

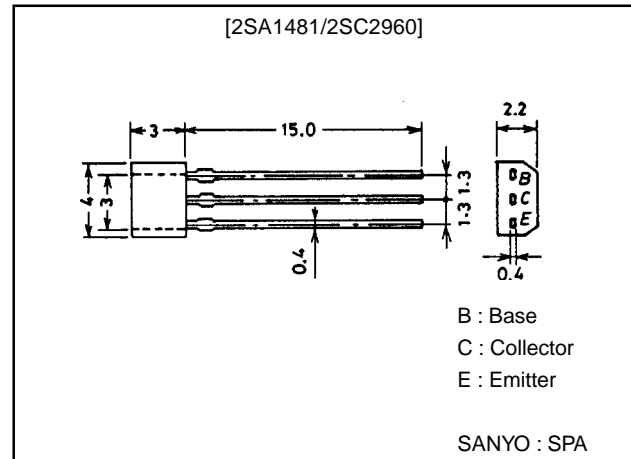
**2SA1481/2SC2960****High-Speed Switching Applications****Features**

- Fast switching speed.
- High breakdown voltage.

**Package Dimensions**

unit:mm

2033



() : 2SA1481

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-)60	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)50	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)5	V
Collector Current	$I_C$		(-)150	mA
Peak Collector Current	$I_{CP}$		(-)400	mA
Collector Dissipation	$P_C$		250	mW
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)400V, I_E = 0$			(-)0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4V, I_C = 0$			(-)0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = (-)6V, I_C = (-)1mA$	100*		560*	
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)6V, I_C = (-)1mA$		100		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = (-)6V, f = 1MHz$		2.7		pF
				(4.0)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)10mA, I_B = (-)1mA$		(-)0.1	(-)0.4	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)10mA, I_B = (-)1mA$		(-)0.75	(-)1.1	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0$	(-)5			V
Delay Time	$t_d$	See specified Test Circuit		40	60	ns
Rise Time	$t_r$	See specified Test Circuit		80	130	ns
				(120)	(230)	ns
Storage Time	$t_{stg}$	See specified Test Circuit		230	450	ns
				(190)	(700)	ns
Fall Time	$t_f$	See specified Test Circuit		160	250	ns
				(240)	(390)	ns

\* ; The 2SA1481/2SC2960 are classified by 1mA  $h_{FE}$  as follows :

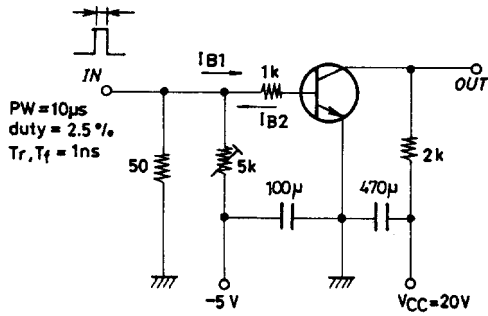
100	E	200	160	F	320	280	G	560
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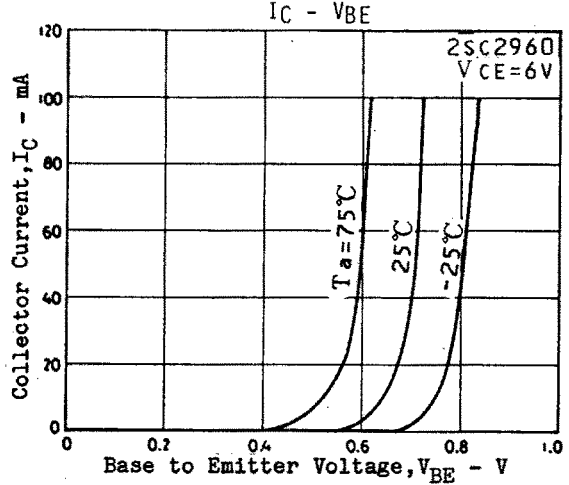
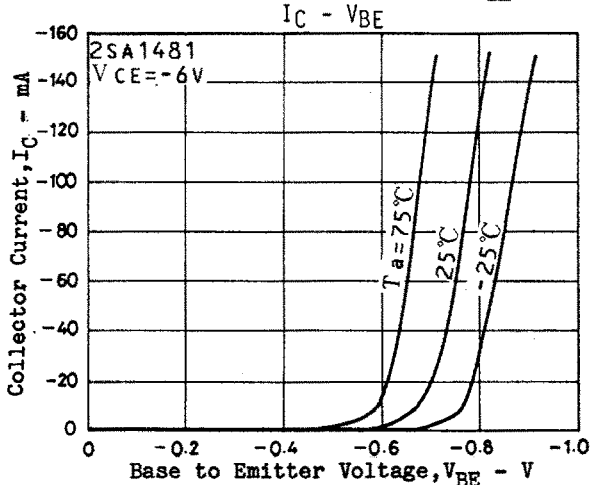
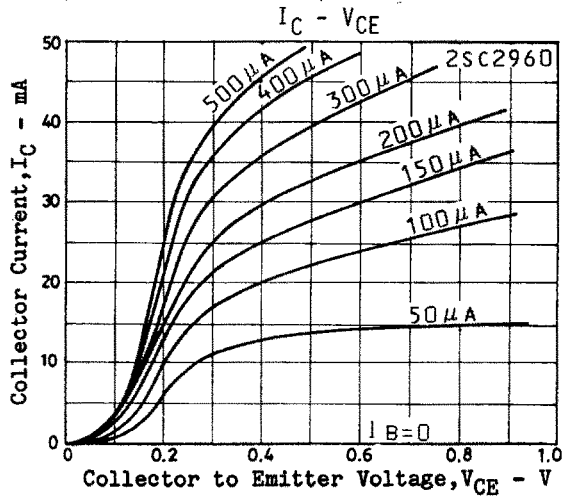
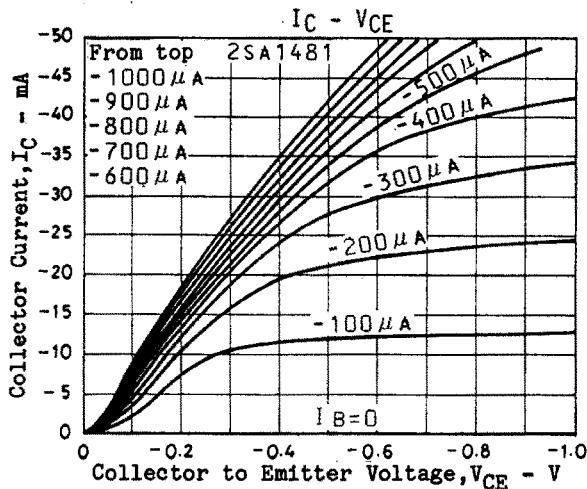
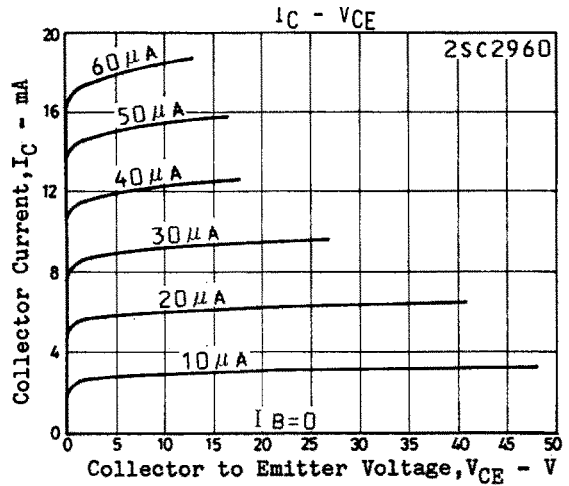
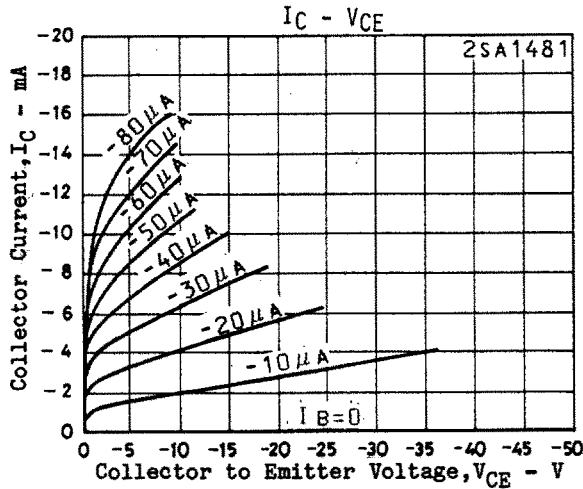
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Switching Time Test Circuit

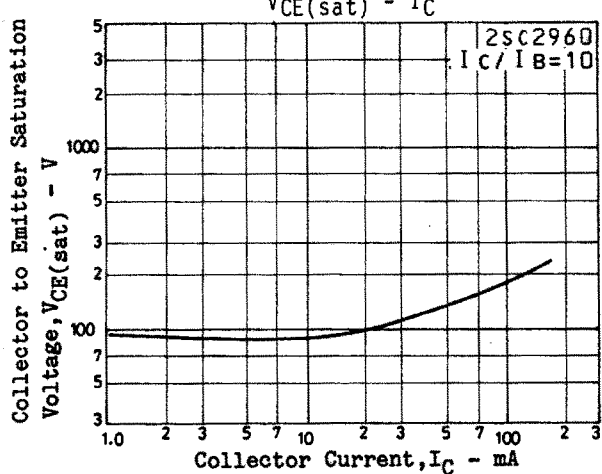
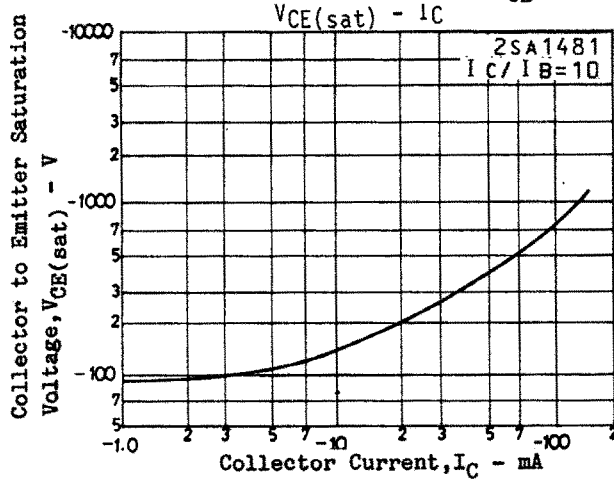
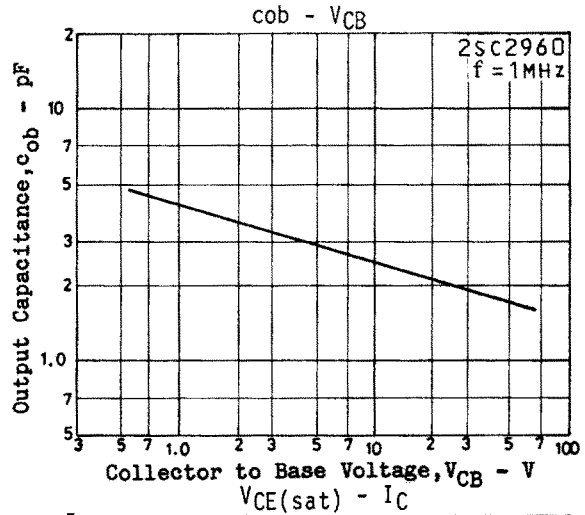
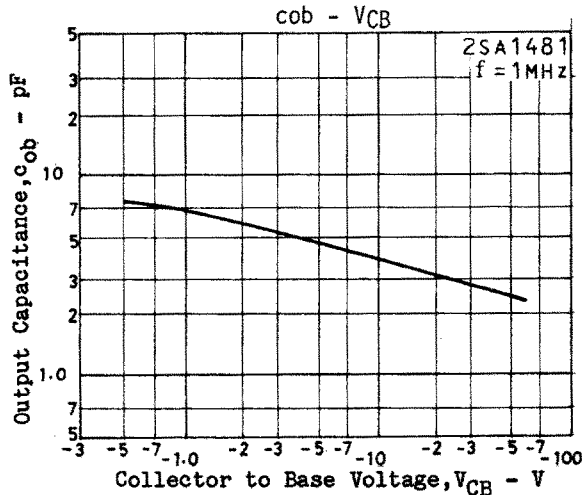
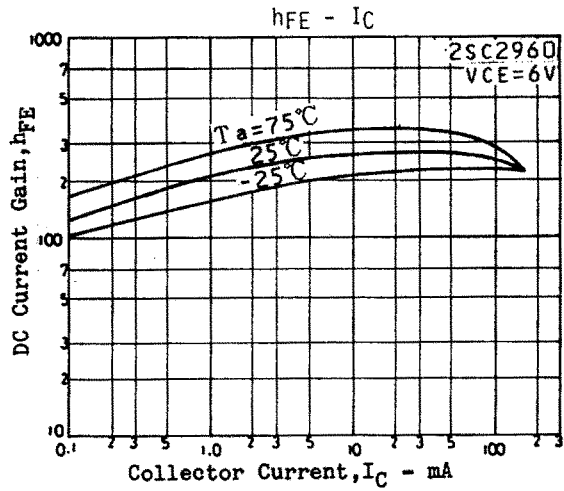
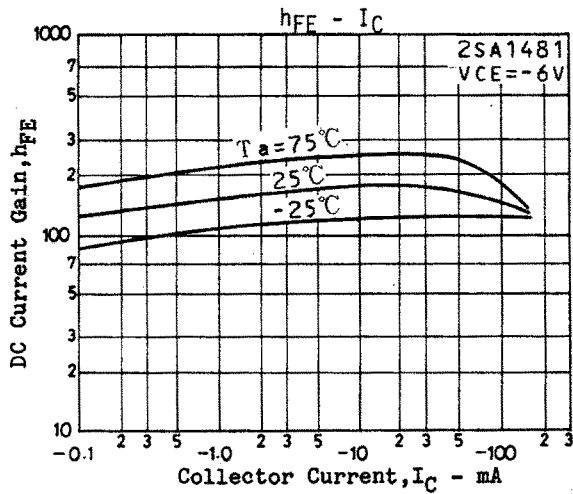
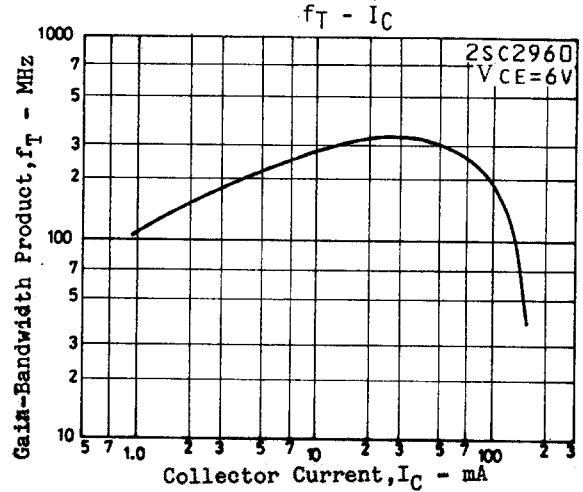
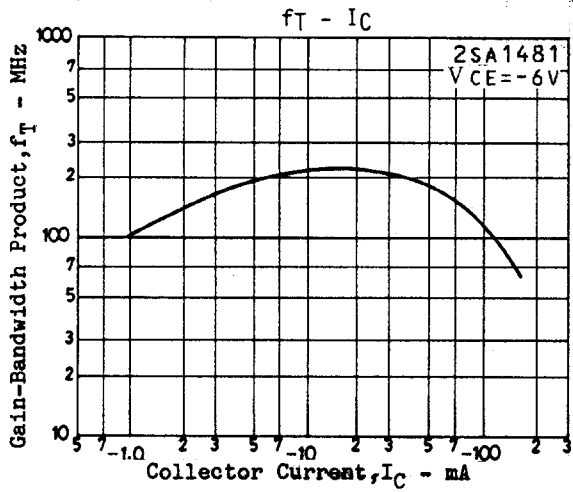
(For PNP, the polarity is reversed.)



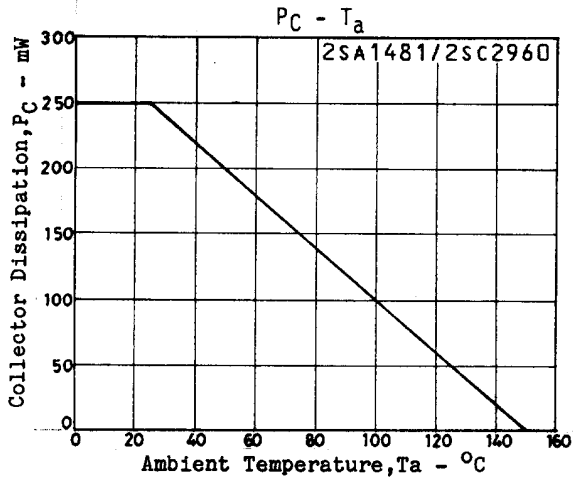
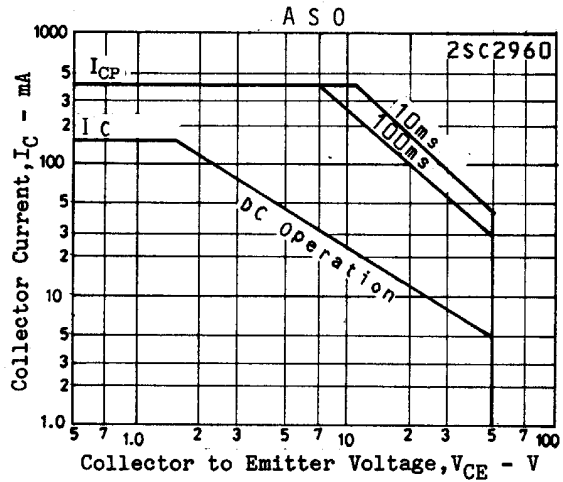
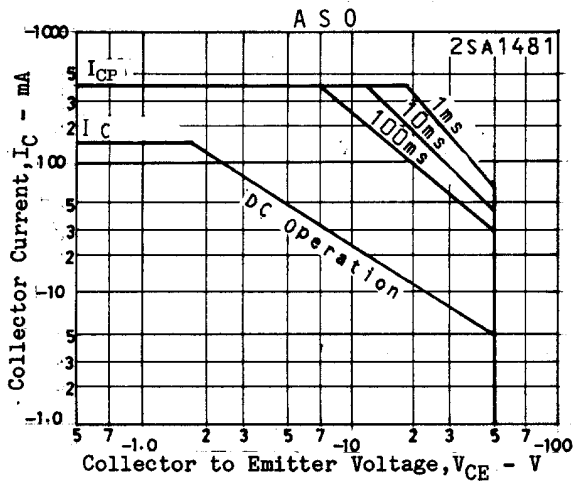
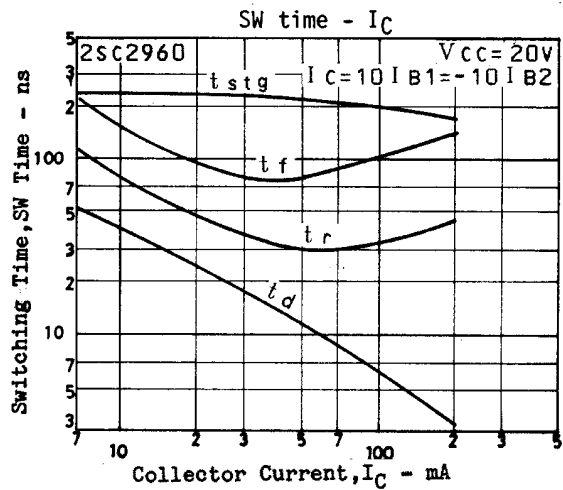
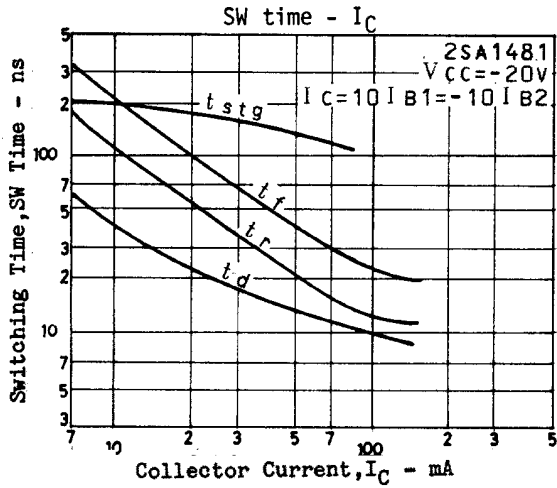
$10 I_{B1} = -10 I_{B2} = I_C = 10 \text{ mA}$   
Unit (resistance :  $\Omega$ , capacitance : F)



# 2SA1481/2SC2960



## 2SA1481/2SC2960



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