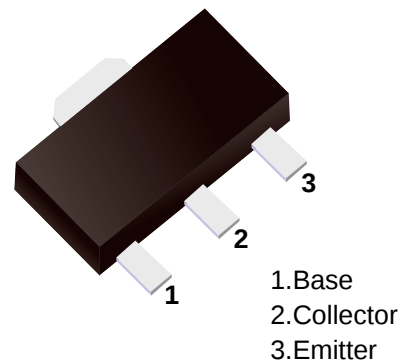


■ PNP Transistors



■ Features

- High voltage
- Large continuous collector current capability

■ Simplified outline(SOT-89)

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	-160	V
Collector - Emitter Voltage	V_{CEO}	-160	
Emitter - Base Voltage	V_{EBO}	-6	
Collector Current - Continuous	I_C	-1	A
Collector Power Dissipation	P_C	0.5	W
T hermal Resistance from Junction to Ambient	$R_{\theta JA}$	250	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature range	T_{stg}	-55 to 150	

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

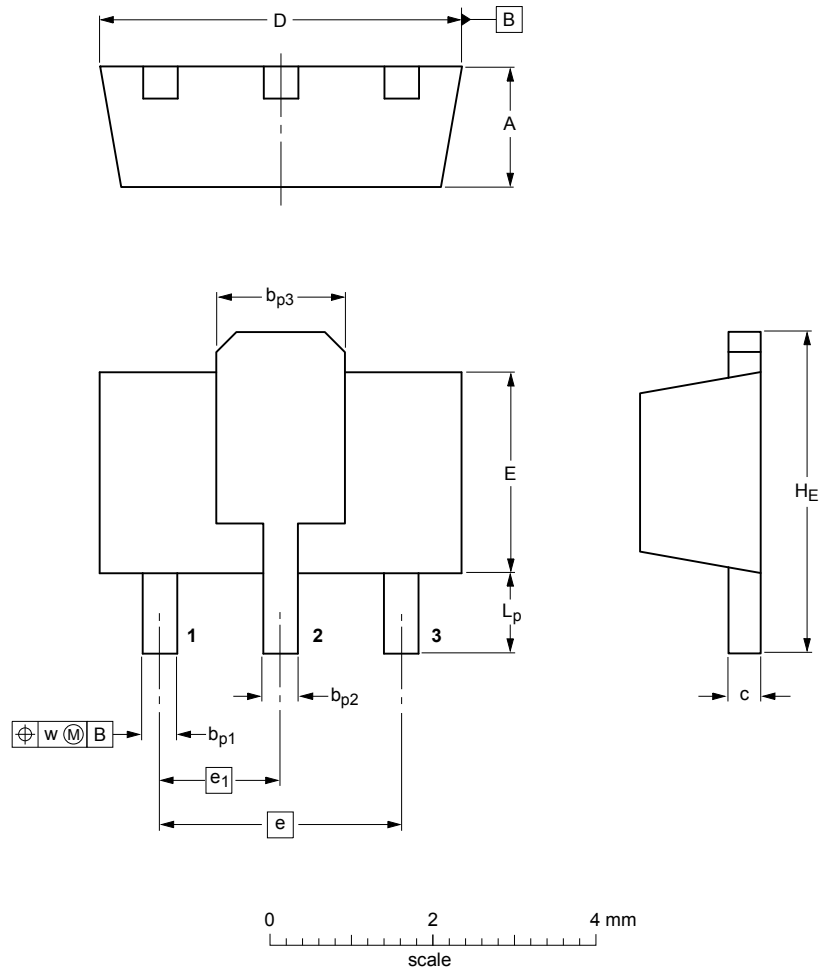
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = -100\ \mu\text{A}, I_E = 0$	-160			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = -1\ \text{mA}, I_B = 0$	-160			
Emitter - base breakdown voltage	V_{EBO}	$I_E = -100\ \mu\text{A}, I_C = 0$	-6			
Collector-base cut-off current	I_{CBO}	$V_{CB} = -150\ \text{V}, I_E = 0$			-1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -6\ \text{V}, I_C = 0$			-1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -500\ \text{mA}, I_B = -50\ \text{mA}$			-1.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = -500\ \text{mA}, I_B = -50\ \text{mA}$			-1.2	
Base - emitter voltage	V_{BE}	$V_{CE} = -5\ \text{V}, I_C = -5\ \text{mA}$			-0.75	
DC current gain	h_{FE}	$V_{CE} = -5\ \text{V}, I_C = -200\ \text{mA}$	60		320	
Transition frequency	f_T	$V_{CE} = -5\ \text{V}, I_C = -200\ \text{mA}$	15			MHz

■ Classification of h_{fe}

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 _{p1}	b _{p2}	b _{p3}	c	D	E	e	e ₁	H _E	L _p	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