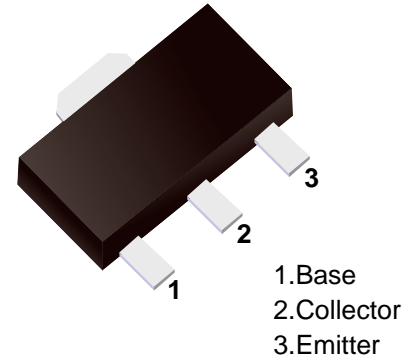


■ PNP Transistors



■ Simplified outline(SOT-89)

■ Features

- High voltage
- Large continuous collector current capability

■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V <sub>CBO</sub>	-160	V
Collector - Emitter Voltage	V <sub>CEO</sub>	-160	
Emitter - Base Voltage	V <sub>EBO</sub>	-6	
Collector Current - Continuous	I <sub>c</sub>	-1	A
Collector Power Dissipation	P <sub>c</sub>	0.5	W
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	250	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature range	T <sub>stg</sub>	-55 to 150	

■ Electrical Characteristics Ta = 25°C

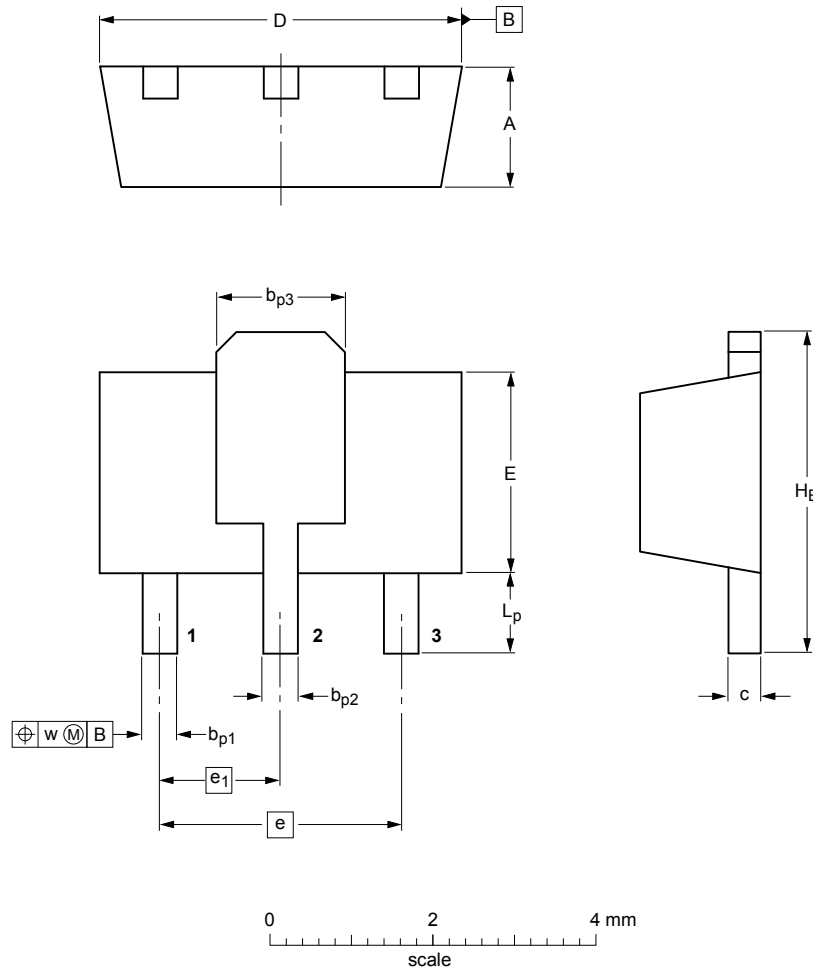
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V <sub>CBO</sub>	I <sub>c</sub> = -100 μA, I <sub>E</sub> =0	-160			V
Collector- emitter breakdown voltage	V <sub>CEO</sub>	I <sub>c</sub> = -1 mA, I <sub>B</sub> =0	-160			
Emitter - base breakdown voltage	V <sub>EBO</sub>	I <sub>E</sub> = -100 μA, I <sub>c</sub> =0	-6			
Collector-base cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = -150 V, I <sub>E</sub> =0			-1	uA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = -6V, I <sub>c</sub> =0			-1	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> =-500 mA, I <sub>B</sub> =-50mA			-1.5	V
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>c</sub> = -500 mA, I <sub>B</sub> =- 50mA			-1.2	
Base - emitter voltage	V <sub>BE</sub>	V <sub>CE</sub> = -5V, I <sub>c</sub> = -5mA			-0.75	
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> = -5V, I <sub>c</sub> = -200mA	60		320	
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = -5V, I <sub>c</sub> = -200mA	15			MHz

■ Classification of h<sub>FE</sub>

Type	2SA1013-R	2SA1013-O	2SA1013-Y
Range	60-120	100-200	160-320
Marking	1013R	1013O	1013Y

Package Outline

SOT-89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b <sub>p1</sub>	b <sub>p2</sub>	b <sub>p3</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13

Summary of Packing Options

Package	Package Description	Packing Quantity	Industry Standard
SOT-89	Tape/Reel, 7" reel	1000	EIA-481-1