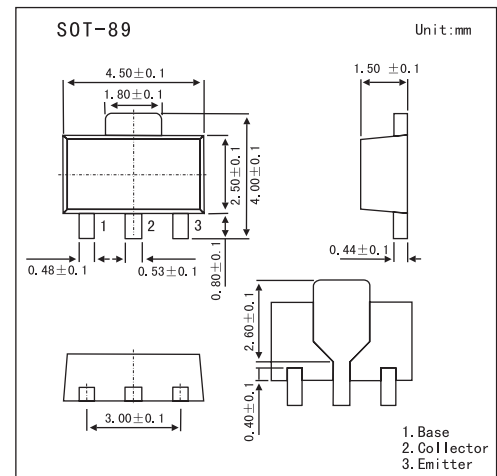


## NPN Switching Transistor

## PXT2222A

## ■ Features

- High current (max. 600 mA)
- Low voltage (max. 40 V).

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

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CB0}$	60	V
Collector-emitter voltage	$V_{CE0}$	40	V
Emitter-base voltage	$V_{EB0}$	6	V
Collector current	$I_C$	100	mA
Peak collector current	$I_{CM}$	200	mA
Peak base current	$I_{BM}$	100	mA
Total power dissipation	$P_{tot}$		
	* 1	0.5	W
	* 2	0.8	
	* 3	1.1	
Storage temperature	$T_{stg}$	-65 to +150	$^\circ\text{C}$
Junction temperature	$T_j$	150	$^\circ\text{C}$
Operating ambient temperature	$R_{amb}$	-65 to +150	$^\circ\text{C}$
Thermal resistance from junction to ambient	$R_{th(j-a)}$		
	* 1	250	K/W
	* 2	156	
	* 3	113	
Thermal resistance from junction to soldering point	$R_{th(j-s)}$	30	K/W

\*1 Device mounted on a printed-circuit board, single-sided copper, tin-plated and standard - footprint.

\*2 Device mounted on a printed-circuit board, single-sided copper, tin-plated and mounting pad for collector  $1\text{ cm}^2$ .

\*3 Device mounted on a printed-circuit board, single-sided copper, tin-plated and mounting - pad for collector  $6\text{ cm}^2$ .

## PXT2222A

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Collector cutoff current	I <sub>CBO</sub>	I <sub>E</sub> = 0; V <sub>CB</sub> = 60 V			10	nA	
		I <sub>E</sub> = 0; V <sub>CB</sub> = 60 V; T <sub>J</sub> = 125 °C			10	μA	
Emitter cutoff current	I <sub>EBO</sub>	I <sub>C</sub> = 0; V <sub>EB</sub> = 5 V			10	nA	
DC current gain	h <sub>FE</sub>	I <sub>C</sub> = 0.1 mA; V <sub>CE</sub> = 10V	35				
		I <sub>C</sub> = 1 mA; V <sub>CE</sub> = 10 V	50				
		I <sub>C</sub> = 10 mA; V <sub>CE</sub> = 10 V	75				
		I <sub>C</sub> = 10 mA; V <sub>C</sub> = 10 V; T <sub>J</sub> = -55 °C	35				
		I <sub>C</sub> = 150 mA; V <sub>CE</sub> = 1 V	50				
		V <sub>CE</sub> = 10 V, I <sub>C</sub> = 150 mA	100		300		
collector-emitter saturation voltage	V <sub>CEsat</sub>	I <sub>C</sub> = 150 mA; I <sub>B</sub> = 15 mA			300	mV	
		I <sub>C</sub> = 500 mA; I <sub>B</sub> = 50 mA			1	V	
base-emitter saturation voltage	V <sub>BEsat</sub>	I <sub>C</sub> = 150 mA; I <sub>B</sub> = 15 mA	0.6		1.2	V	
		I <sub>C</sub> = 500 mA; I <sub>B</sub> = 50 mA			2	V	
Collector capacitance	C <sub>c</sub>	I <sub>E</sub> = I <sub>E</sub> = 0; V <sub>CB</sub> = 10 V; f = 1 MHz			8	pF	
Emitter capacitance	C <sub>e</sub>	I <sub>C</sub> = I <sub>C</sub> = 0; V <sub>EB</sub> = 500 mV; f = 1 MHz			25	pF	
Transition frequency	f <sub>T</sub>	I <sub>C</sub> = 20 mA; V <sub>CE</sub> = 10 V; f = 100 MHz	300			MHz	
Noise figure	F	I <sub>C</sub> = 200 μA; V <sub>CE</sub> = 5 V; R <sub>S</sub> = 2 kΩ; f = 1 kHz; B = 200 Hz			4	dB	
Turn-on time	t <sub>on</sub>	I <sub>Con</sub> = 150 mA; I <sub>Bon</sub> = 15 mA; I <sub>Boff</sub> = -15 mA			35	ns	
Delay time	t <sub>d</sub>				15	ns	
Rise time	t <sub>r</sub>					20	ns
Turn-off time	t <sub>off</sub>					250	ns
Storage time	t <sub>s</sub>		V <sub>i</sub> = 9.5 V; T = 500 μs; t <sub>p</sub> = 10 μs; t <sub>f</sub> = t <sub>r</sub> ≤ 3 ns. R <sub>1</sub> = 68 Ω; R <sub>2</sub> = 325 Ω; R <sub>3</sub> = 325 Ω; R <sub>C</sub> = 160 Ω. V <sub>BE</sub> = -3.5 V; V <sub>CC</sub> = 29.5 V. Oscilloscope: input impedance Z <sub>i</sub> = 50 Ω.			200	ns
Fall time	t <sub>f</sub>					60	ns

## ■ Marking

Marking	1P
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