



## PZTA44/45

## NPN SILICON TRANSISTOR

### NPN HIGH VOLTAGE TRANSISTOR

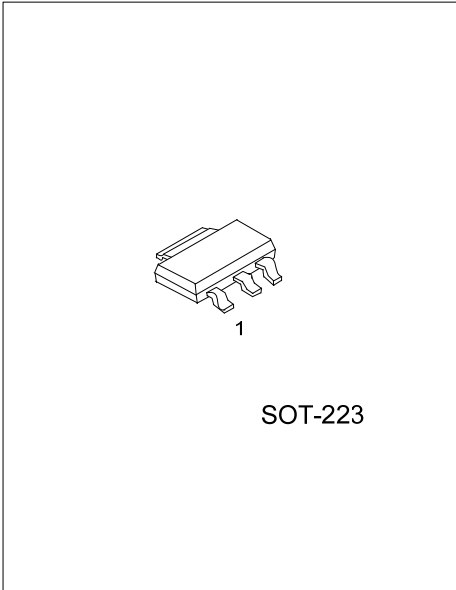
#### ■ FEATURES

- \* Collector-emitter voltage:  
 $V_{CE0}=400V$ (PZTA44)  
 $V_{CE0}=350V$ (PZTA45)

- \* Collector current up to 300mA

#### ■ APPLICATION

- \* Telephone switching
- \* High voltage switch



#### ■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
PZTA44L-AA3-R	PZTA44G-AA3-R	SOT-223	B	C	E	Tape Reel
PZTA45L-AA3-R	PZTA45G-AA3-R	SOT-223	B	C	E	Tape Reel

<p>PZTA44L-AA3-R</p> <p>(1)Packing Type (2)Package Type (3)Lead Free</p>	<p>(1) R: Tape Reel (2) AA3: SOT-223 (3) G: Halogen Free, L: Lead Free</p>
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# PZTA44/45

## NPN SILICON TRANSISTOR

### ■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	PZTA44	500	V
	PZTA45	400	V
Collector-Emitter Voltage	PZTA44	400	V
	PZTA45	350	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	300	mA
Collector Dissipation	$P_C$	1.2	W
Junction Temperature	$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ ELECTRICAL CHARACTERISTICS ( $T_J=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	PZTA44	$I_C=100\mu\text{A}, I_B=0$	500			V
	PZTA45		400			V
Collector-Emitter Breakdown Voltage	PZTA44	$I_C=1\text{mA}, I_B=0$	400			V
	PZTA45		350			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=100\mu\text{A}, I_C=0$	6			V
Collector Cut-OFF Current	PZTA44	$V_{CB}=400\text{V}, I_E=0$			0.1	$\mu\text{A}$
	PZTA45		$V_{CB}=320\text{V}, I_E=0$			0.1
Collector Cut-OFF Current	PZTA44	$V_{CE}=400\text{V}, I_B=0$			0.5	$\mu\text{A}$
	PZTA45		$V_{CE}=320\text{V}, I_B=0$			0.5
Emitter Cut-OFF Current	$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0$			0.1	$\mu\text{A}$
DC Current Gain (Note)	$h_{FE}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	40			
		$V_{CE}=10\text{V}, I_C=10\text{mA}$	50		240	
		$V_{CE}=10\text{V}, I_C=50\text{mA}$	45			
		$V_{CE}=10\text{V}, I_C=100\text{mA}$	40			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=1\text{mA}, I_B=0.1\text{mA}$			0.4	V
		$I_C=10\text{mA}, I_B=1\text{mA}$			0.5	V
		$I_C=50\text{mA}, I_B=5\text{mA}$			0.75	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1\text{mA}$			0.75	V
Current Gain Bandwidth Product	$f_T$	$V_{CE}=20\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	50			MHz
Output Capacitance	$C_{OB}$	$V_{CB}=20\text{V}, I_E=0, f=1\text{MHz}$			7	pF

Note: Pulse test: Pulse Width<300 $\mu\text{s}$ , Duty Cycle<2%

■ TYPICAL CHARACTERISTICS

Fig.1 DC Current Gain

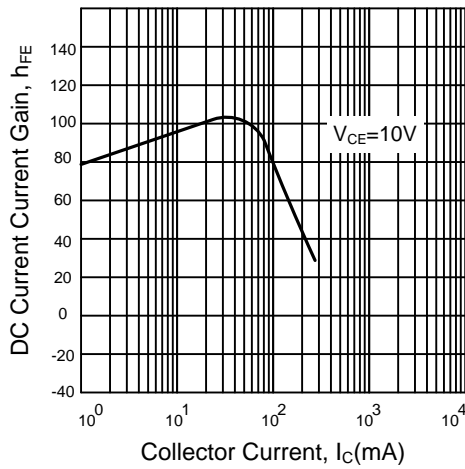


Fig.2 Turn-ON Switching Time

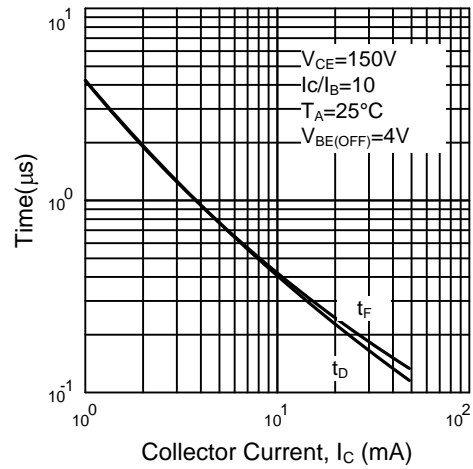


Fig.3 Turn-OFF Switching Time

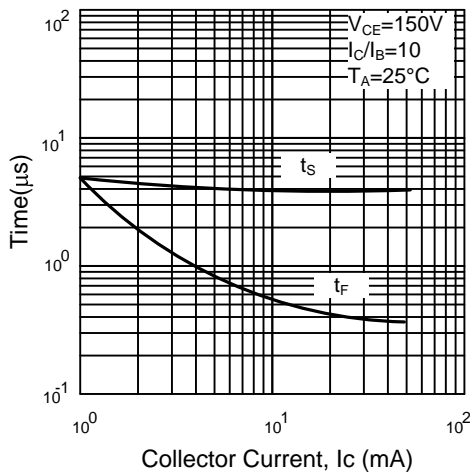


Fig.4 Capacitance

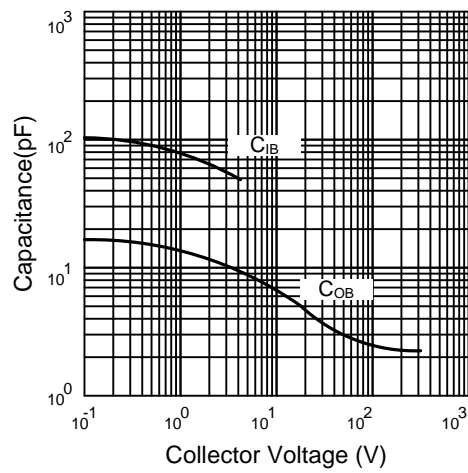


Fig.5 ON Voltage

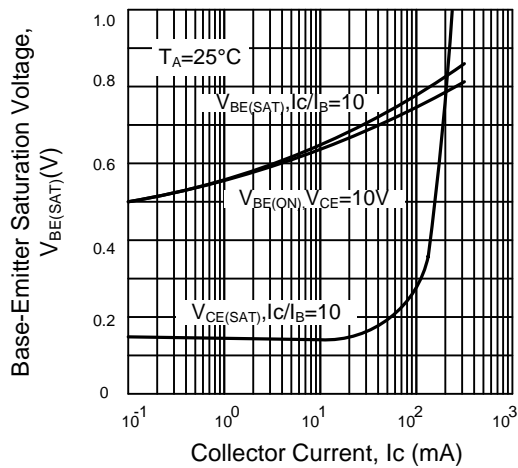
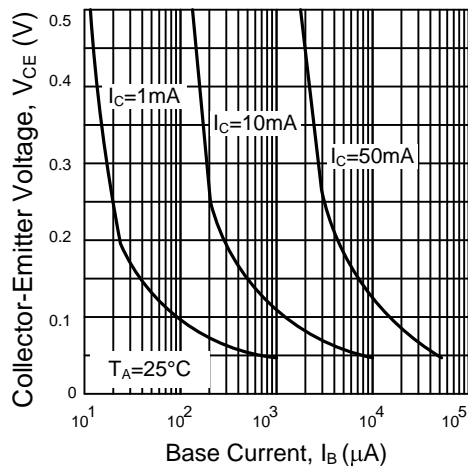


Fig.6 Collector Saturation Region



■ TYPICAL CHARACTERISTICS(Cont.)

Fig.7 High Frequency Current Gain

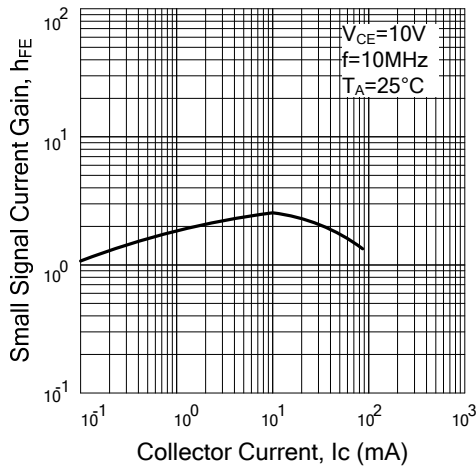
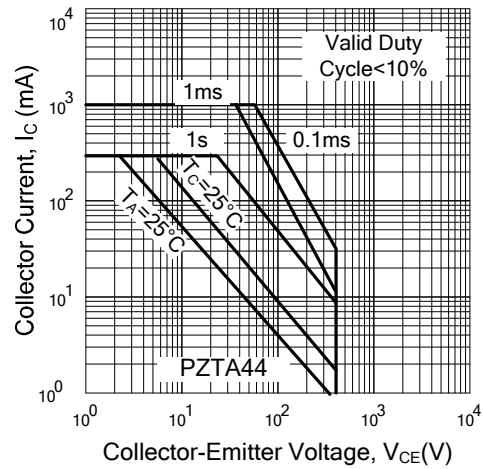


Fig.8 Safe Operating Area



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