

<b>SANYO</b>	No.829H	<b>2SA1481/2SC2960</b>
		PNP/NPN Epitaxial Planar Silicon Transistors
<b>High-Speed Switching Applications</b>		

**Features**

- . Fast switching speed
- . High breakdown voltage

( ): 2SA1481

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

			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
Collector Current(Pulse)	$I_{CP}$	(-)400	mA
Collector Dissipation	$P_C$	250	mW
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-55 to +150	°C

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

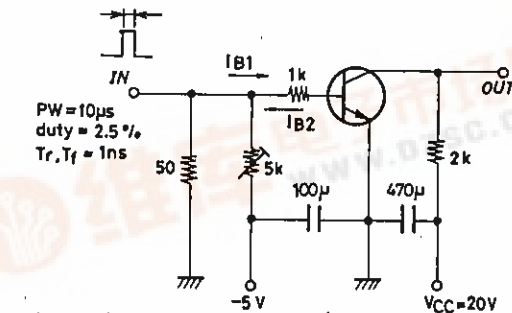
		min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$ $V_{CB}=(-)40V, I_E=0$			(-)0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$ $V_{EB}=(-)4V, I_C=0$			(-)0.1	$\mu A$
DC Current Gain	$h_{FE}$ $V_{CE}=(-)6V, I_C=(-)1mA$	100*		560*	
Gain-Bandwidth Product	$f_T$ $V_{CE}=(-)6V, I_C=(-)1mA$		100		MHz
Output Capacitance	$c_{ob}$ $V_{CB}=(-)6V, f=1MHz$		2.7(4.0)		pF
C-E Saturation Voltage	$V_{CE(sat)}$ $I_C=(-)10mA, I_B=(-)1mA$		(-)0.1	(-)0.4	V
B-E Saturation Voltage	$V_{BE(sat)}$ $I_C=(-)10mA, I_B=(-)1mA$		(-)0.75	(-)1.1	V
C-B Breakdown Voltage	$V_{(BR)CBO}$ $I_C=(-)10\mu A, I_E=0$	(-)60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$ $I_C=(-)1mA, R_{BE}=\infty$	(-)50			V
E-B 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	$t_r$ "		80(120)	130(230)	ns
Storage Time	$t_{stg}$ "		230(190)	450(700)	ns
Fall Time	$t_f$ "		160(240)	250(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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**Switching Time Test Circuit**

(For PNP, the polarity is reversed.)

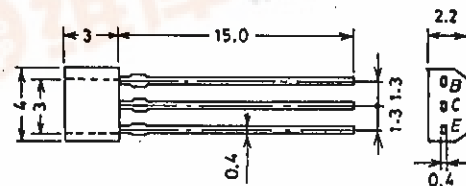


10 I<sub>B1</sub> = -10 I<sub>B2</sub> = I<sub>C</sub> = 10mA

Unit(Resistance:  $\Omega$ , Capacitance: F)

**Package Dimensions 2033**

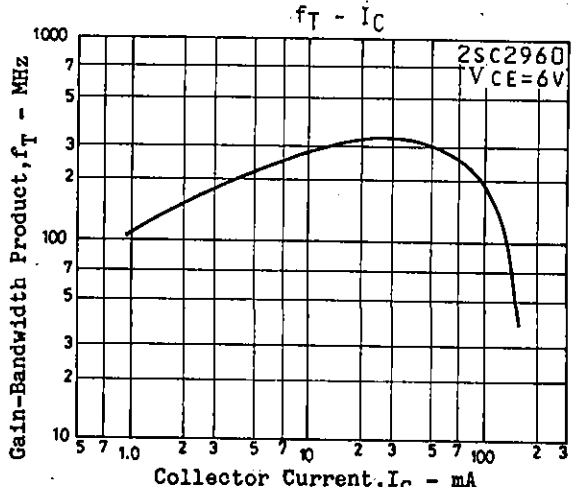
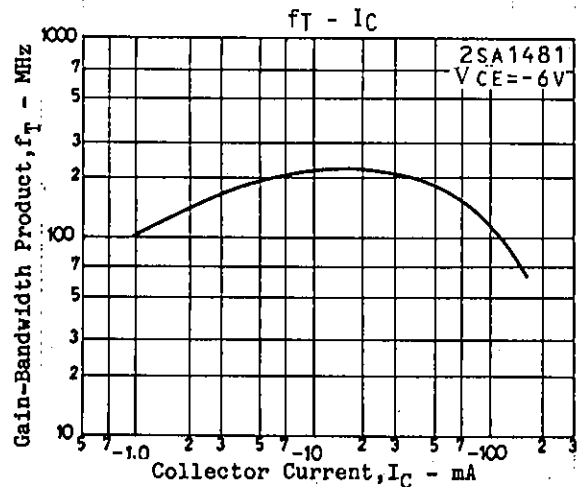
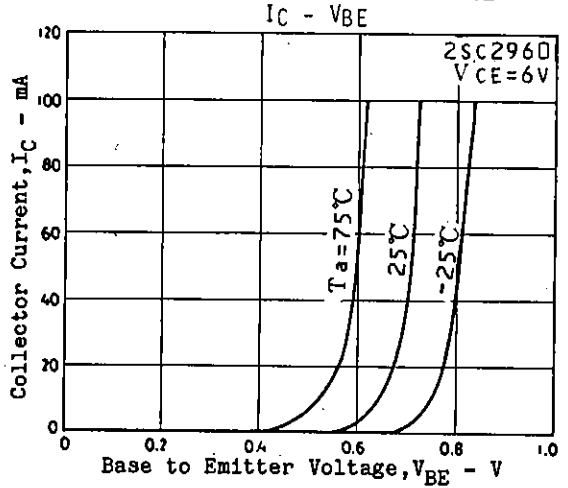
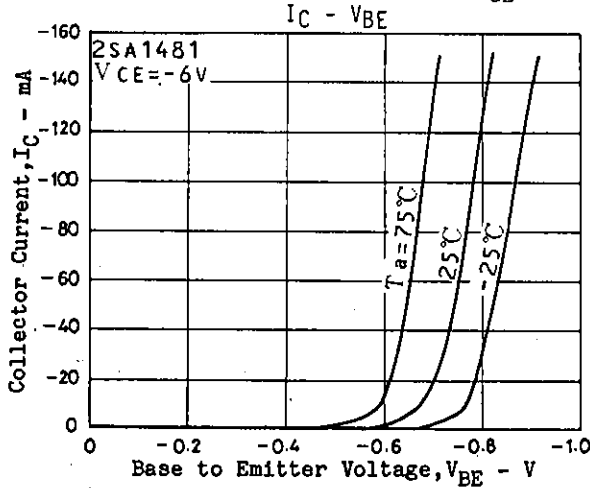
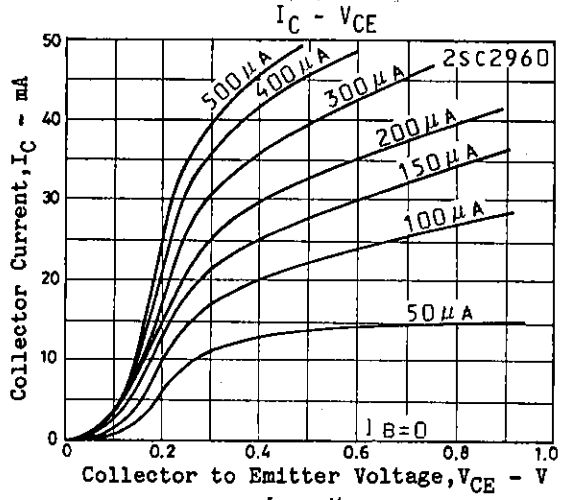
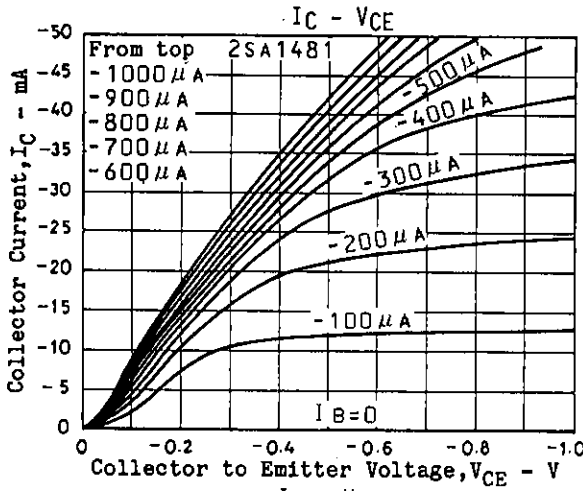
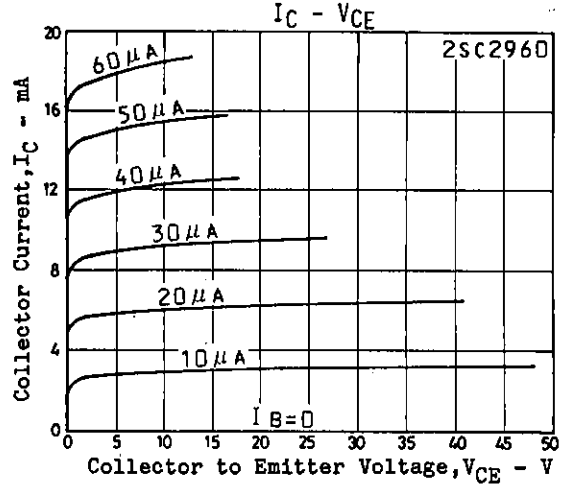
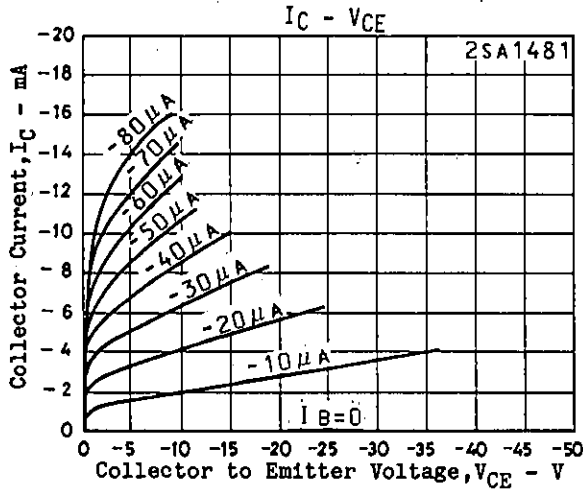
(unit: mm)



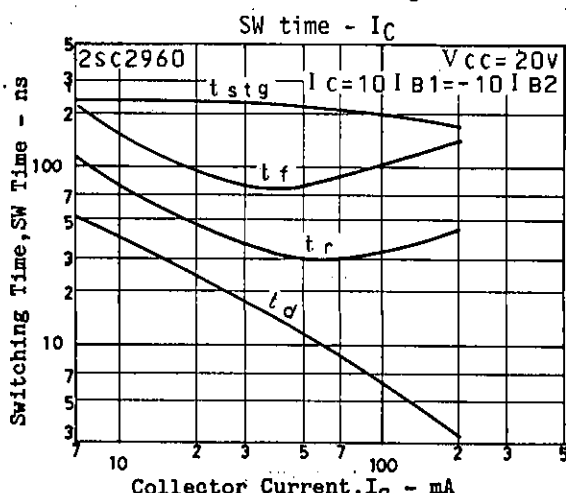
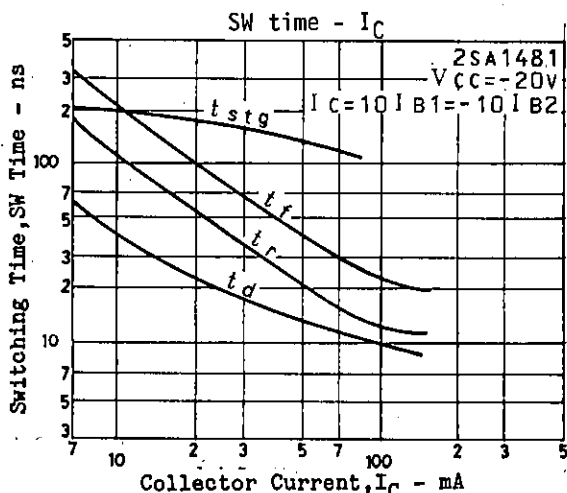
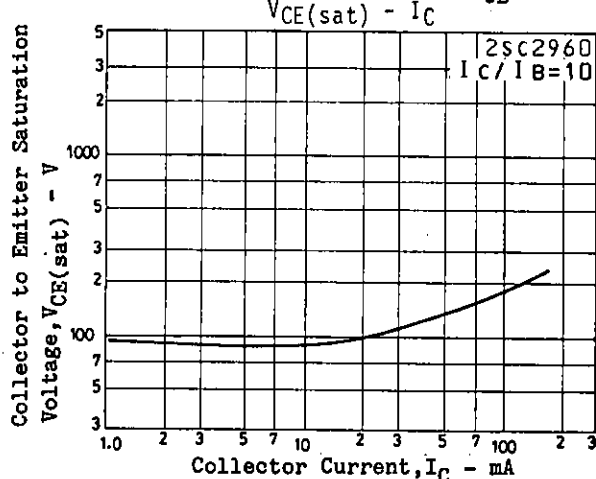
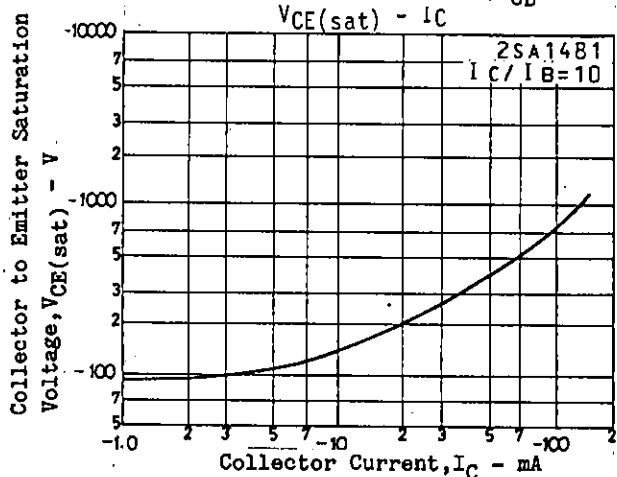
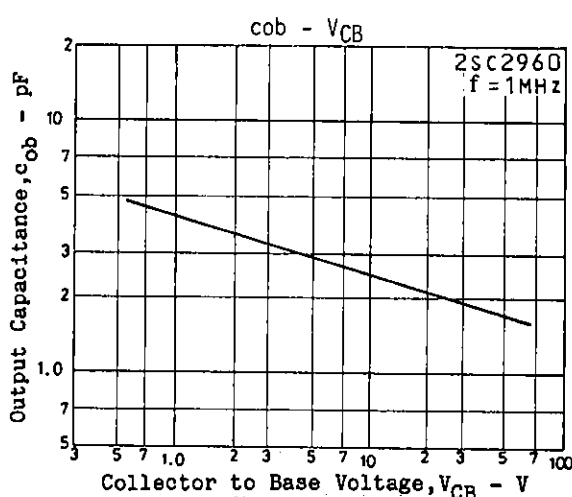
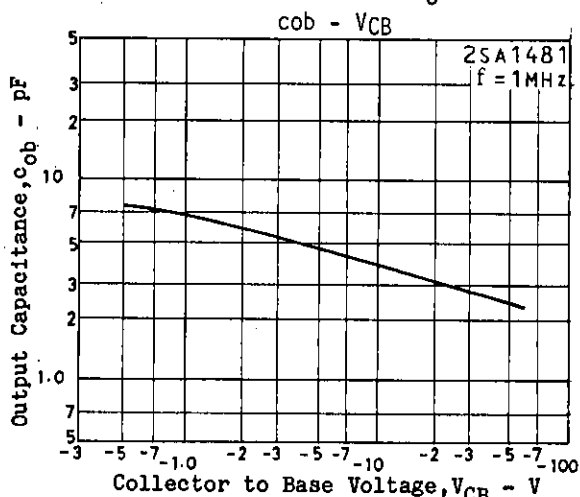
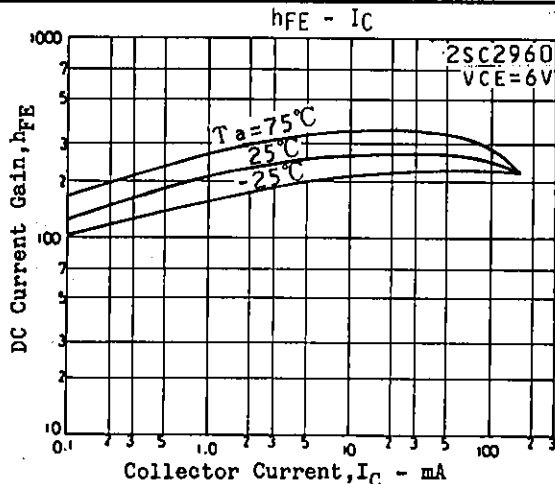
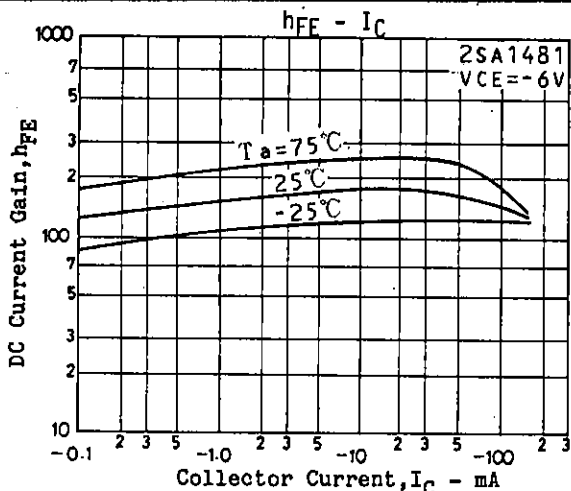
B: Base  
C: Collector  
E: Emitter  
SANYO: SPA



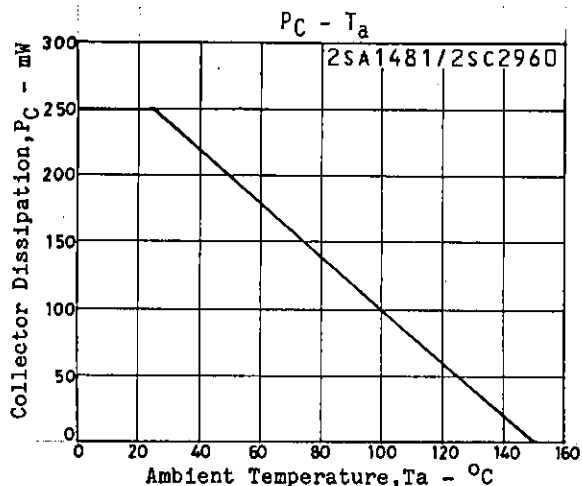
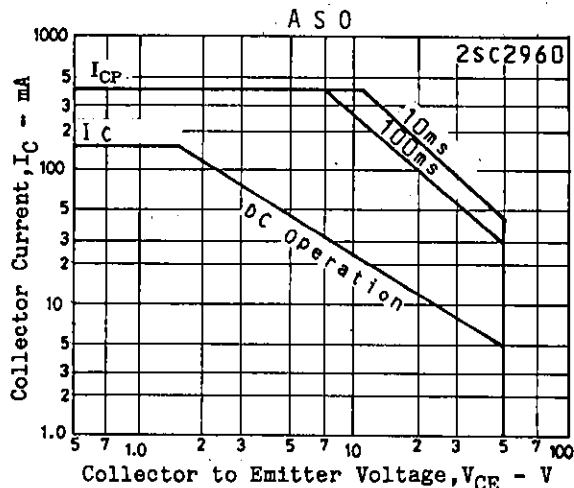
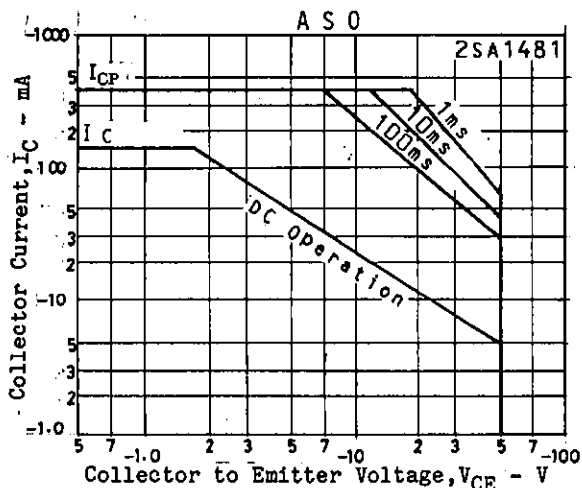
2SA1481/2SC2960



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