

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

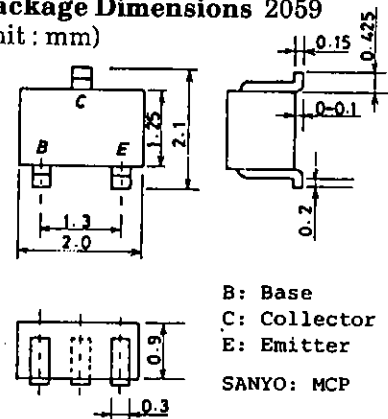
			min	typ	max	unit
Collector Cutoff Current	I _{CBO}	V _{CB} = (-)30V, I _E = 0			(-)	0.1 μA
Emitter Cutoff Current	I _{EBO}	V _{EB} = (-)4V, I _C = 0			(-)	0.1 μA
DC Current Gain	h _{FE}	V _{CE} = (-)1V, I _C = (-)10mA	60*		270*	
Gain-Bandwidth Product	f _T	V _{CE} = (-)10V, I _C = (-)10mA		700 (400)		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 = (-)10μA, I _E = 0	(-)	40		V
C-E Breakdown Voltage	V _{(BR)CEO}	I _C = (-)1mA, R _{BE} = ∞	(-)	20		V
E-B Breakdown Voltage	V _{(BR)EBO}	I _E = (-)10μA, I _C = 0	(-)	5		V

Continued on next page.

*: 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

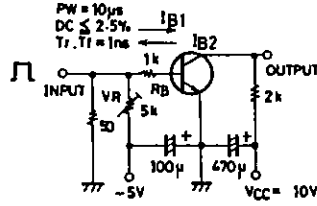
Marking 2SA1685 : YL
 2SC4443 : GT
 h_{FE} rank 2SA1685 : 3,4
 2SD4443 : 3,4,5

Package Dimensions 2059
(unit : mm)

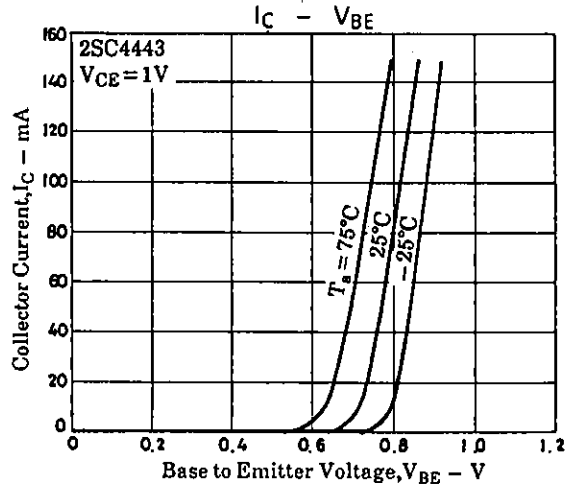
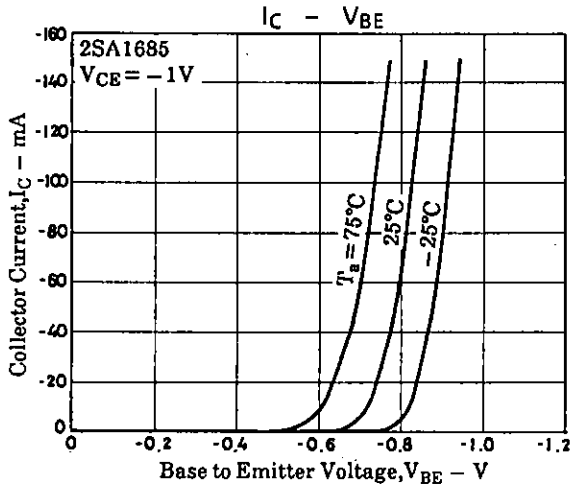
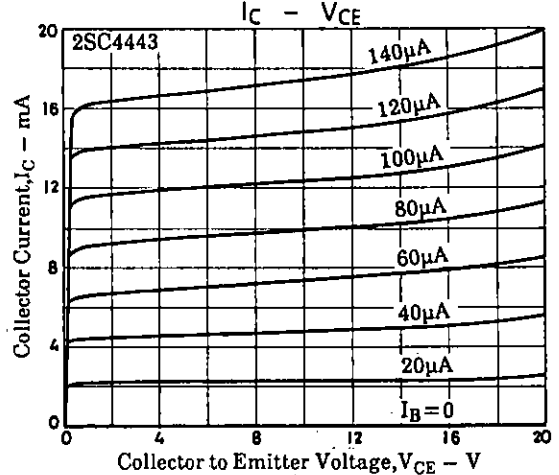
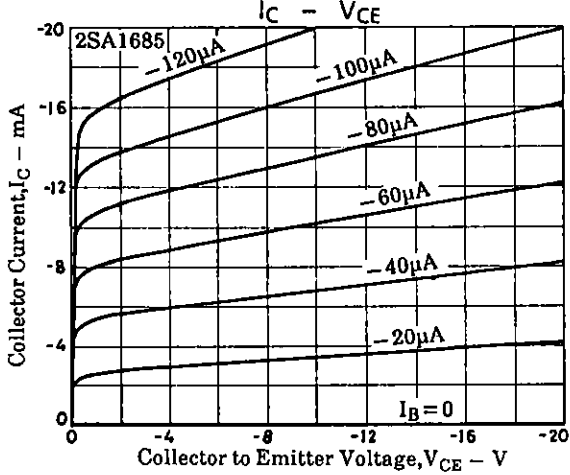
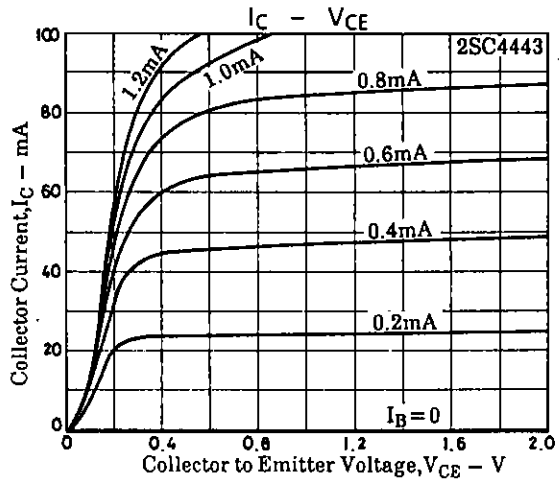
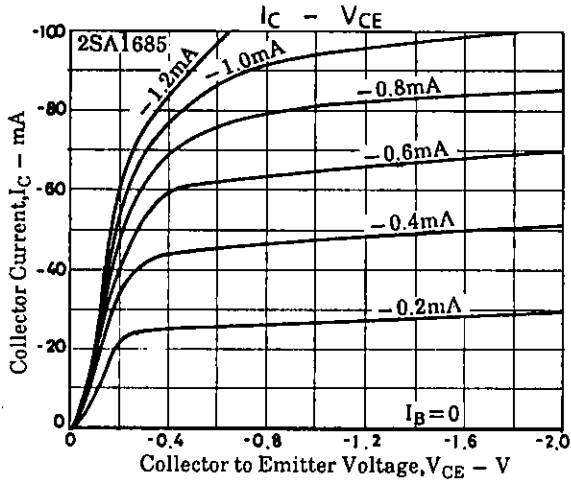
Continued from preceding page

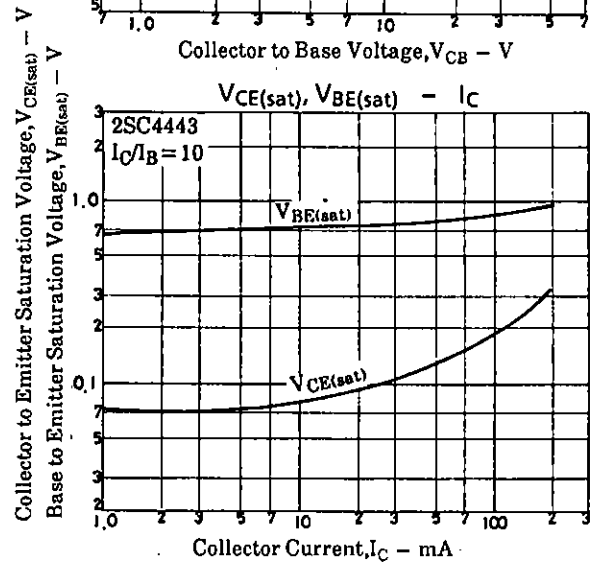
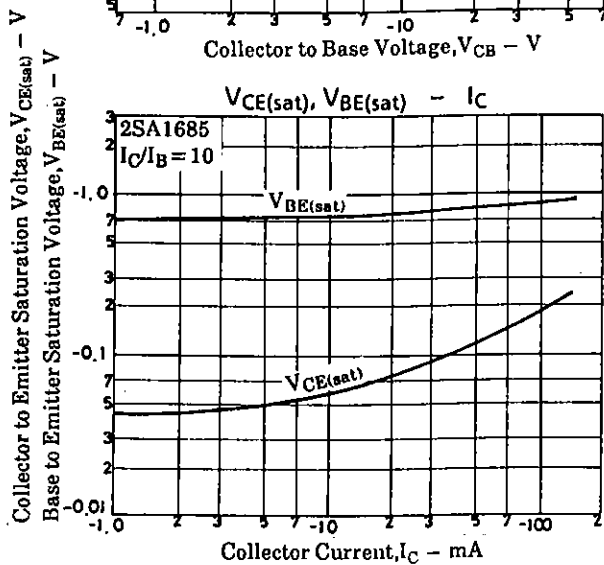
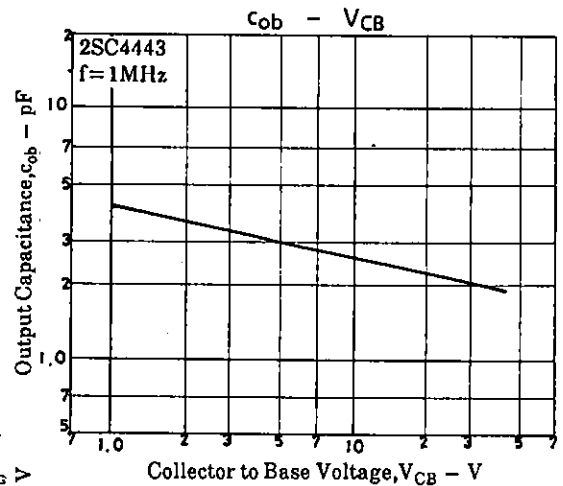
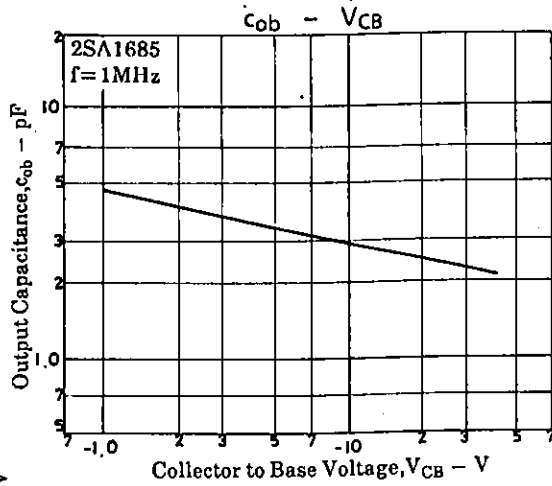
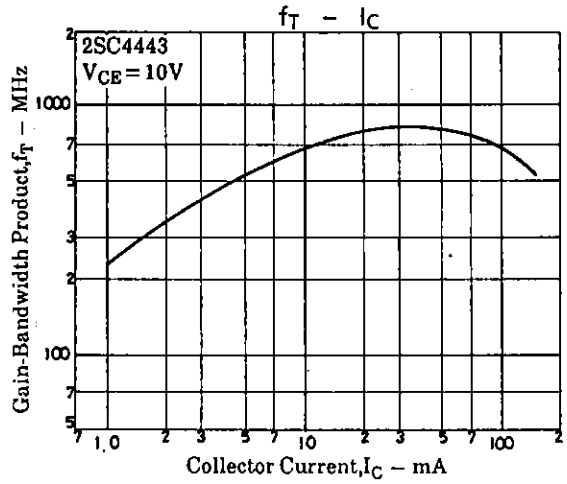
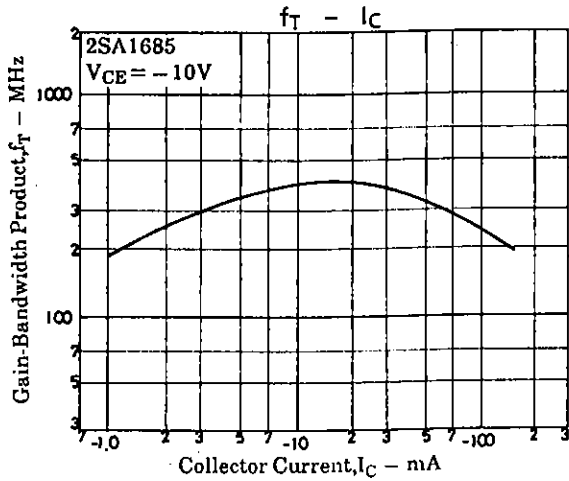
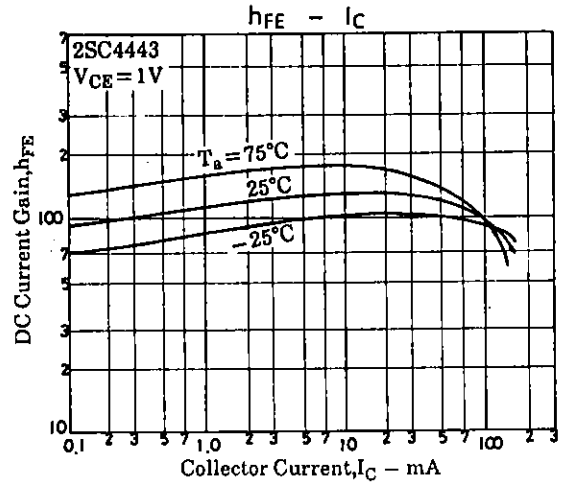
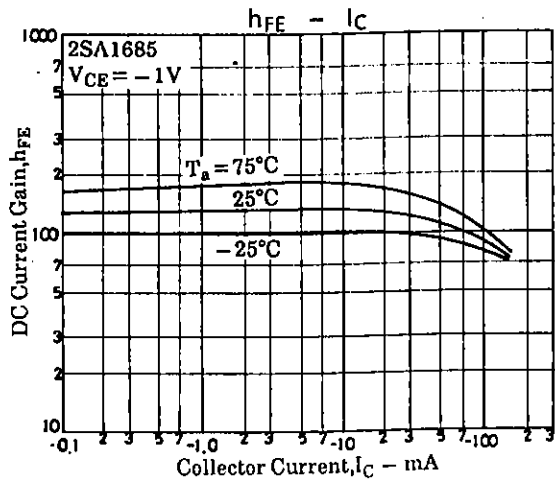
			min	typ	max	unit
Delay Time	t_d	See specified Test Circuit.		(14)11	20	ns
Rise Time	t_r			(11)10	20	ns
Storage Time	t_{stg}			(80)70	180	ns
Fall Time	t_f			(16)15	25	ns

Switching Time Test Circuit

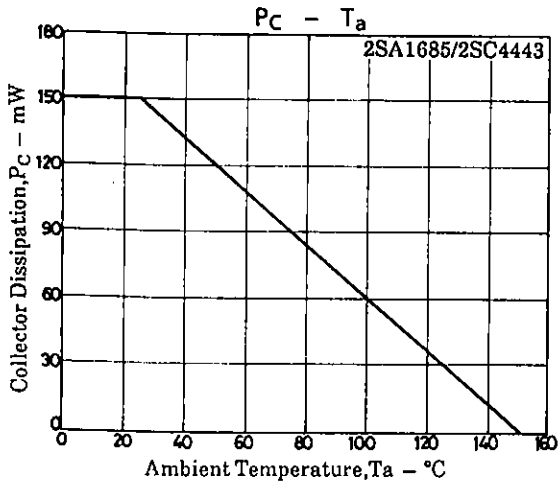
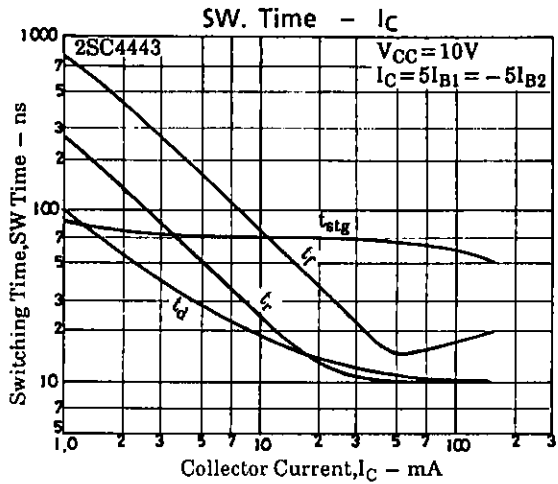
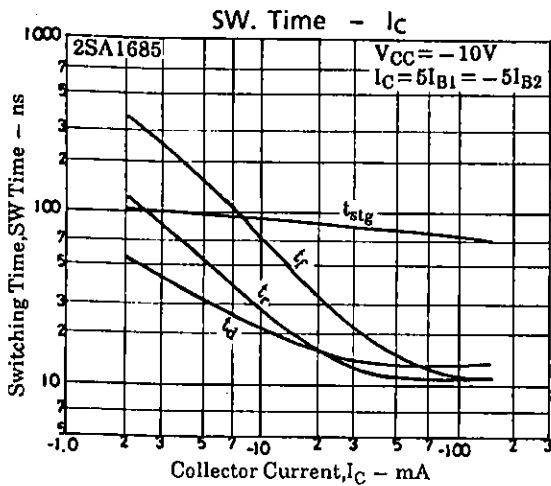


$5I_{B1} = -5I_{B2} = I_C = 50\text{mA}$ Unit (Resistance : Ω , Capacitance : F)
 (For PNP, the polarity is reversed.)





2SA1685/2SC4443



- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
 - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
 - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.