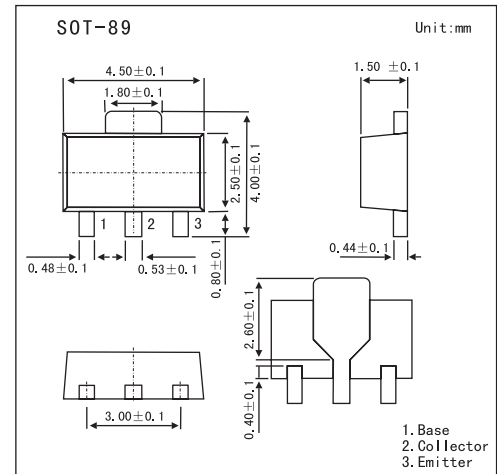


NPN Switching Transistor

PXT3904

■ Features

- High current (max. 100 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_{CEO}	40	V
Emitter-base voltage	V_{EBO}	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	0.45	W
	* 2	0.65	
	* 3	0.8	
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	278	K/W
	* 2	192	
	* 3	156	
Thermal resistance from junction to soldering point	$R_{th(j-s)}$	80	K/W

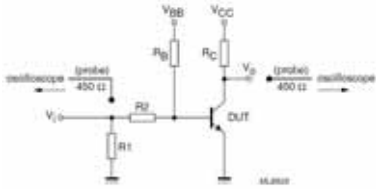
*1 Device mounted on a printed-circuit board, single-sided copper, tin-plated and standard - footprint.

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

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

PXT3904

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

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Collector cutoff current	I_{CBO}	$I_E = 0; V_{CB} = 30\text{ V}$			50	nA	
Emitter cutoff current	I_{EBO}	$I_C = 0; V_{EB} = 6\text{ V}$			50	nA	
DC current gain	h_{FE}	$V_{CE} = 1\text{ V}; I_C = 0.1\text{ mA}$	60				
		$V_{CE} = 1\text{ V}; I_C = 1\text{ mA}$	80				
		$V_{CE} = 1\text{ V}; I_C = 10\text{ mA}$	100		300		
		$V_{CE} = 1\text{ V}; I_C = 50\text{ mA}$	60				
		$V_{CE} = 1\text{ V}; I_C = 100\text{ mA}$	30				
collector-emitter saturation voltage	V_{CEsat}	$I_C = 10\text{ mA}; I_B = 1\text{ mA}$			200	mV	
		$I_C = 50\text{ mA}; I_B = 5\text{ mA}$			200	mV	
base-emitter saturation voltage	V_{BEsat}	$I_C = 10\text{ mA}; I_B = 1\text{ mA}$	650		850	mV	
		$I_C = 50\text{ mA}; I_B = 5\text{ mA}$			950	mV	
Collector capacitance	C_c	$I_E = I_C = 0; V_{CB} = 5\text{ V}; f = 1\text{ MHz}$			4	pF	
Emitter capacitance	C_e	$I_C = I_E = 0; V_{EB} = 500\text{ mV}; f = 1\text{ MHz}$			8	pF	
Transition frequency	f_T	$I_C = 10\text{ mA}; V_{CE} = 20\text{ V}; f = 100\text{ MHz}$	300			MHz	
Noise figure	F	$I_C = 100\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; R_s = 1\text{ k}\Omega;$ $f = 10\text{ Hz to }15.7\text{ kHz}$			5	dB	
Turn-on time	t_{on}	$I_{Con} = 10\text{ mA}; I_{Bon} = 1\text{ mA};$ $I_{Boff} = -1\text{ mA}$			65	ns	
Delay time	t_d				35	ns	
Rise time	t_r					35	ns
Turn-off time	t_{off}					240	ns
Storage time	t_s		$V_i = 5\text{ V}; T = 500\text{ }\mu\text{s}; t_p = 10\text{ }\mu\text{s}; t_f = t_r \leq 3\text{ ns.}$ $R_1 = 56\text{ }\Omega; R_2 = 2.5\text{ k}\Omega; R_B = 3.9\text{ k}\Omega; R_C = 270\text{ }\Omega.$			200	ns
Fall time	t_f		$V_{BB} = 1.9\text{ V}; V_{CC} = -3\text{ V.}$ Oscilloscope: input impedance $Z_i = 50\text{ }\Omega.$			50	ns

■ Marking

Marking	1A
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