

**SANYO**

No.3200

**2SA1685/2SC4443**

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**

			unit
Collector to Base Voltage	$V_{CB0}$	(- )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**

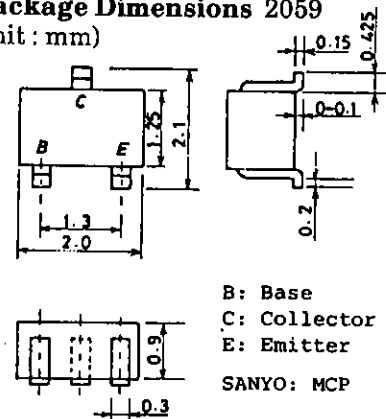
			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)30V, I_E = 0$			(- )0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4V, I_C = 0$			(- )0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = (-)1V, I_C = (-)10mA$	60*		270*	
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)10V, I_C = (-)10mA$		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

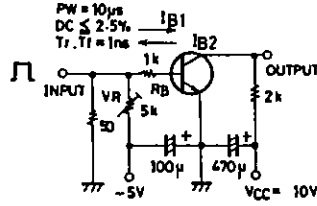
Marking 2SA1685 : YL  
 2SC4443 : GT  
 $h_{FE}$  rank 2SA1685 : 3,4  
 2SD4443 : 3,4,5

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

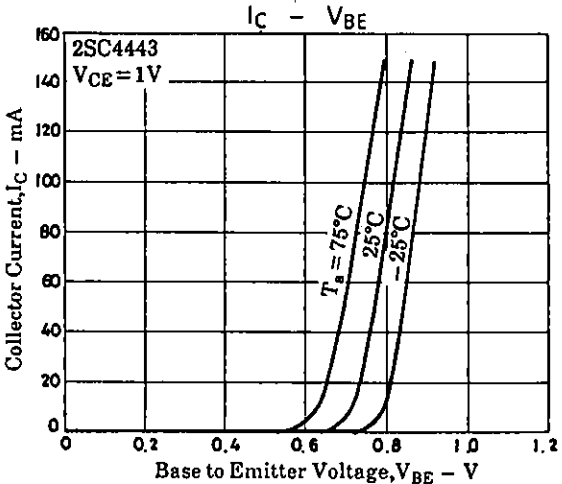
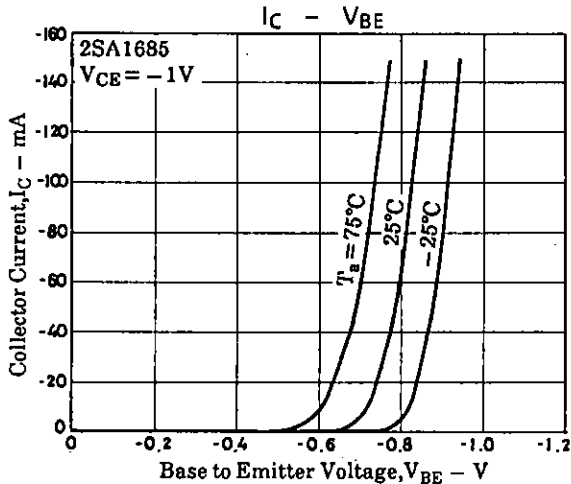
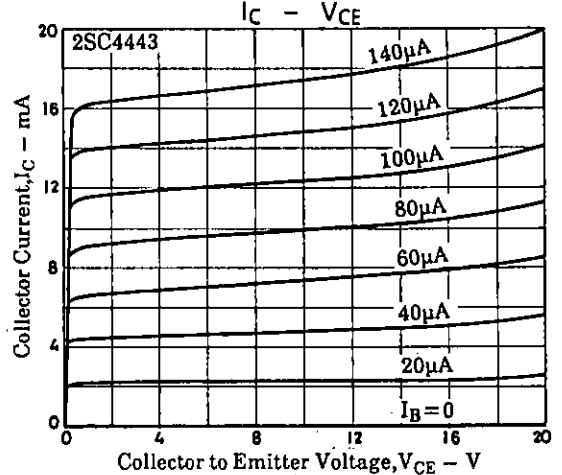
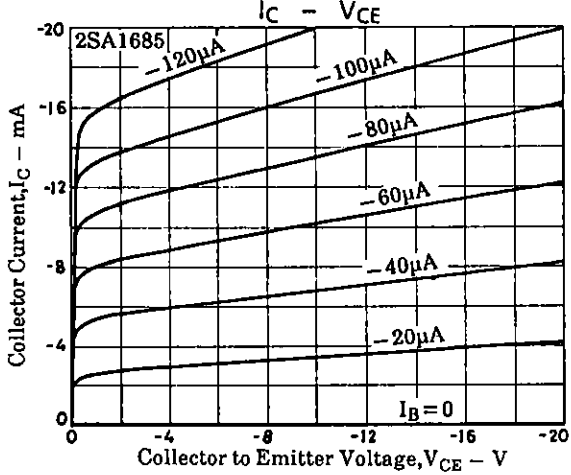
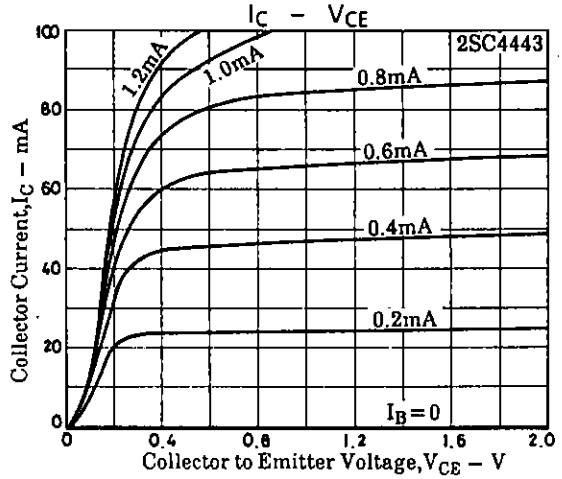
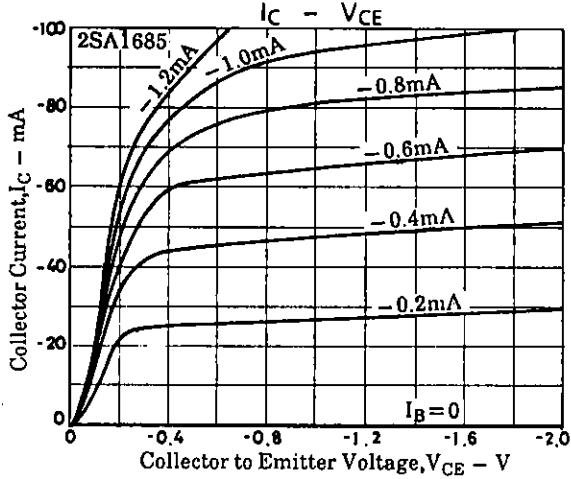
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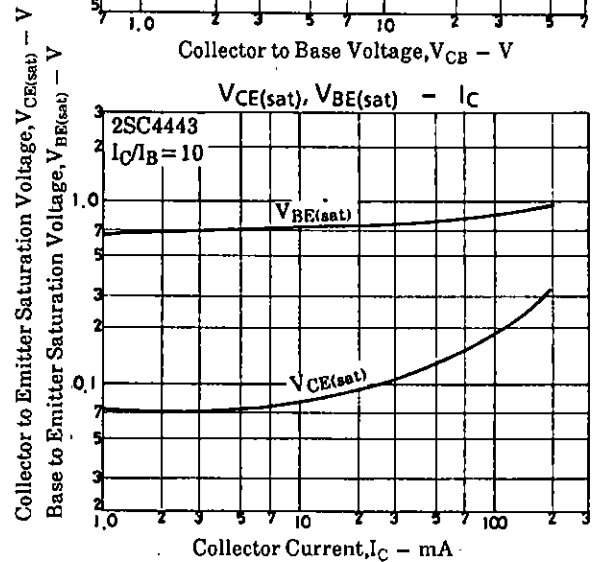
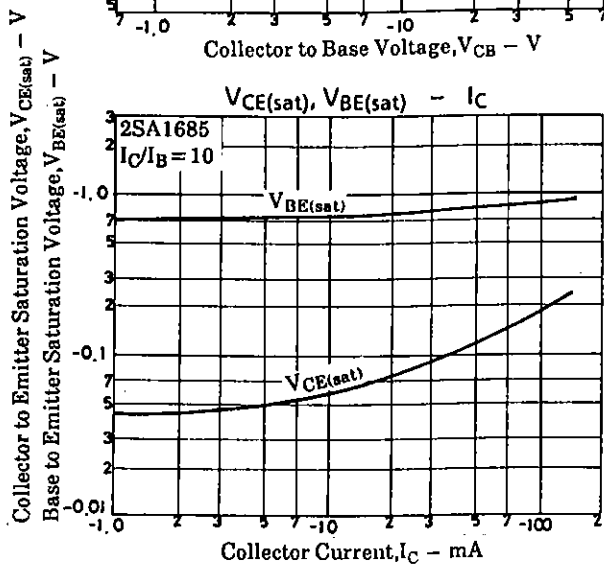
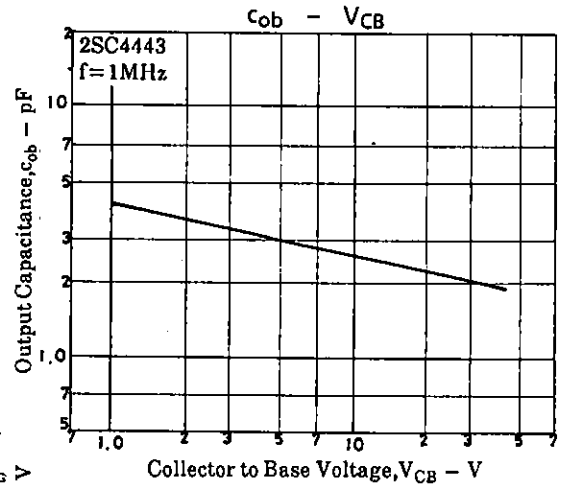
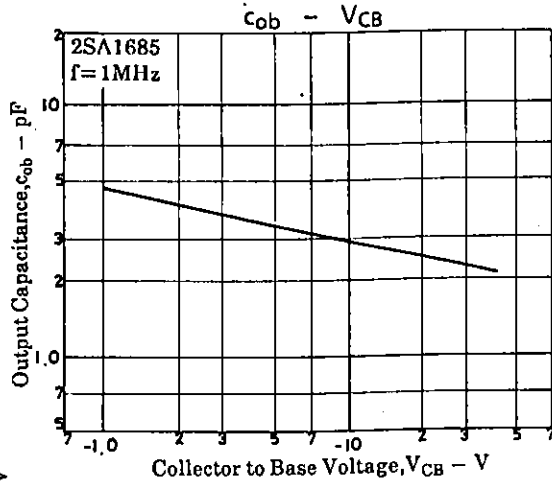
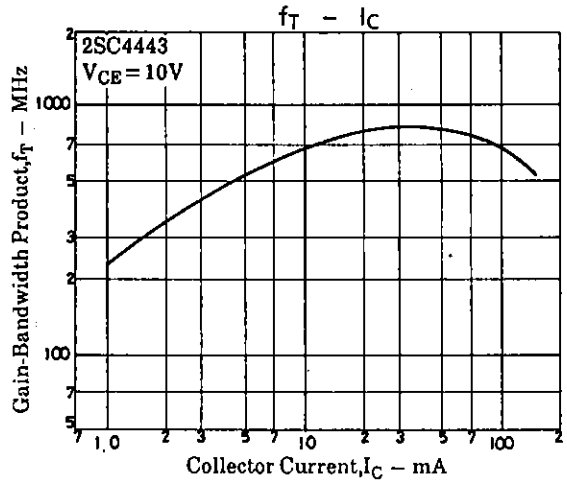
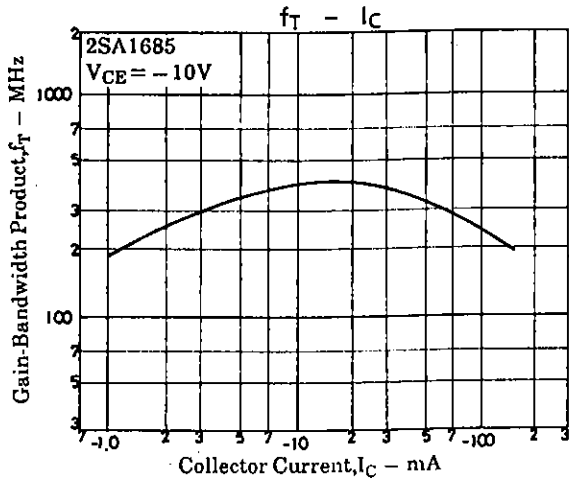
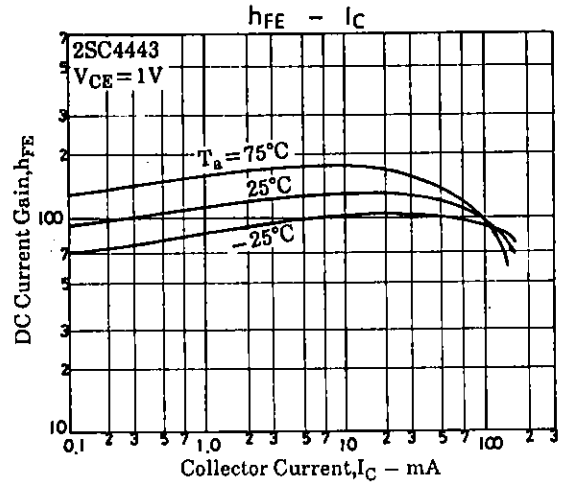
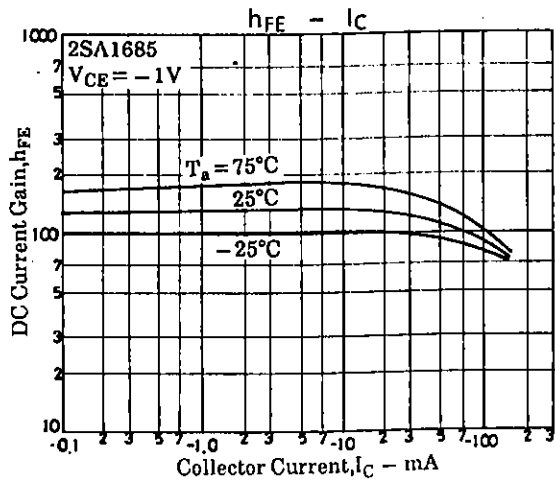
			min	typ	max	unit
Delay Time	$t_d$	See specified Test Circuit.		(14)11	20	ns
Rise Time	$t_r$			(11)10	20	ns
Storage Time	$t_{stg}$			(80)70	180	ns
Fall Time	$t_f$			(16)15	25	ns

Switching Time Test Circuit

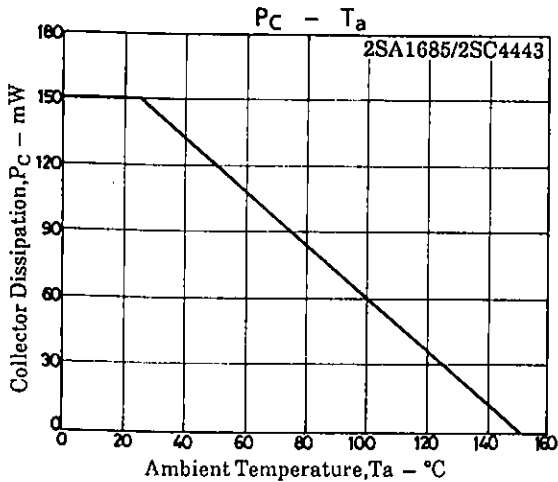
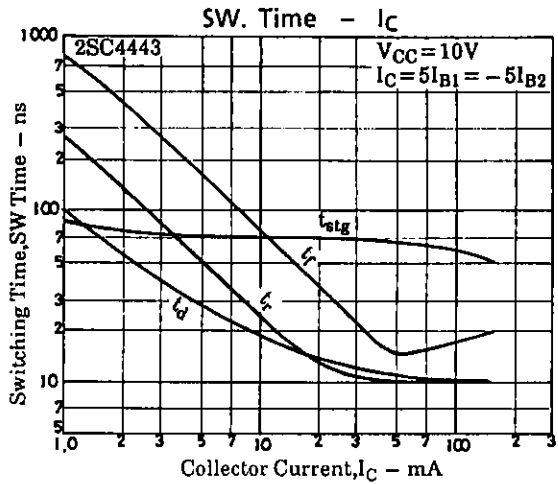
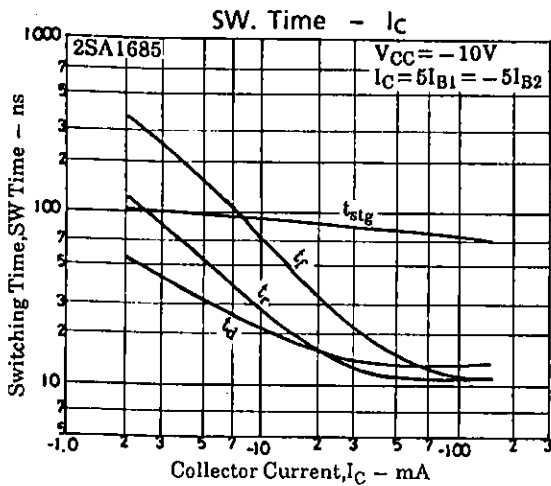


$5I_{B1} = -5I_{B2} = I_C = 50\text{mA}$  Unit (Resistance :  $\Omega$ , Capacitance : F)  
 (For PNP, the polarity is reversed.)





2SA1685/2SC4443



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