

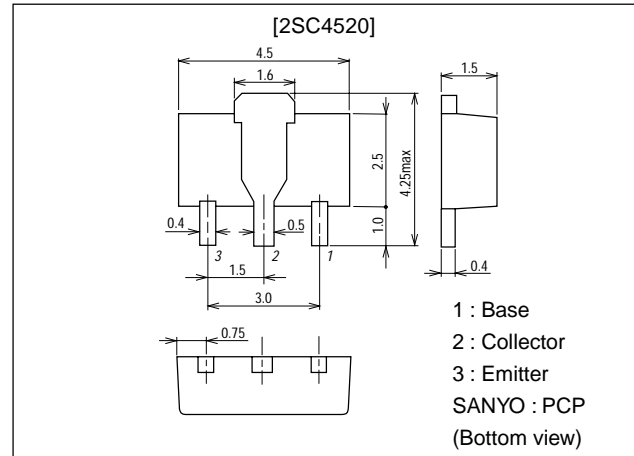
**2SC4520****High-Speed Switching Applications****Features**

- Adoption of FBET, MBIT process.
- Large current capacity.
- Low collector-to-emitter saturation voltage.
- Fast switching speed.
- Small-sized package.

**Package Dimensions**

unit:mm

2038A

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		60	V
Collector-to-Emitter Voltage	$V_{CEO}$		45	V
Emitter-to-Base Voltage	$V_{EBO}$		5	V
Collector Current	$I_C$		1.5	A
Collector Current (Pulse)	$I_{CP}$		3	A
Collector Dissipation	$P_C$	Mounted on ceramic board (250mm <sup>2</sup> ×0.8mm)	1.3	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=45V, I_E=0$			1	μA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=3V, I_C=0$			1	μA
DC Current Gain	$h_{FE1}$	$V_{CE}=2V, I_C=100mA$	100*		400*	
	$h_{FE2}$	$V_{CE}=2V, I_C=1.5A$	40			
Gain-Bandwidth Product	$f_T$	$V_{CE}=2V, I_C=100mA$		300		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$		13		pF

\* : The 2SC4520 is classified by 100mA  $h_{FE}$  as follows :

100	R	200	140	S	280	200	T	400
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Marking : CK

 $h_{FE}$  rank : R, S, T

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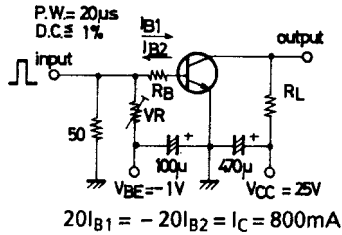
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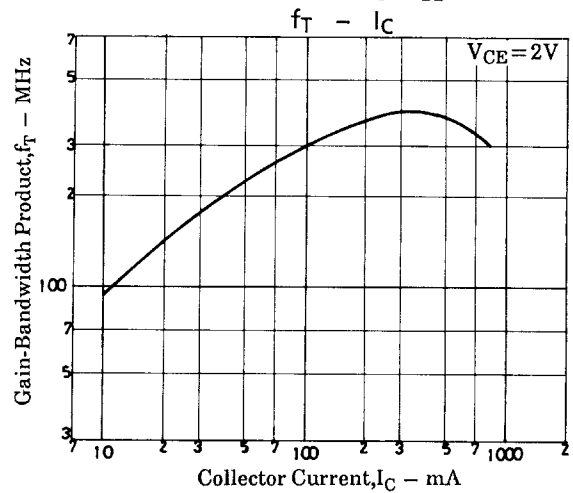
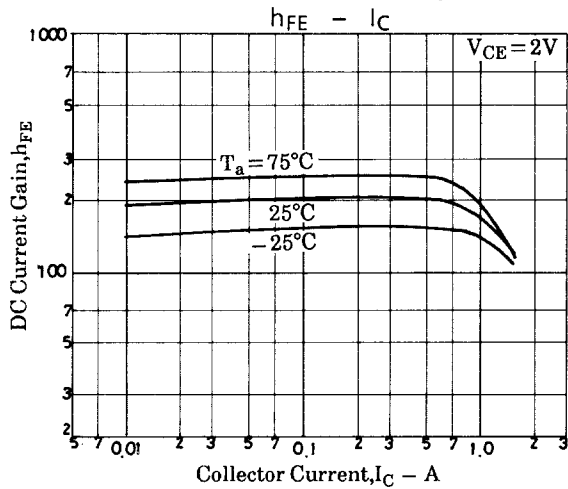
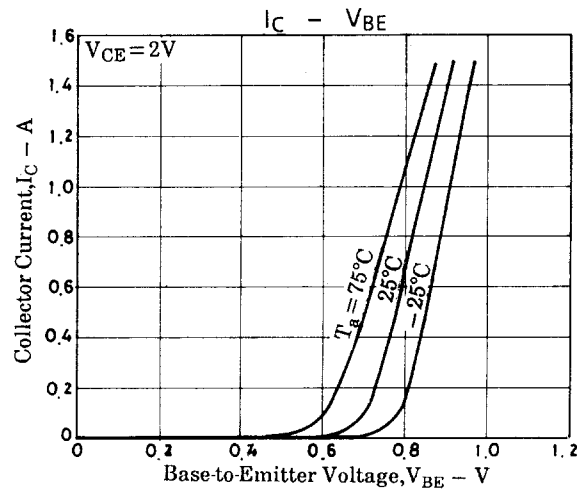
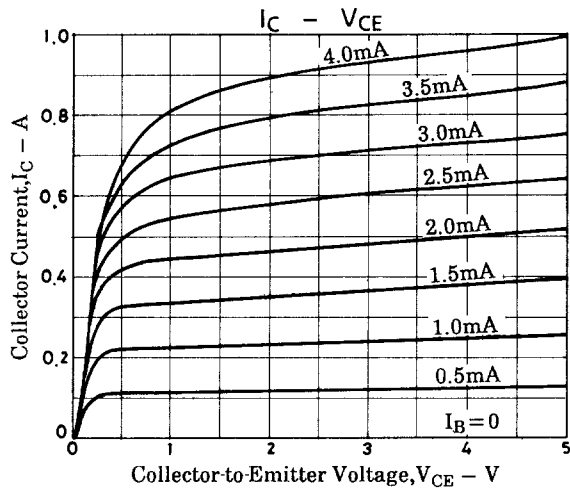
# 2SC4520

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=800mA, I_B=40mA$		0.25	0.7	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=800mA, I_B=40mA$		0.9	1.3	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	45			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.		50	100	ns
Storage Time	$t_{stg}$	See specified test circuit.		150	270	ns
Fall Time	$t_f$	See specified test circuit.		180	350	ns

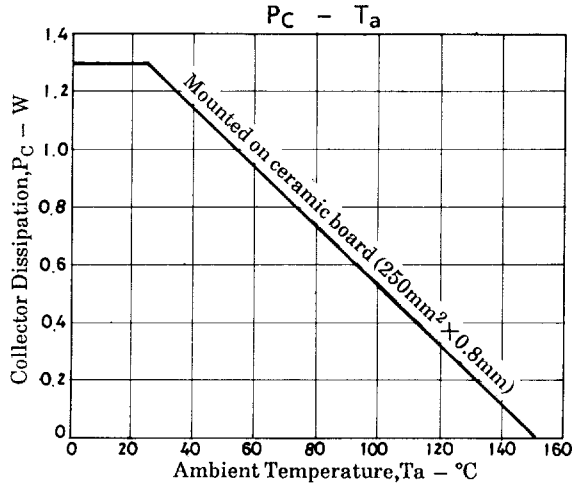
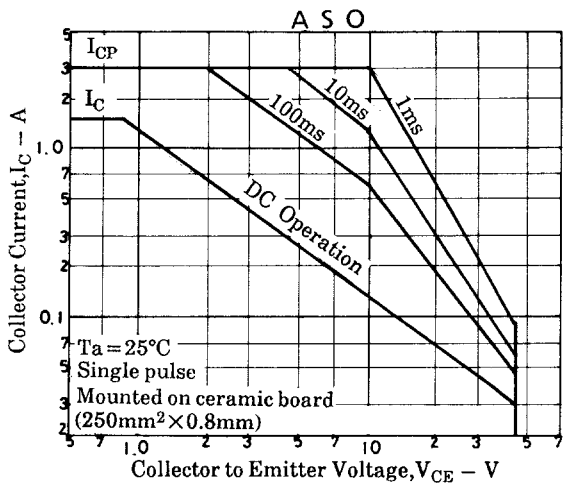
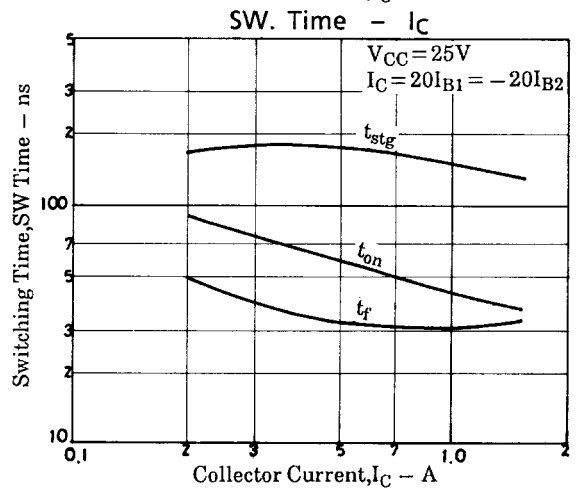
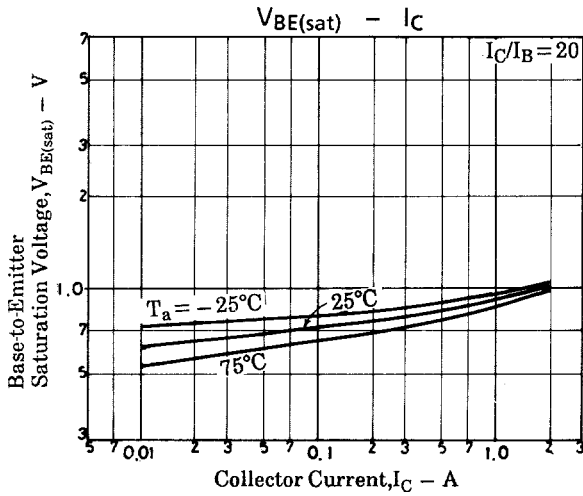
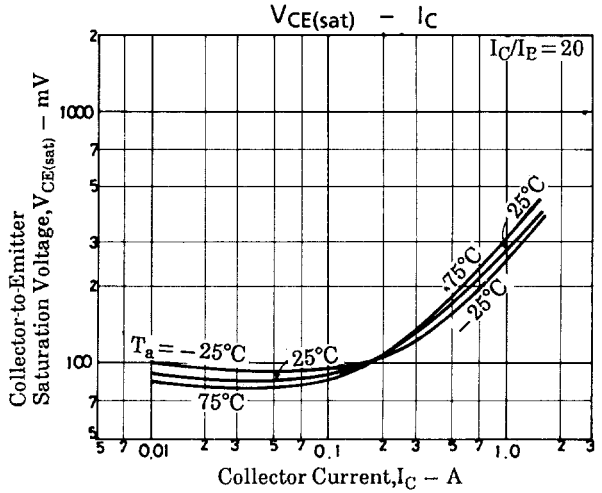
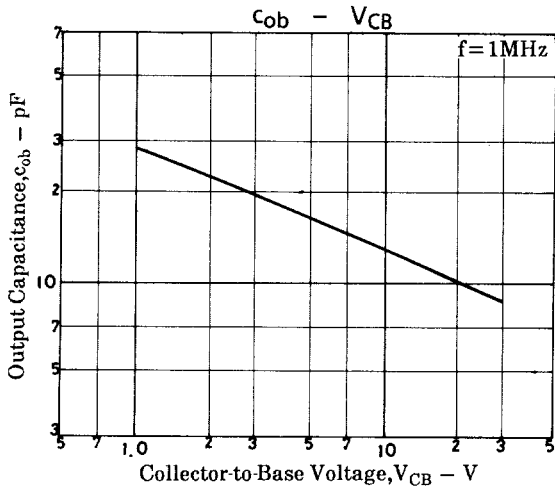
## Switching Time Test Circuit



Unit (resistance : Ω, capacitance : F)



# 2SC4520



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