



# PBHV8110DH

## NPN Low Vce(sat) Transistor

**Voltage**

**100V**

**Current**

**1A**

### Features

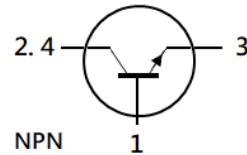
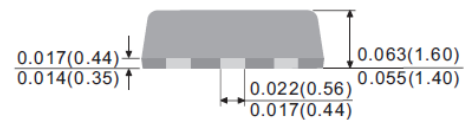
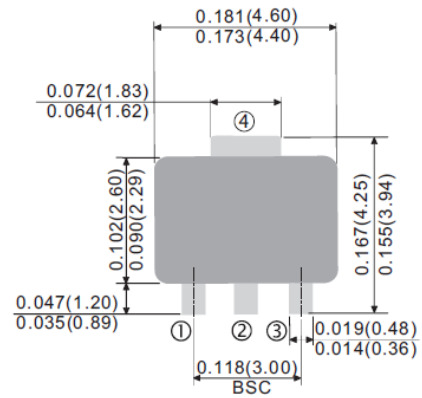
- Silicon NPN epitaxial type
- Low Vce(sat) 0.35V(max)@Ic/Ib= 500mA / 50mA
- High collector current capability
- Excellent DC current gain characteristics
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC61249 Standard
- PNP complement: PBHV9110DH

### Mechanical Data

- Case: SOT-89 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.002 ounces, 0.057 grams
- Marking: 811D

**SOT-89**

**Unit: inch(mm)**



**Pin Assignment:**

1. Base
- 2.4. Collector
3. Emitter

## Maximum Ratings and Thermal Characteristics (T<sub>A</sub>=25 °C unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNITS
Collector-Base Voltage	V <sub>CBO</sub>	120	V
Collector-Emitter Voltage	V <sub>CEO</sub>	100	V
Emitter-Base Voltage	V <sub>EBO</sub>	6	V
Collector Current (DC)	I <sub>C</sub>	1	A
Collector Current (Pulse)	I <sub>CP</sub>	3	A
Power Dissipation	P <sub>D</sub>	1.4	W
Junction Temperature	T <sub>J</sub>	150	°C
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55~150	°C
Thermal Resistance from Junction to Ambient <sup>(Note)</sup>	R <sub>θJA</sub>	89	°C/W

Note: Mounted on FR4 PCB at 1 inch square copper pad.



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## Electrical Characteristics ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>OFF Characteristics</b>						
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C= 10\text{mA}, I_B= 0\text{A}$	100	-	-	V
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C= 0.1\text{mA}, I_E= 0\text{A}$	120	-	-	V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E= 0.1\text{mA}, I_C= 0\text{A}$	6	-	-	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB}= 120\text{V}, I_E= 0\text{A}$	-	-	500	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}= 6\text{V}, I_C= 0\text{A}$	-	-	500	nA
<b>ON characteristics</b>						
DC Current Gain (Note1)	$h_{FE}$	$V_{CE}= 2\text{V}, I_C= 150\text{mA}$	140	-	330	-
		$V_{CE}= 5\text{V}, I_C= 500\text{mA}$	100	-	300	
		$V_{CE}= 5\text{V}, I_C= 1\text{A}$	40	-	-	
Collector-Emitter Saturation Voltage (Note1)	$V_{CE(SAT)}$	$I_C= 0.1\text{A}, I_B= 10\text{mA}$	-	38	120	mV
		$I_C= 0.5\text{A}, I_B= 50\text{mA}$	-	117	350	
		$I_C= 1\text{A}, I_B= 0.1\text{A}$	-	220	450	
Base-Emitter Saturation voltage (Note1)	$V_{BE(SAT)}$	$I_C= 0.1\text{A}, I_B= 10\text{mA}$	-	-	1.0	V
		$I_C= 0.5\text{A}, I_B= 50\text{mA}$	-	-	1.1	
Transition Frequency	$f_T$	$V_{CE}= 5\text{V}, I_E= -50\text{mA}$	100	-	-	MHz
Collector Output Capacitance	$C_{OB}$	$V_{CB}= 10\text{V}, I_E= 0\text{A},$ $f=1\text{MHz}$	-	-	10	pF

Note: 1. Pulse width  $\leq 300\mu\text{s}$ , Duty cycle  $\leq 2\%$



# PBHV8110DH

## TYPICAL CHARACTERISTIC CURVES

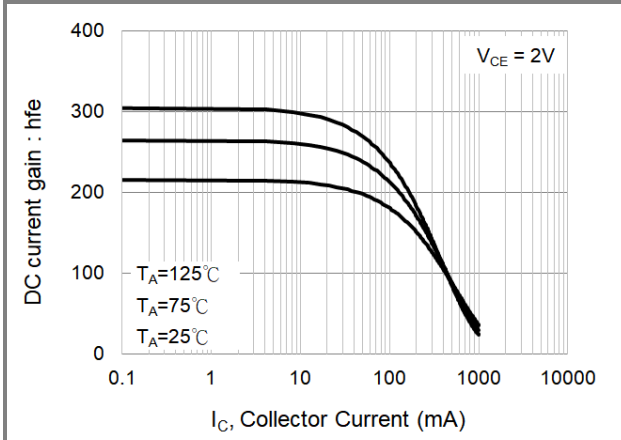


Fig.1 DC Current Gain

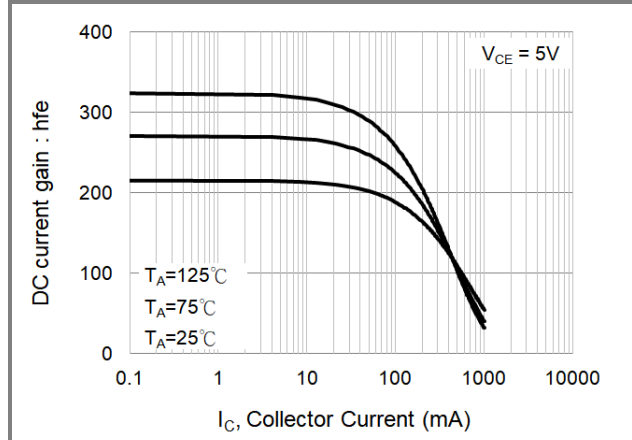


Fig.2 DC Current Gain

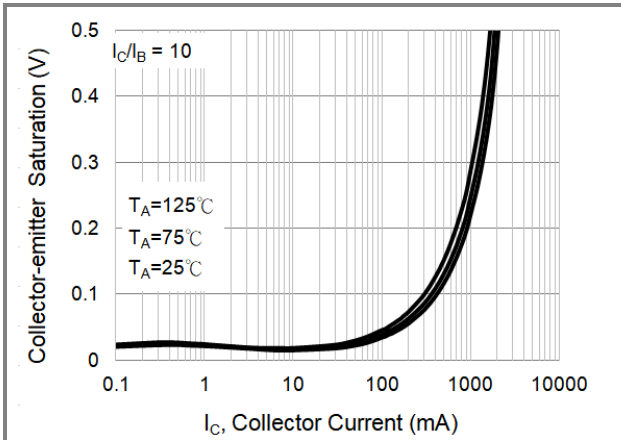


Fig.3 Collector-Emitter Saturation Voltage

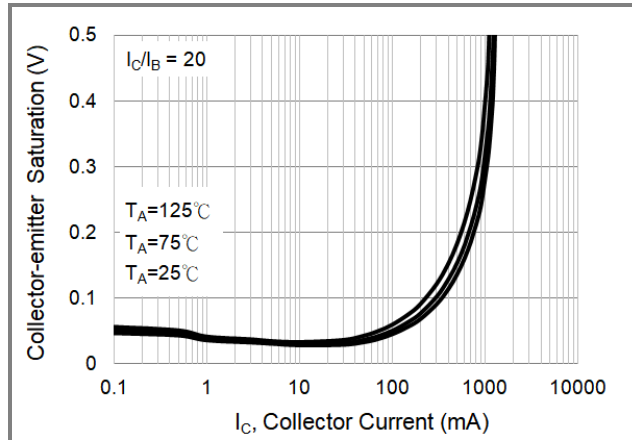


Fig.4 Collector-Emitter Saturation Voltage

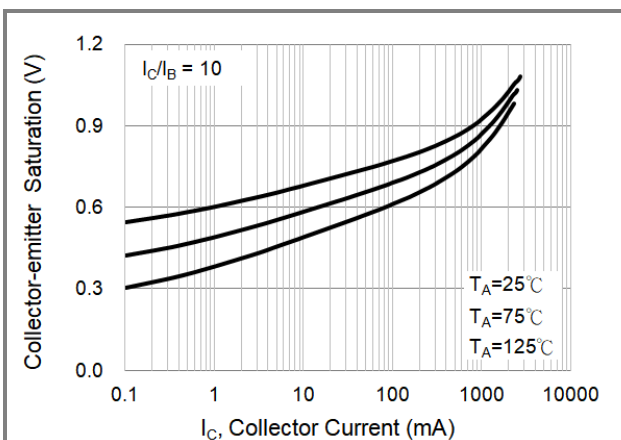


Fig.5 Base-Emitter Saturation Voltage

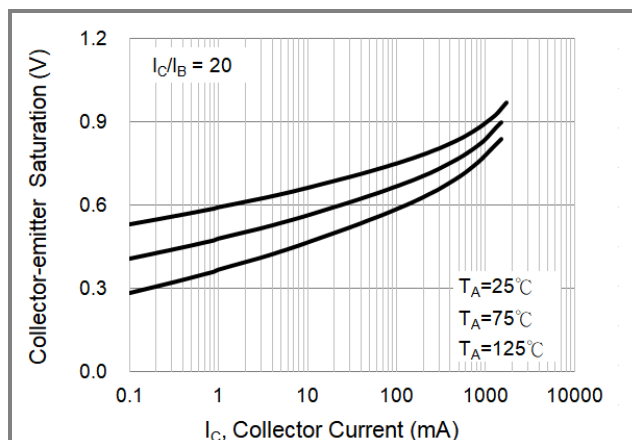


Fig.6 Base-Emitter Saturation Voltage



# PBHV8110DH

## TYPICAL CHARACTERISTIC CURVES

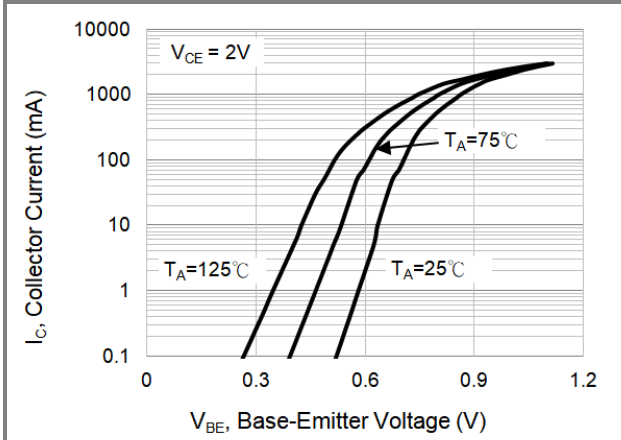


Fig.7 Base-Emitter Voltage

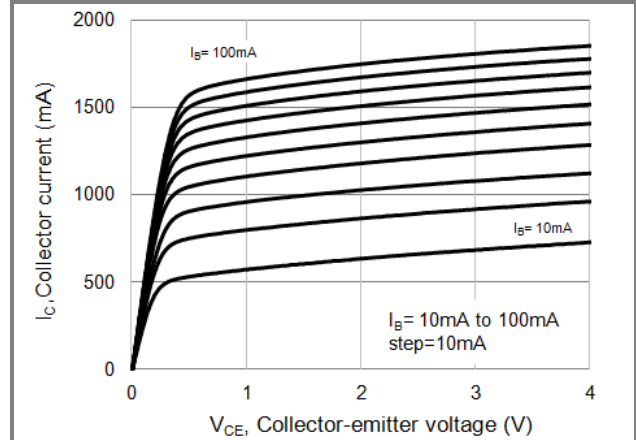


Fig.8 Collector Current

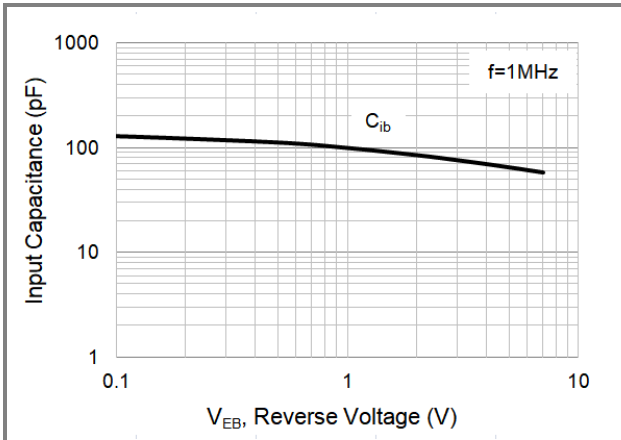


Fig.9 Input Capacitance

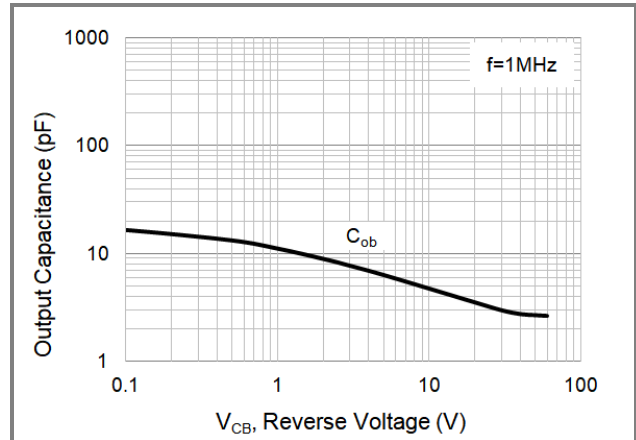


Fig.10 Output Capacitance

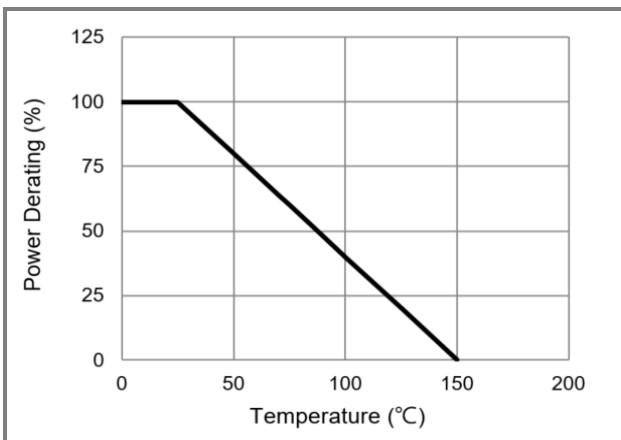


Fig.11 Power Derating Curve

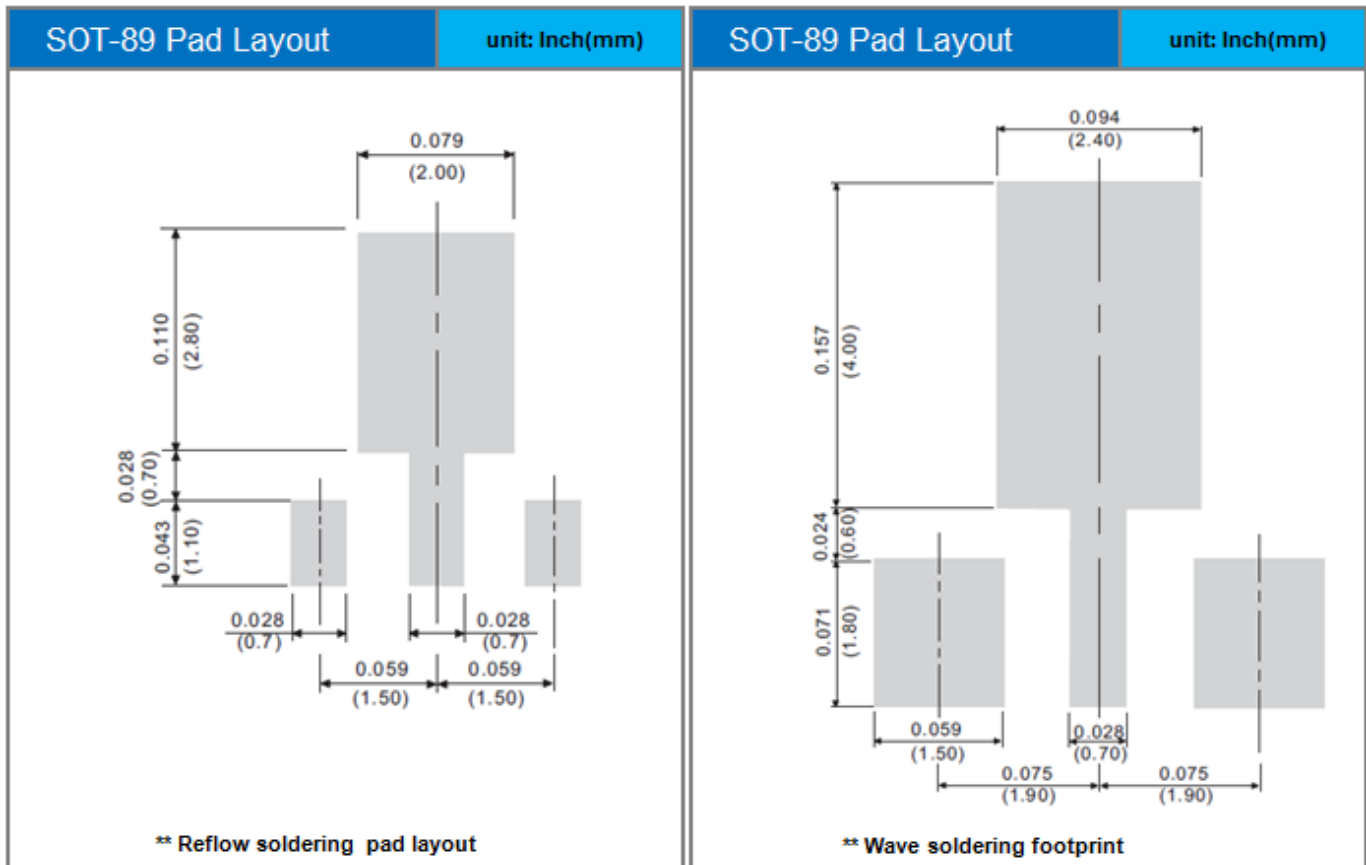


# PBHV8110DH

## PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type	Marking	Version
PBHV8110DH_R1_00001	SOT-89	1k pcs / 7" reel	811D	Halogen free

## MOUNTING PAD LAYOUT





## **PBHV8110DH**

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