

NPN Epitaxial Planar Silicon Transistor

**2SC4454**



**High-Speed Switching Applications**

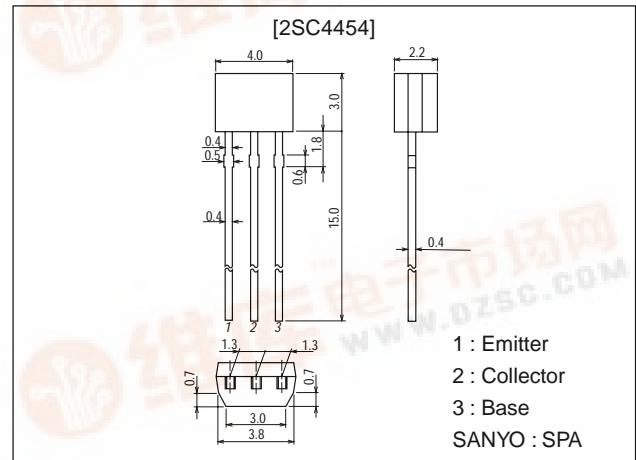
**Features**

- Fast switching speed.
- Low collector saturation voltage.
- High gain-bandwidth product.
- Small collector capacity.

**Package Dimensions**

unit:mm

2033A



**Specifications**

**Absolute Maximum Ratings at Ta = 25°C**

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		40	V
Collector-to-Emitter Voltage	V <sub>CES</sub>		40	V
	V <sub>CEO</sub>		15	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		5	V
Collector Current	I <sub>C</sub>		200	mA
Collector Current (Pulse)	I <sub>CP</sub>		500	mA
Base Current	I <sub>B</sub>		40	mA
Collector Dissipation	P <sub>C</sub>		300	mW
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

**Electrical Characteristics at Ta = 25°C**

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =20V, I <sub>E</sub> =0			0.1	µA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =3V, I <sub>C</sub> =0			0.1	µA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =1V, I <sub>C</sub> =10mA	50*	90	200*	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA	450	750		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =5V, f=1MHz		1.6	4.0	pF

\* : The 2SC4454 is classified by 10mA h<sub>FE</sub> as follows :

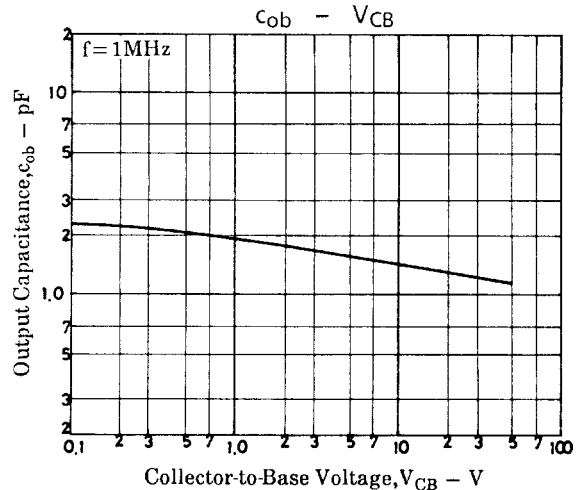
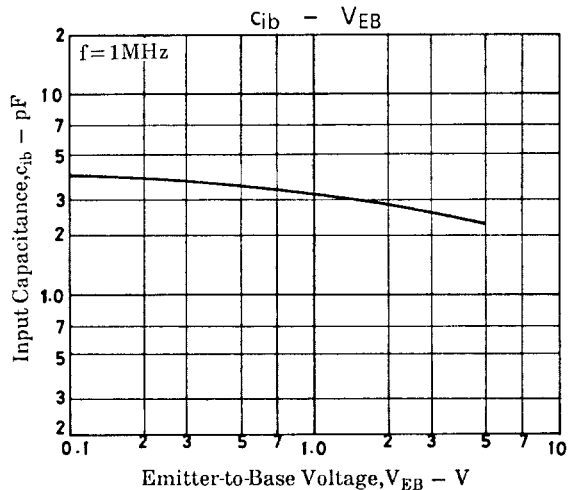
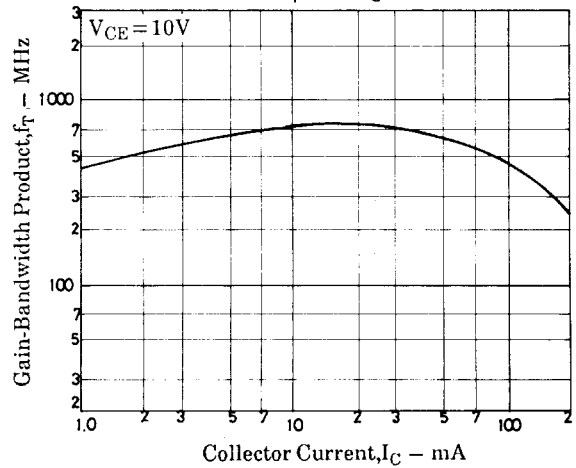
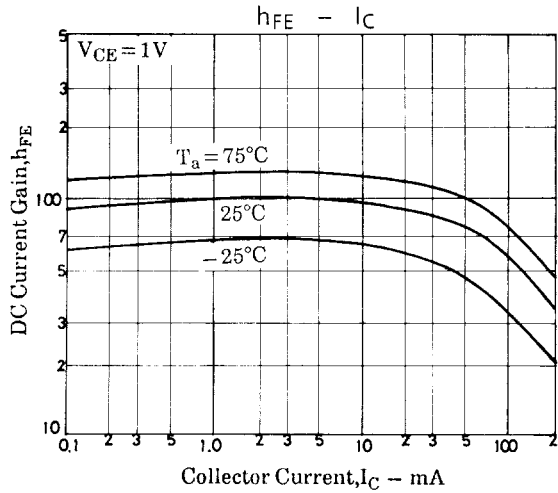
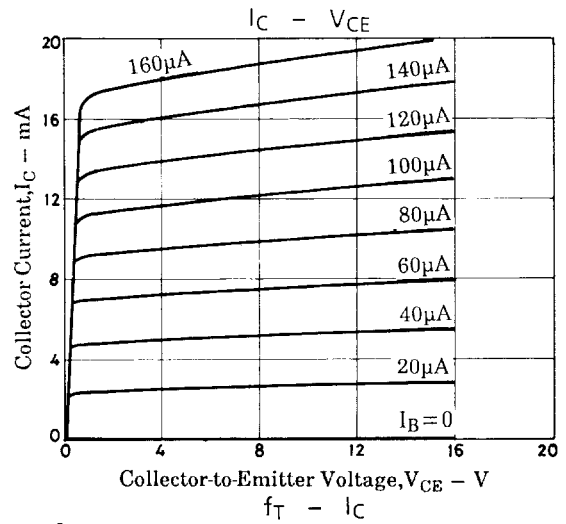
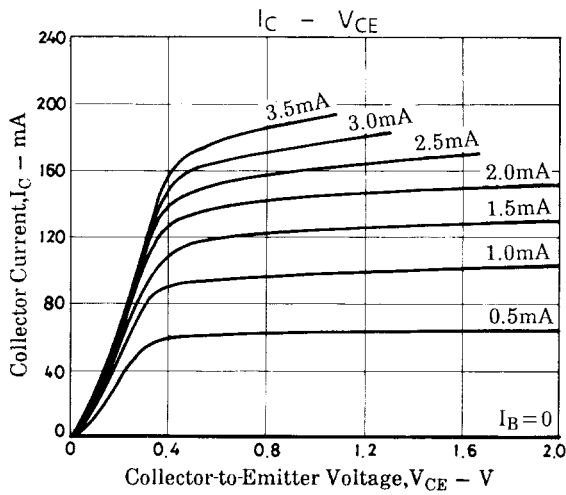
50	P	100	70	Q	140	100	R	200
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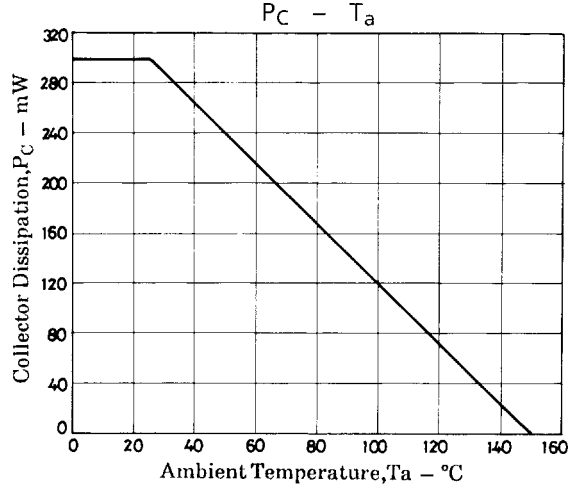
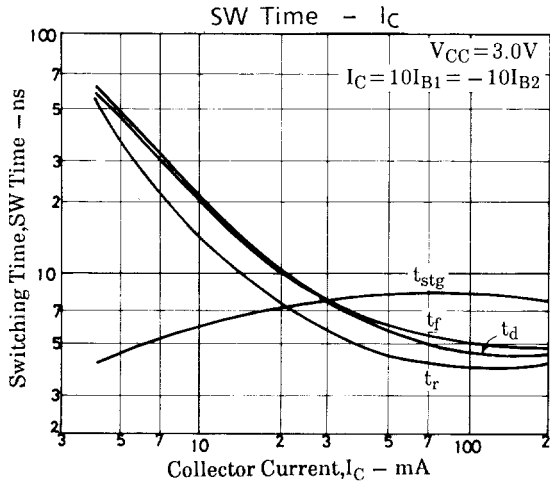
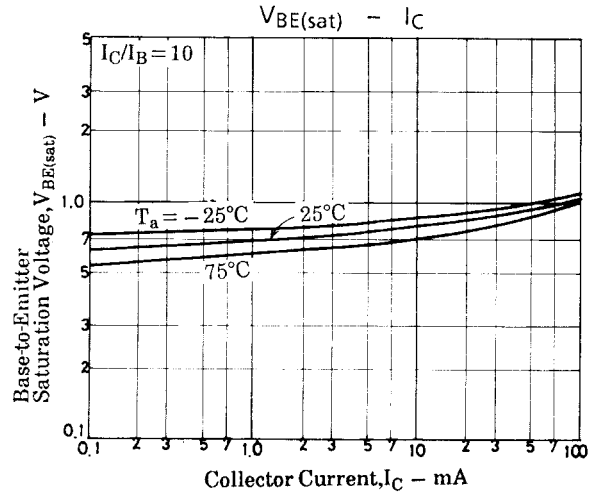
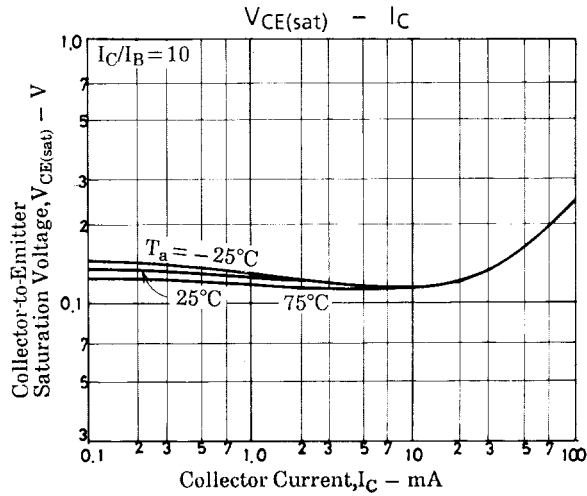


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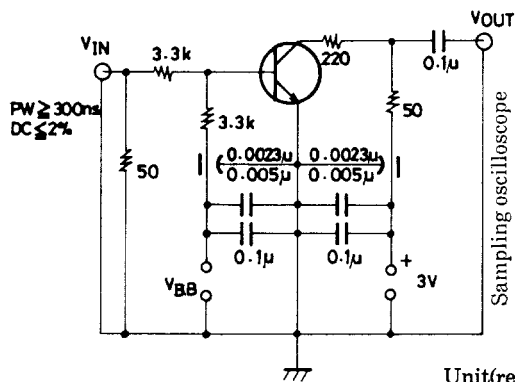
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=1mA$		0.13	0.25	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=1mA$		0.80	0.85	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	40			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	5			V
Turn-ON Time	$t_{on}$	See specified test circuit.		8.0	12	ns
Storage Time	$t_{stg}$	See specified test circuit.		6.0	13	ns
Fall Time	$t_f$	See specified test circuit.		12	18	ns



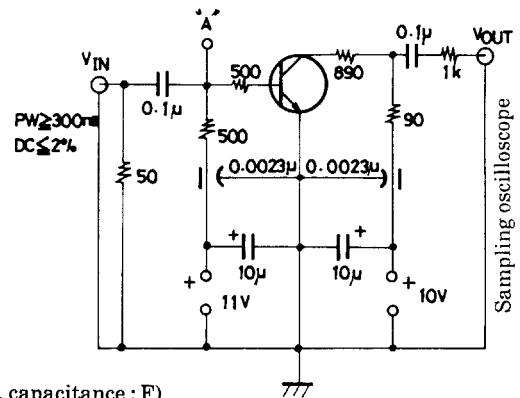
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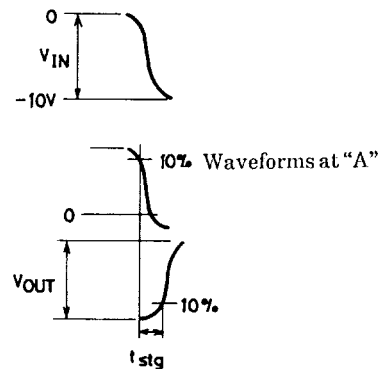
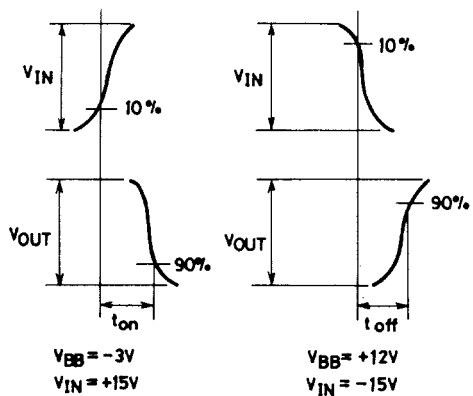
**$t_{on}$ ,  $t_{off}$  Test Circuit**



**$t_{stg}$  Test Circuit**



Unit(resistance :  $\Omega$ , capacitance : F)



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