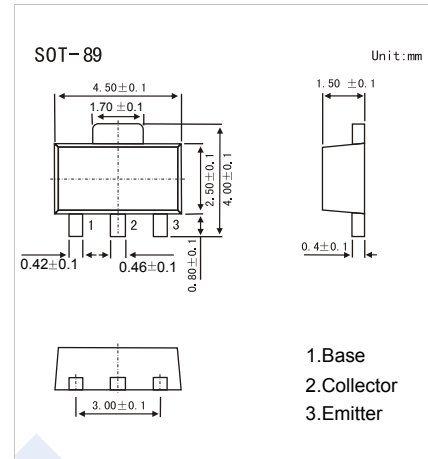


PNP Transistors

2SA1013

■ Features

- High voltage
- Large continuous collector current capability

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	-160	V
Collector - Emitter Voltage	V_{CE0}	-160	
Emitter - Base Voltage	V_{EB0}	-6	
Collector Current - Continuous	I_C	-1	A
Collector Power Dissipation	P_C	0.5	W
Thermal 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_{CB0}	$I_C = -100 \mu\text{A}$, $I_E = 0$	-160			V
Collector- emitter breakdown voltage	V_{CE0}	$I_C = -1 \text{ mA}$, $I_B = 0$	-160			
Emitter - base breakdown voltage	V_{EB0}	$I_E = -100 \mu\text{A}$, $I_C = 0$	-6			
Collector-base cut-off current	I_{CB0}	$V_{CB} = -150 \text{ V}$, $I_E = 0$			-1	μA
Emitter cut-off current	I_{EB0}	$V_{EB} = -6 \text{ V}$, $I_C = 0$			-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