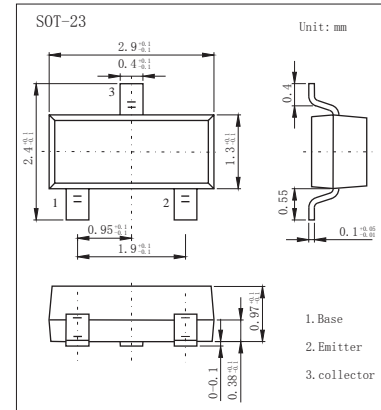


PNP Transistors

2KA2002



■ Features

- Epitaxial Planar Die Construction

■ 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}	-60	
Emitter - Base Voltage	V_{EB0}	-5	
Collector Current - Continuous	I_C	600	mA
Power Dissipation	P_D	250	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	500	$^\circ\text{C}/\text{W}$
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	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CB0}$	$I_C = -100 \mu\text{A}, I_E = 0$	-60		V
Collector-Emitter Breakdown Voltage*	$V_{(BR)CE0}$	$I_C = -10 \text{mA}, I_B = 0$	-60		V
Emitter-Base Breakdown Voltage	$V_{(BR)EB0}$	$I_E = -100 \mu\text{A}, I_C = 0$	-5		V
Collector Cutoff Current	I_{CBO}	$V_{CB} = -50 \text{V}, I_E = 0$		-20	nA
Collector Cutoff Current	I_{CEX}	$V_{CE} = -30 \text{V}, V_{EB(off)} = 0.5\text{V}$		-50	nA
DC Current Gain	h_{FE}	$V_{CE} = -10\text{V}, I_C = -0.1\text{mA}$	75		
		$V_{CE} = -10\text{V}, I_C = -1\text{mA}$	100		
		$V_{CE} = -10\text{V}, I_C = -10\text{mA}$	100		
		$V_{CE} = -10\text{V}, I_C = -150\text{mA}$	100	300	
		$V_{CE} = -10\text{V}, I_C = -500\text{mA}$	50		
Collector-Emitter Saturation Voltage *	$V_{CE(sat)}$	$I_C = -150 \text{mA}, I_B = -15 \text{mA}$		-0.4	V
		$I_C = -500 \text{mA}, I_B = -50 \text{mA}$		-1.6	V
Base-Emitter Saturation Voltage *	$V_{BE(sat)}$	$I_C = -150 \text{mA}, I_B = -15 \text{mA}$		-1.3	V
		$I_C = -500 \text{mA}, I_B = -50 \text{mA}$		-2.6	V
Current Gain - Bandwidth Product	f_T	$V_{CE} = -20\text{V}, I_C = -50\text{mA}, f = 100\text{MHz}$	200		MHz
Delay Time	t_d	$V_{CC} = -30 \text{V}, I_C = -150 \text{mA}, I_{B1} = -15 \text{mA}$		10	ns
Rise Time	t_r			40	ns
Storage Time	t_s	$V_{CC} = -6.0 \text{V}, I_C = -150 \text{mA}, I_{B1} = I_{B2} = -15 \text{mA}$		80	ns
Fall Time	t_f			30	ns

* Pulse test: Pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2.0\%$

■ Marking

Marking	4A
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■ Typical Characteristics

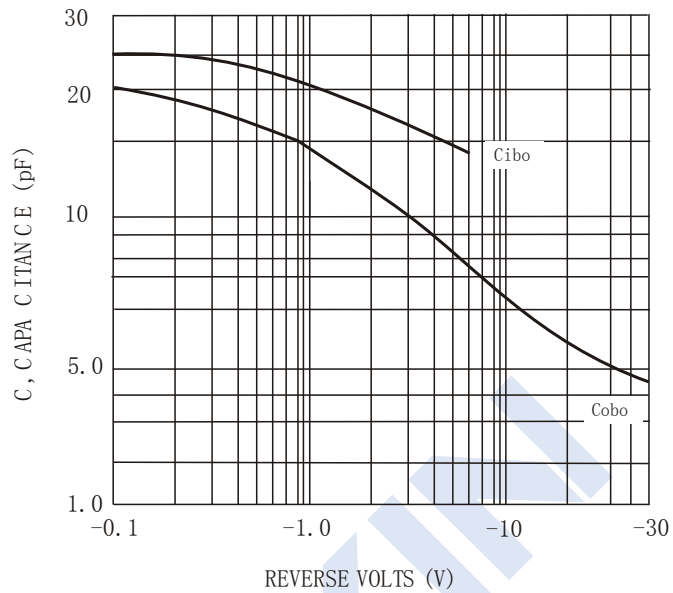


Fig. 1 Typical Capacitance

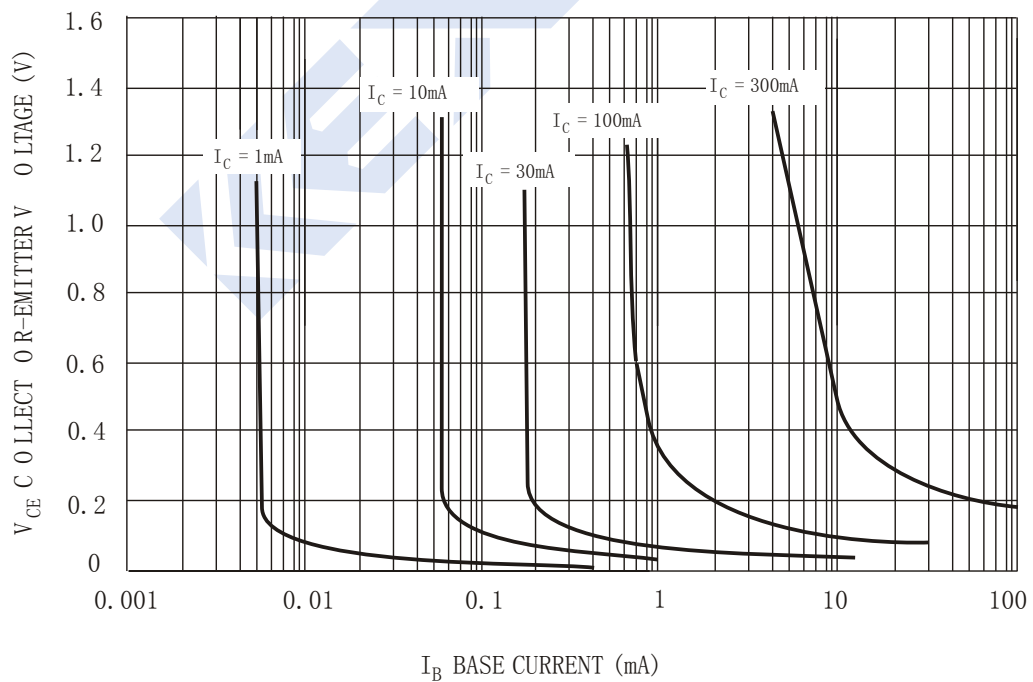


Fig. 2 Typical Collector Saturation Region