

<b>SANYO</b>	No.3200	<b>2SA1685/2SC4443</b>
		PNP/NPN Epitaxial Planar Silicon Transistors

**High-Speed Switching Applications**

**Features**

- Fast switching speed
- High gain-bandwidth product
- Low saturation voltage

( ) : 2SA1685

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

Collector to Base Voltage	$V_{CBO}$	(-)40	V
Collector to Emitter Voltage	$V_{CEO}$	(-)20	V
Emitter to Base Voltage	$V_{EBO}$	(-)5	V
Collector Current	$I_C$	(-)150	mA
Collector Current(Pulse)	$I_{CP}$	(-)300	mA
Base Current	$I_B$	(-)30	mA
Collector Dissipation	$P_C$	150	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	$I_{CBO}$	$V_{CB} = (-)30V, I_E = 0$			(-)0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4V, I_C = 0$			(-)0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = (-)1V, I_C = (-)10mA$	60*		270*	
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)10V, I_C = (-)10mA$		700 (400)		MHz
Output Capacitance	$c_{ob}$	$V_{CB} = (-)10V, f = 1MHz$		(2.9)2.6		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)10mA, I_B = (-)1mA$		0.08 (-0.07)	(-)0.2	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)10mA, I_B = (-)1mA$		0.72 (-0.75)	(-)1.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-)40			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)20			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0$	(-)5			V

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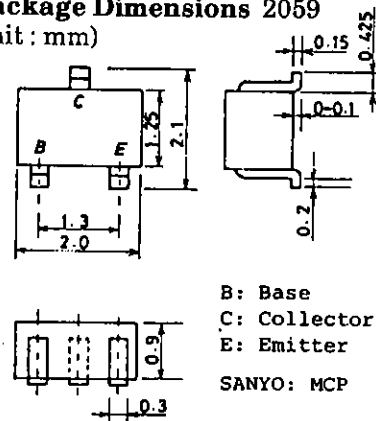
\*: The 2SA1685/2SC4443 are classified by 10mA  $h_{FE}$  as follows:

2SA1685	60	3	120	90	4	180			
2SC4443	60	3	120	90	4	180	135	5	270

Marking    2SA1685 : YL  
               2SC4443 : GT

$h_{FE}$  rank    2SA1685 : 3,4  
                   2SD4443 : 3,4,5

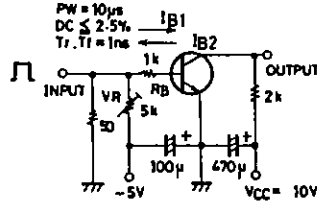
**Package Dimensions 2059**  
(unit : mm)



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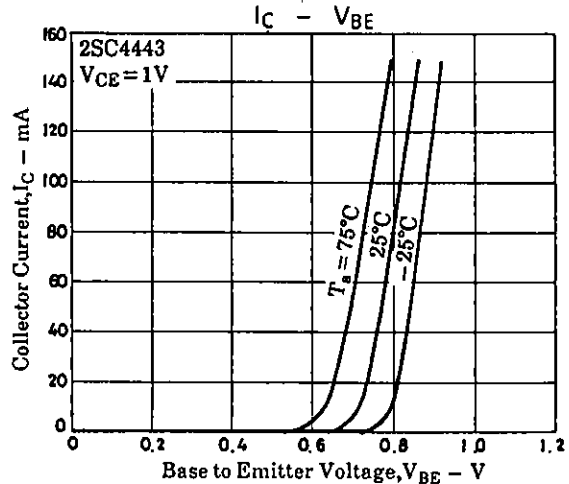
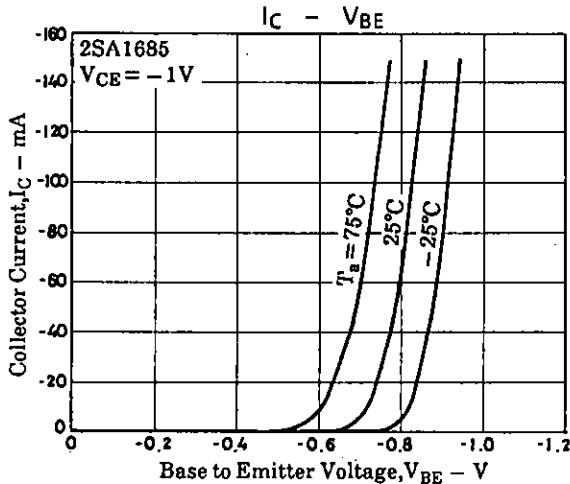
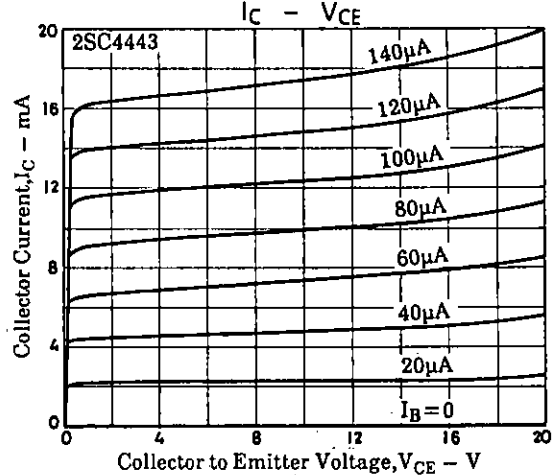
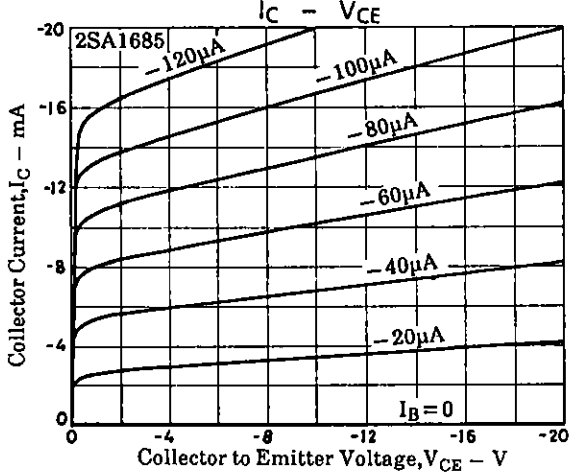
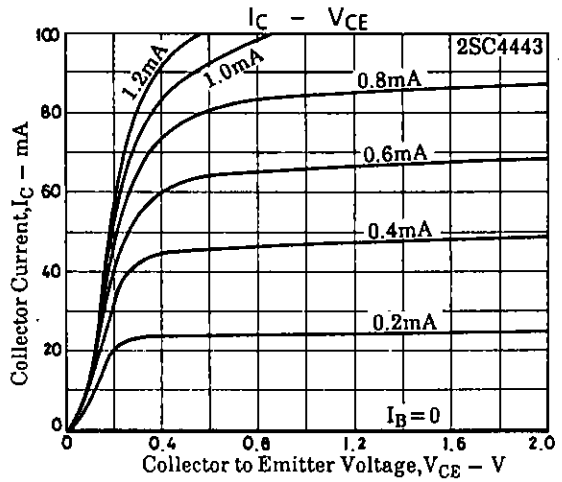
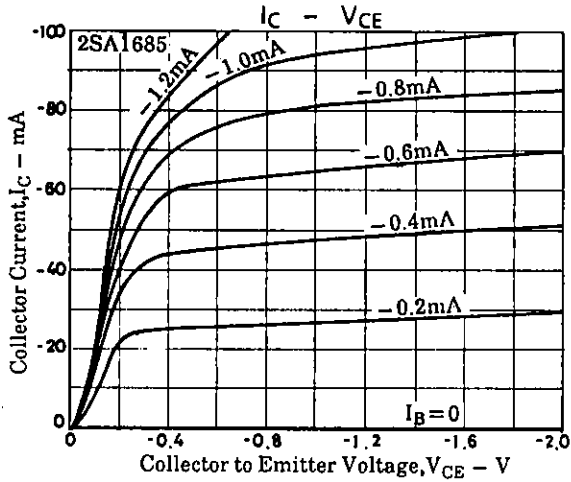
			min	typ	max	unit
Delay Time	$t_d$	See specified Test Circuit.		(14)11	20	ns
Rise Time	$t_r$			(11)10	20	ns
Storage Time	$t_{stg}$			(80)70	180	ns
Fall Time	$t_f$			(16)15	25	ns

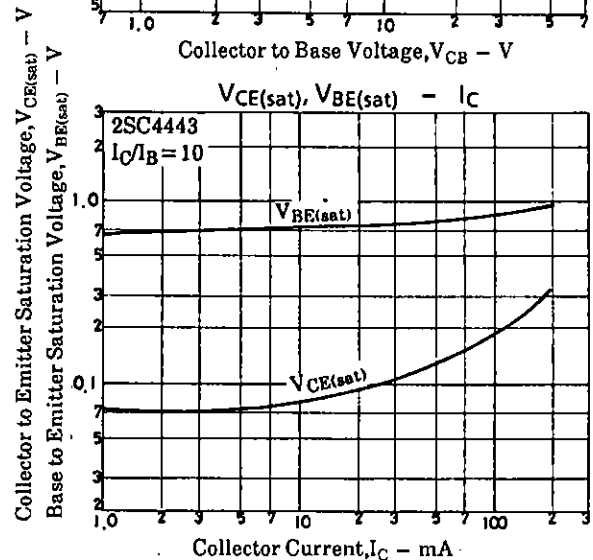
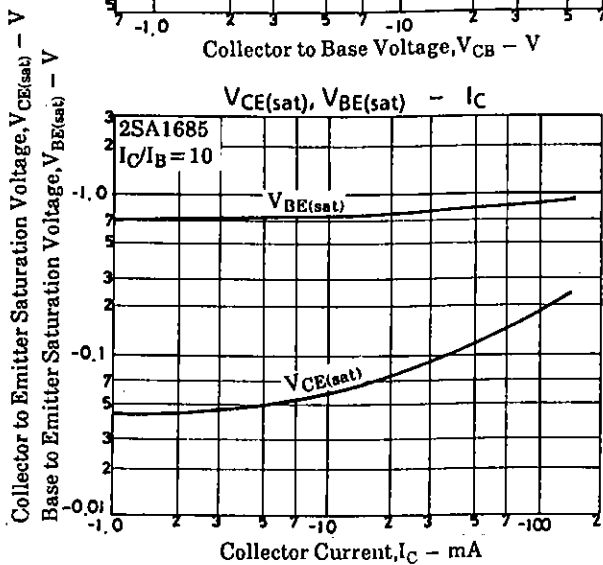
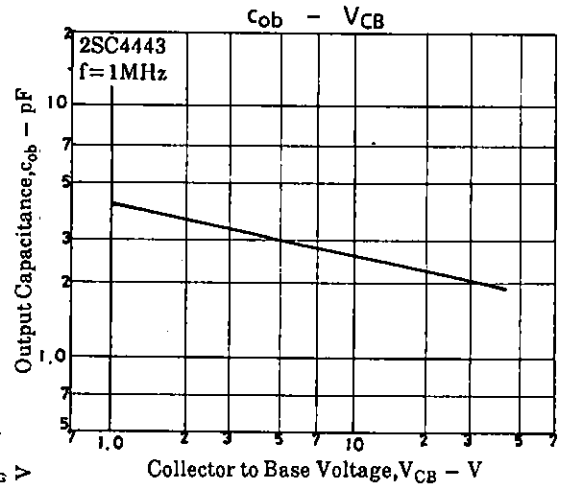
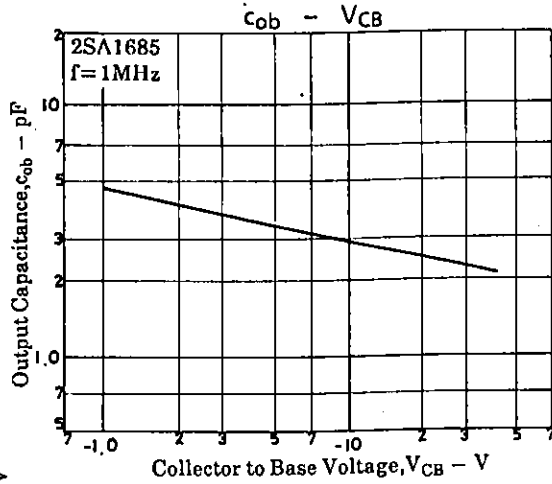
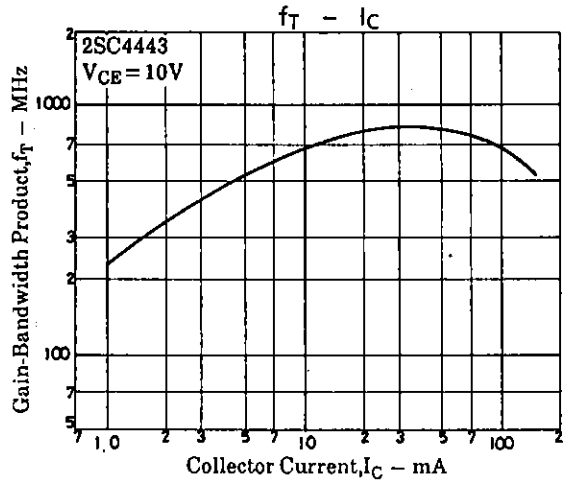
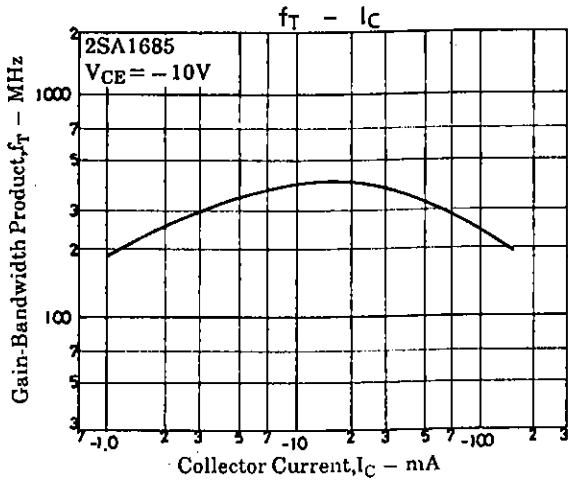
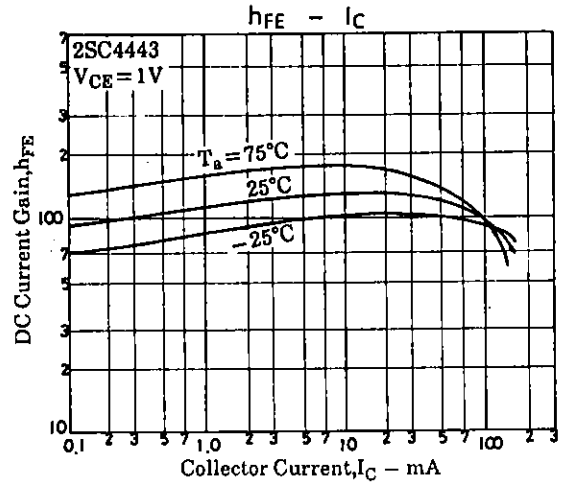
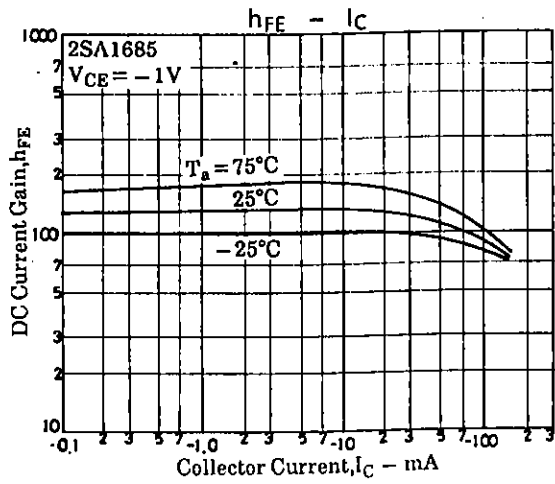
Switching Time Test Circuit



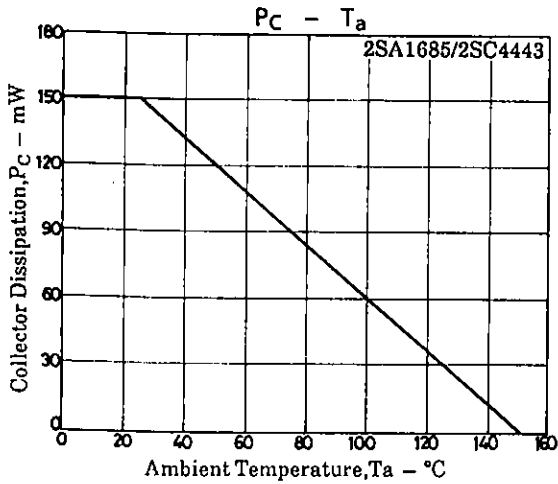
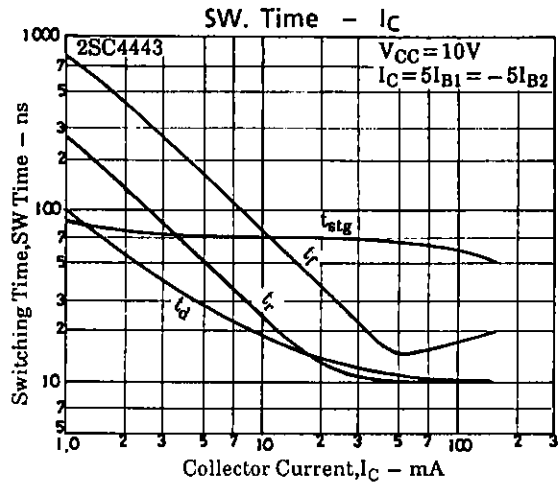
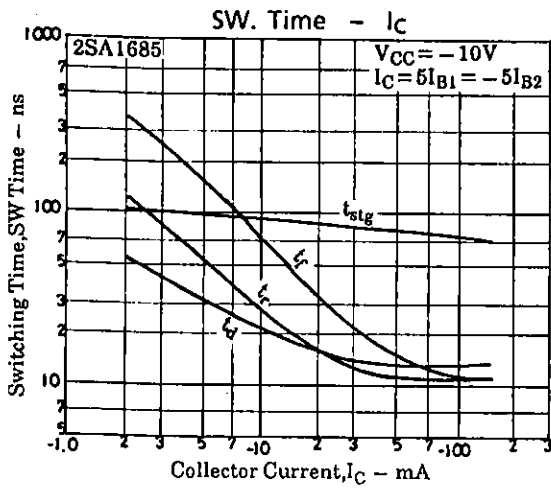
$5I_{B1} = -5I_{B2} = I_C = 50\text{mA}$   
(For PNP, the polarity is reversed.)

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





2SA1685/2SC4443



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