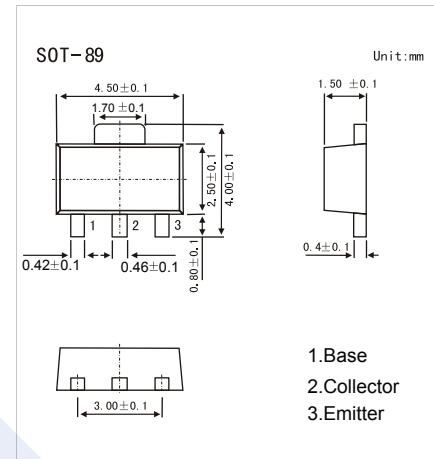


## PNP Transistor

### ZXTP2013Z

#### ■ Features

- 3.5 amps continuous current
- Up to 10 amps peak current
- Very low saturation voltages



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CBO}$	-140	V
Collector - Emitter Voltage	$V_{CEO}$	-100	
Emitter - Base Voltage	$V_{EBO}$	-7	
Continuous Collector Current	$I_C$	-3.5	A
Peak Pulse Current	$I_{CM}$	-10	
Power Dissipation at $T_A = 25^\circ\text{C}$ <sup>(a)</sup>	$P_d$	1.5	W
Power Dissipation at $T_A = 25^\circ\text{C}$ <sup>(b)</sup>		2.1	
Thermal Resistance Junction to Ambient <sup>(a)</sup>	$R_{\theta JA}$	83	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient <sup>(b)</sup>		60	
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to 150	

Notes:

- (a) For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
- (b) For a device surface mounted on 50mm x 50mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

## PNP Transistor

## ZXTP2013Z

## ■ Electrical Characteristics (Ta = 25°C unless otherwise stated)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V <sub>CB0</sub>	I <sub>c</sub> = -100 μA, I <sub>E</sub> = 0	-140			V
Collector- emitter breakdown voltage	V <sub>CER</sub>	I <sub>c</sub> = -1μA, R <sub>B</sub> ≤1kΩ	-140			
Collector- emitter breakdown voltage	V <sub>CEO</sub>	I <sub>c</sub> = -10 mA, I <sub>B</sub> = 0 *	-100			
Emitter - base breakdown voltage	V <sub>EBO</sub>	I <sub>E</sub> = -100 μA, I <sub>c</sub> = 0	-7			
Collector-base cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = -100 V, I <sub>E</sub> = 0			-20	nA
		V <sub>CB</sub> = -100 V, I <sub>E</sub> = 0, T <sub>a</sub> = 100°C			-0.5	μA
Collector cut-off current	I <sub>CER</sub> R≤1kΩ	V <sub>CE</sub> = -100 V, I <sub>B</sub> = 0			-20	nA
		V <sub>CE</sub> = -100 V, I <sub>E</sub> = 0, T <sub>a</sub> = 100°C			-0.5	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = -6V, I <sub>c</sub> = 0			-10	nA
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> = -0.1 A, I <sub>B</sub> = -10 mA *			-30	mV
		I <sub>c</sub> = -1 A, I <sub>B</sub> = -100 mA *			-85	
		I <sub>c</sub> = -2 A, I <sub>B</sub> = -200 mA *			-135	
		I <sub>c</sub> = -4 A, I <sub>B</sub> = -400 mA *			-300	
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>c</sub> = -4 A, I <sub>B</sub> = -400 mA *			-1060	
Base - emitter voltage	V <sub>BE(on)</sub>	V <sub>CE</sub> = -1 V, I <sub>B</sub> = -4 A *			-1030	
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> = -1 V, I <sub>c</sub> = -10 mA *	100			
		V <sub>CE</sub> = -1 V, I <sub>c</sub> = -1 A *	100		300	
		V <sub>CE</sub> = -1 V, I <sub>c</sub> = -3 A *	25			
		V <sub>CE</sub> = -1 V, I <sub>c</sub> = -4 A *	15			
		V <sub>CE</sub> = -1 V, I <sub>c</sub> = -10 A *		5		
Collector output capacitance	C <sub>obo</sub>	V <sub>CB</sub> = -10V, f=1MHz *		42		pF
Switching times	t <sub>ON</sub>	I <sub>c</sub> = -1 A, V <sub>CC</sub> = -10 V, I <sub>B1</sub> = -I <sub>B2</sub> = -100 mA		42		ns
	t <sub>OFF</sub>			540		
Transition frequency	f <sub>r</sub>	V <sub>CE</sub> = -10V, I <sub>c</sub> = -100mA, f=50MHz		125		MHz

Note: \* Measured under pulsed conditions. Pulse width 300 μs; duty cycle 2%.

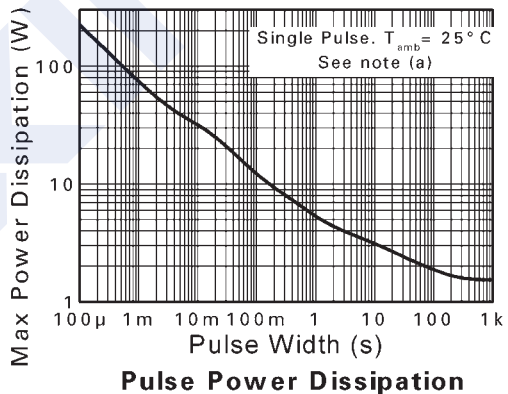
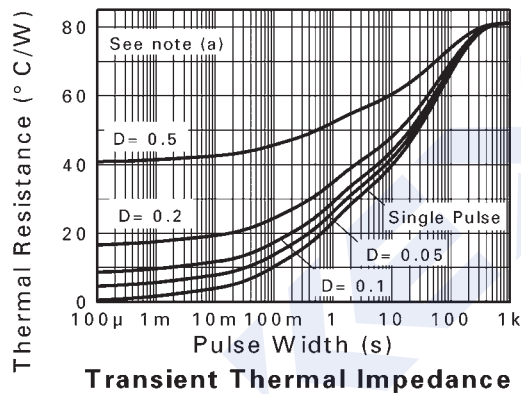
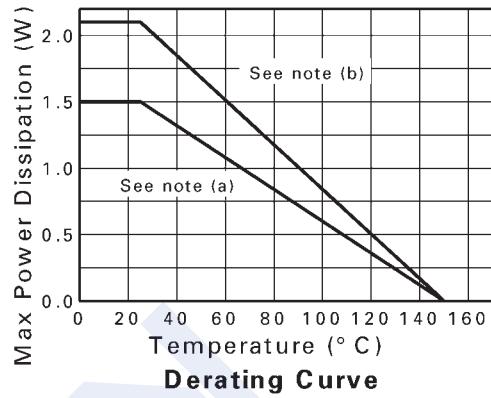
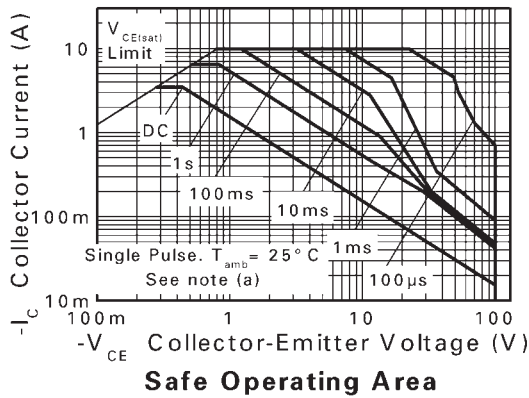
## ■ Marking

Marking	953
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## PNP Transistor

### ZXTP2013Z

■ Typical Characteristics



PNP Transistor

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