



## Table of Contents

|          |   |    |
|----------|---|----|
|          | <b>Table of Contents</b> .....          | 4  |
|          | <b>List of Figures</b> .....            | 5  |
|          | <b>List of Tables</b> .....             | 6  |
| <b>1</b> | <b>Features</b> .....                   | 7  |
| <b>2</b> | <b>Electrical Characteristics</b> ..... | 8  |
| <b>3</b> | <b>Characteristic DC Diagrams</b> ..... | 10 |
| <b>4</b> | <b>Package Information SOT89</b> .....  | 12 |



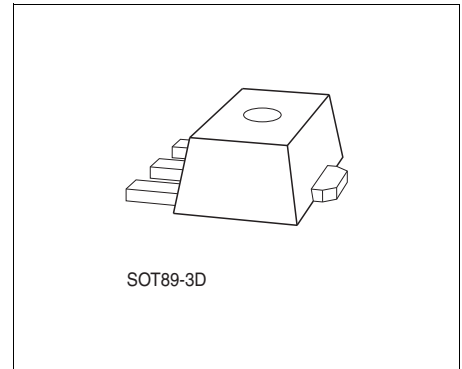
## NPN Silicon High-Voltage Transistors

**BFN18**

### 1 Features

Main features:

- Suitable for video output stages TV sets and switching power supplies
- High breakdown voltage
- Low collector-emitter saturation voltage
- Complementary types: BFN19 (PNP)
- Pb-free (RoHS compliant) package<sup>1)</sup>
- Qualified according AEC Q101



1) Pb-containing package may be available upon special request

| Product Name | Package | Pin Configuration |       |       |       | Marking |
|--------------|---------|-------------------|-------|-------|-------|---------|
|              |         | 1 = B             | 2 = C | 3 = E | 4 = C |         |
| BFN18        | SOT89   | 1 = B             | 2 = C | 3 = E | 4 = C | DE      |



## 2 Electrical Characteristics

**Table 1 Absolute Maximum Ratings**

| Parameter   | Symbol    | Values |      |      | Unit | Note / Test Condition |
|---|-----------|--------|------|------|------|-----------------------|
|   |           | Min.   | Typ. | Max. |      |                       |
| Collector-emitter voltage                         | $V_{CEO}$ | –      | –    | 300  | V    | –                     |
| Collector-base voltage                            | $V_{CBO}$ | –      | –    | 300  | V    | –                     |
| Emitter-base voltage                              | $V_{EBO}$ | –      | –    | 5    | V    | –                     |
| Collector current                                 | $I_C$     | –      | –    | 200  | mA   | –                     |
| Peak collector current                            | $I_{CM}$  | –      | –    | 500  | mA   | –                     |
| Base current                                      | $I_B$     | –      | –    | 100  | mA   | –                     |
| Peak base current                                 | $I_{BM}$  | –      | –    | 200  | mA   | –                     |
| Total power dissipation-<br>$T_S = 120\text{ °C}$ | $P_{tot}$ | –      | –    | 1.5  | W    | –                     |
| Junction temperature                              | $T_j$     | –      | –    | 150  | °C   | –                     |
| Storage temperature                               | $T_{stg}$ | -65    | –    | 150  | °C   | –                     |

**Attention: Stresses above the max. values listed here may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. Maximum ratings are absolute ratings; exceeding only one of these values may cause irreversible damage to the device.**

**Table 2 Thermal Resistance**

| Parameter                                | Symbol     | Values |      |      | Unit | Note / Test Condition |
|--|------------|--------|------|------|------|-----------------------|
|  |            | Min.   | Typ. | Max. |      |                       |
| Junction - soldering point <sup>1)</sup> | $R_{thJS}$ | –      | –    | ≤ 20 | K/W  | –                     |

1) For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance.





## Electrical Characteristics

Table 3 DC Characteristics at  $T_A = 25\text{ °C}$ , Unless Otherwise Specified

| Parameter  | Symbol        | Values |      |      | Unit          | Note / Test Condition                      |
|--|---------------|--------|------|------|---------------|--|
|  |               | Min.   | Typ. | Max. |               |  |
| Collector emitter breakdown voltage                | $V_{(BR)CEO}$ | 300    | –    | –    | V             | $I_C = 1\text{ mA}, I_B = 0$               |
| Collector-base breakdown voltage                   | $V_{(BR)CBO}$ | 300    | –    | –    | V             | $I_C = 100\text{ }\mu\text{A}, I_E = 0$    |
| Emitter-base breakdown voltage                     | $V_{(BR)EBO}$ | 5      | –    | –    | V             | $I_E = 100\text{ }\mu\text{A}, I_C = 0$    |
| Collector-base cutoff current                      | $I_{CBO}$     | –      | –    | 0.1  | $\mu\text{A}$ | $V_{CB} = 250\text{ V}, I_E = 0$           |
|  |               | –      | –    | 20   |               |  |
| Emitter-base cutoff current                        | $I_{EBO}$     | –      | –    | 100  | nA            | $V_{EB} = 5\text{ V}, I_C = 0$             |
| DC current gain <sup>1)</sup>                      | $h_{FE}$      | 25     | –    | –    |               | $I_C = 1\text{ mA}, V_{CE} = 10\text{ V}$  |
|  |               | 40     | –    | –    |               | $I_C = 10\text{ mA}, V_{CE} = 10\text{ V}$ |
|  |               | 30     | –    | –    |               | $I_C = 30\text{ mA}, V_{CE} = 10\text{ V}$ |
| Collector-emitter saturation voltage <sup>1)</sup> | $V_{CEsat}$   | –      | –    | 0.5  | V             | $I_C = 20\text{ mA}, I_B = 2\text{ mA}$    |
| Base emitter saturation voltage <sup>1)</sup>      | $V_{BEsat}$   | –      | –    | 0.9  | V             | $I_C = 20\text{ mA}, I_B = 2\text{ mA}$    |

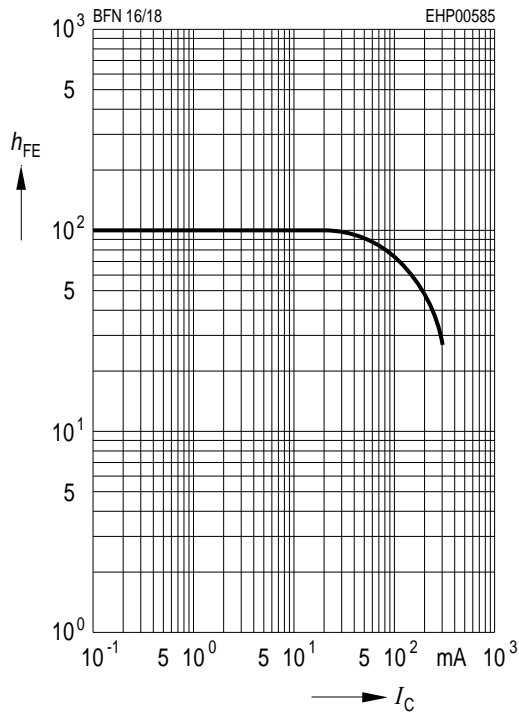
1)Pulse test:  $t < 300\text{ }\mu\text{s}$ ;  $D < 2\%$ Table 4 AC Characteristics at  $T_A = 25\text{ °C}$ 

| Parameter                  | Symbol   | Values |      |      | Unit | Note / Test Condition   |
|----------------------------|----------|--------|------|------|------|---|
|                            |          | Min.   | Typ. | Max. |      |   |
| Transition frequency       | $f_T$    | –      | 70   | –    | MHz  | $I_C = 20\text{ MHz}, V_{CE} = 10\text{ V},$<br>$f = 20\text{ MHz}$ |
| Collector base capacitance | $C_{Cb}$ | –      | 1.5  | –    | pF   | $V_{CB} = 30\text{ V}, f = 1\text{ MHz}$                            |

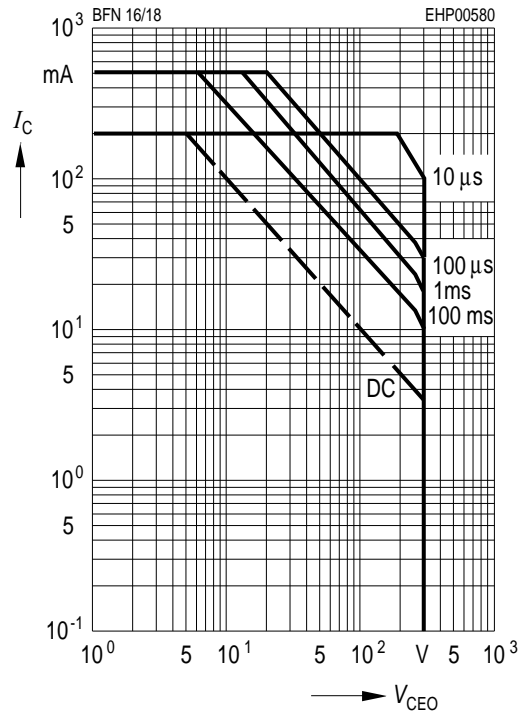


### 3 Characteristic DC Diagrams

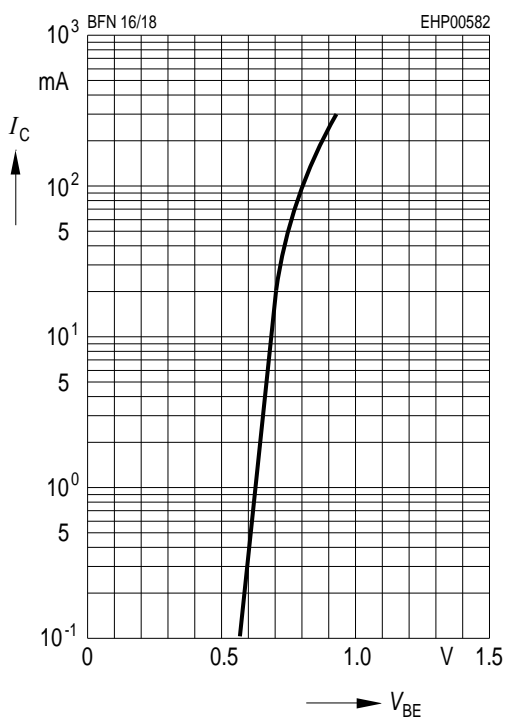
**DC Current Gain**  
 $h_{FE} = f(I_C), V_{CE} = 10\text{ V}$



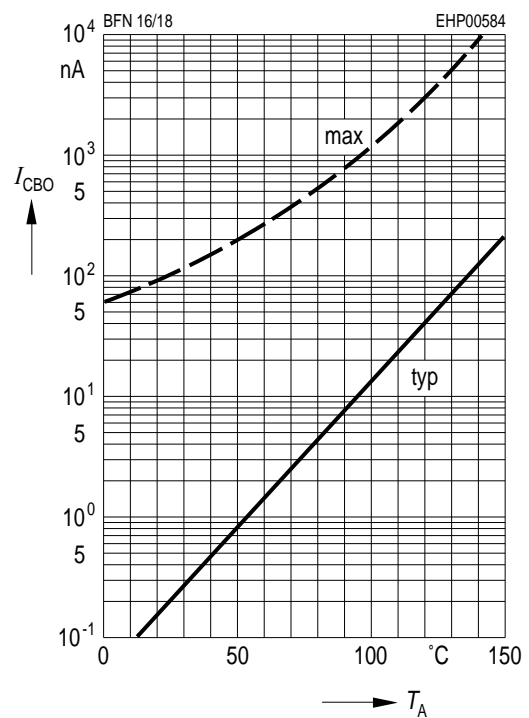
**Operating Range**  
 $I_C = f(V_{CEO}), T_A = 25^\circ\text{C}, D = 0$



**Collector Current**  
 $I_C = f(V_{BE}), V_{CE} = 10\text{ V}$



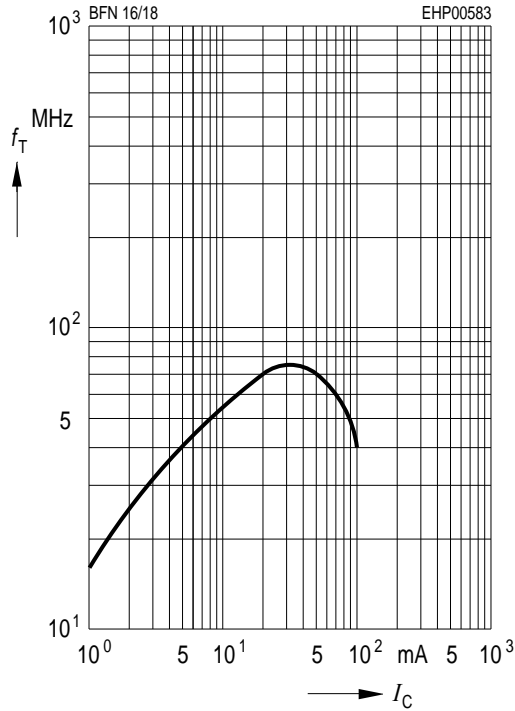
**Collector Cutoff Current**  
 $I_{CBO} = f(T_A), V_{CBO} = 200\text{ V}$



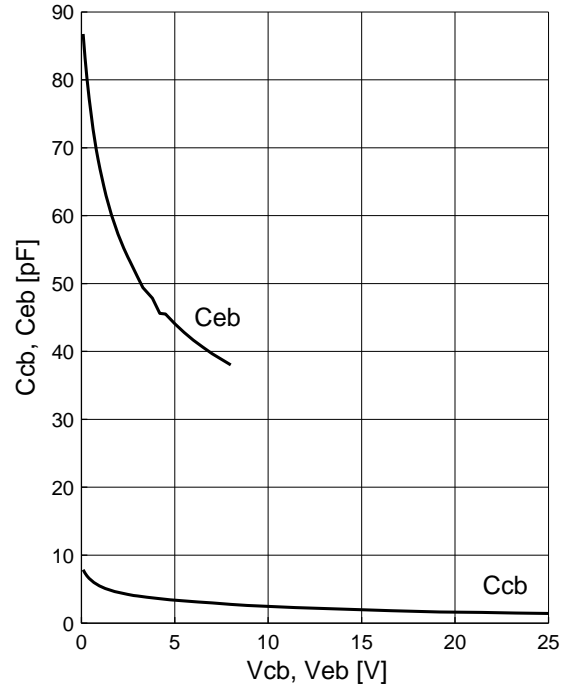


Characteristic DC Diagrams

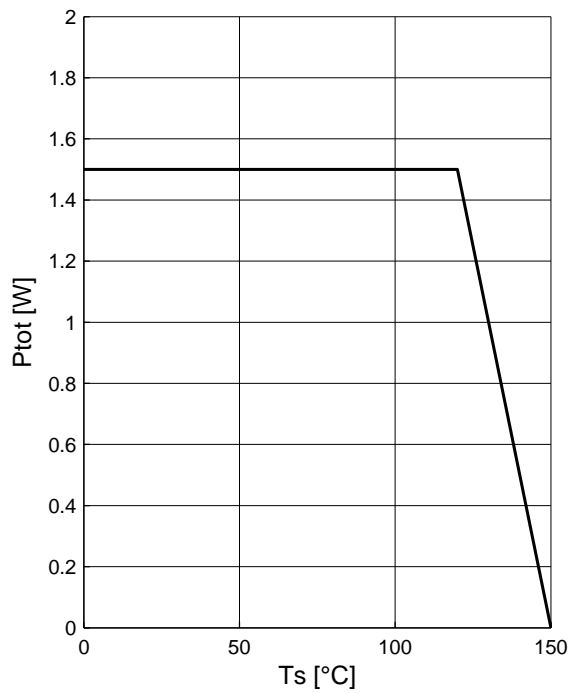
**Transition Frequency**  
 $f_T = f(I_C), V_{CE} = 10\text{ V}$



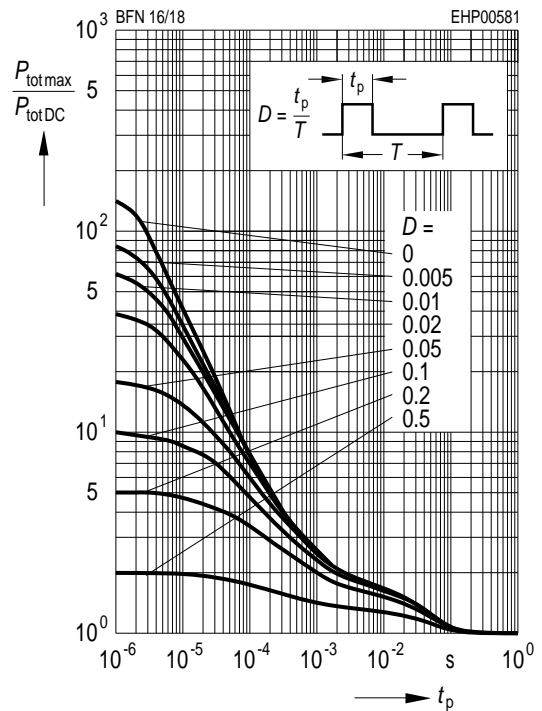
**Collector Base Capacitance  $C_{cb} = f(V_{CB})$**   
**Emitter Base Capacitance  $C_{eb} = f(V_{EB})$**



**Total Power Dissipation**  
 $P_{tot} = f(T_S)$



**Permissible Pulse Load**  
 $P_{totmax} / P_{totDC} = f(T_S)$





### 4 Package Information SOT89

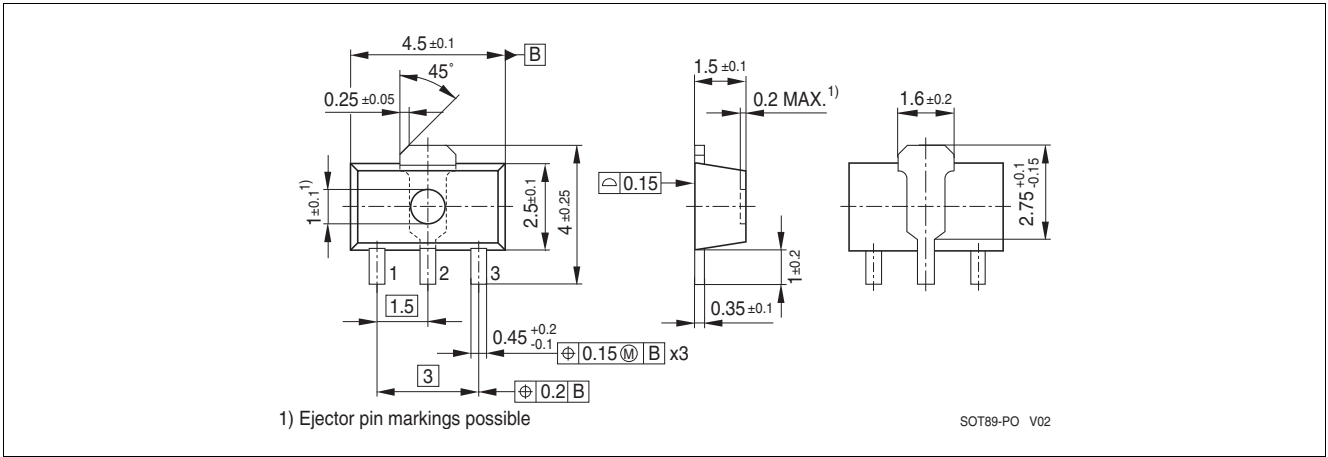


Figure 1 Package Outline

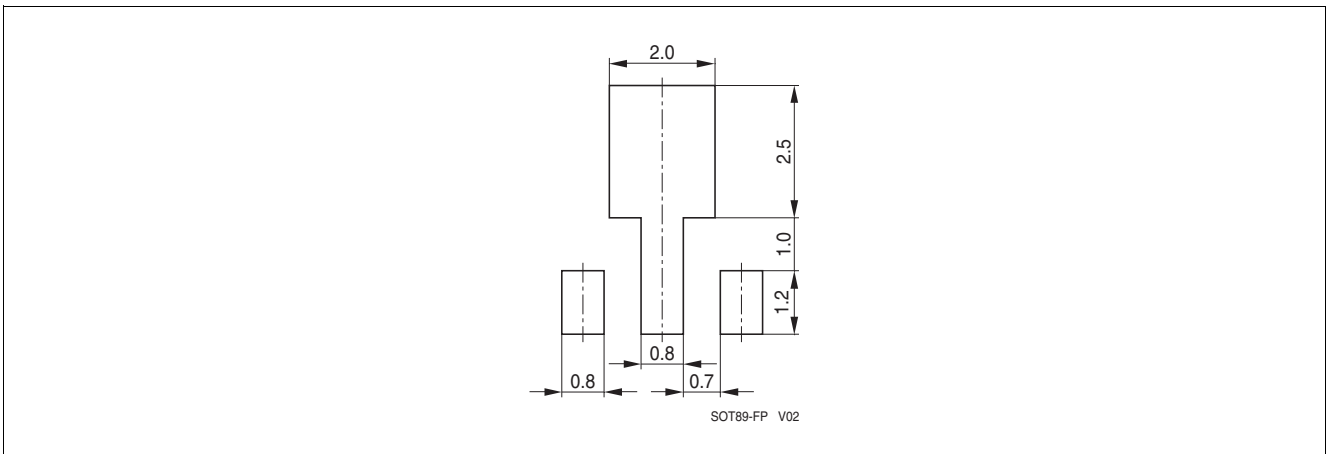


Figure 2 Package Foot Print

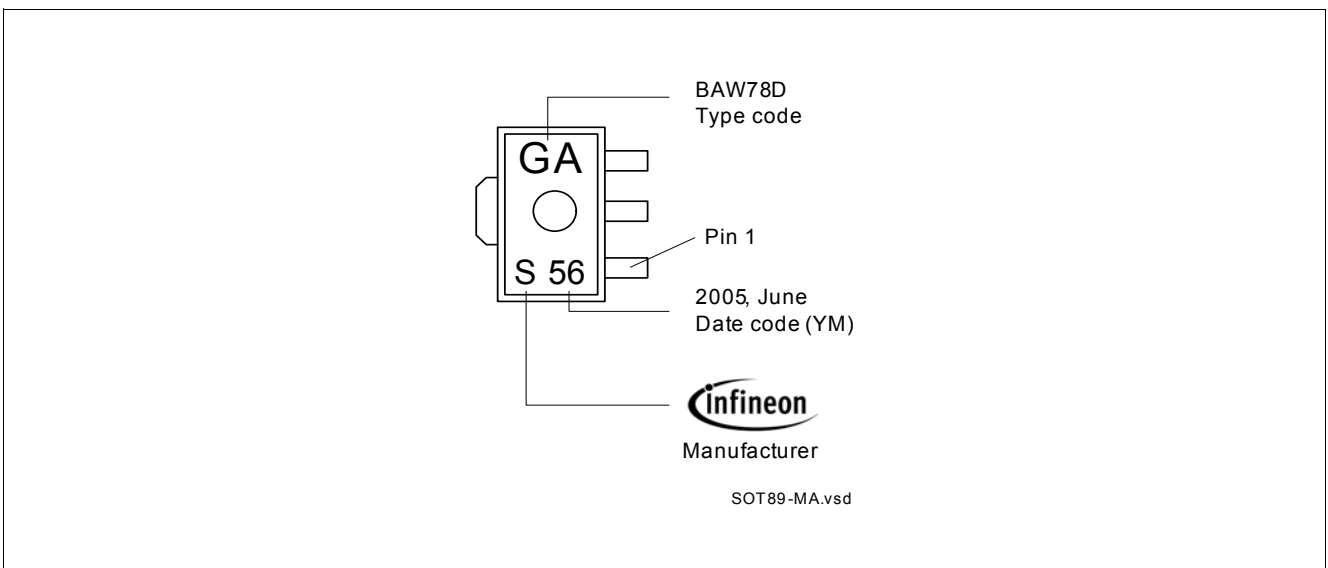
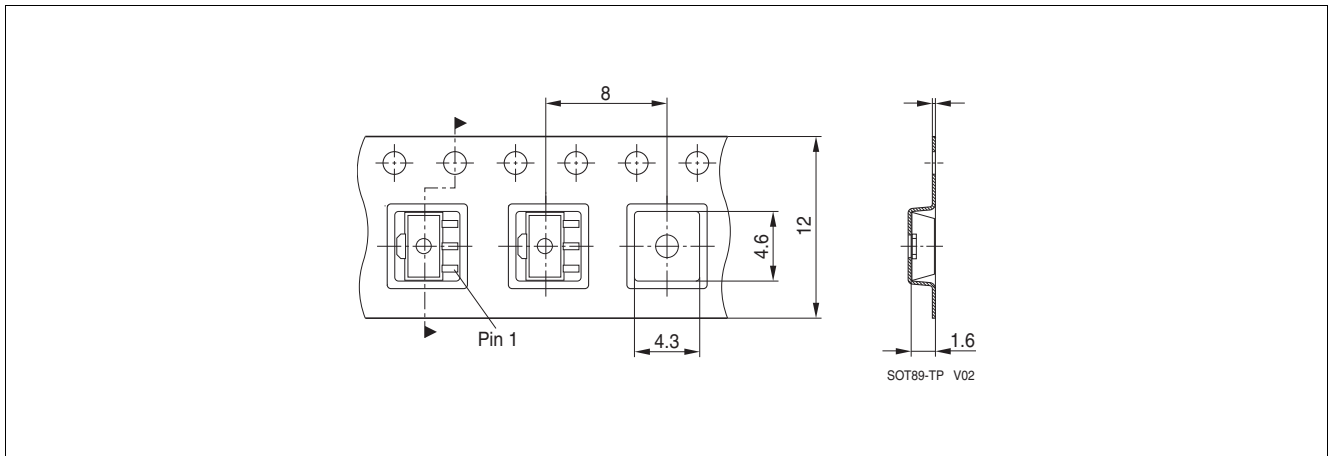


Figure 3 Marking Example



**Figure 4** Tape Dimensions

### Packing Description

Reel  $\varnothing$ 180 mm = 1.000 Pieces/Reel

Reel  $\varnothing$ 330 mm = 4.000 Pieces/Reel

[www.infineon.com](http://www.infineon.com)

## OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we stricly control the quality of products and services. Welcome your RFQ to

Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

DiGi is a global authorized distributor of electronic components.