



## 2SA1785/2SC4645

### High Voltage Driver Applications

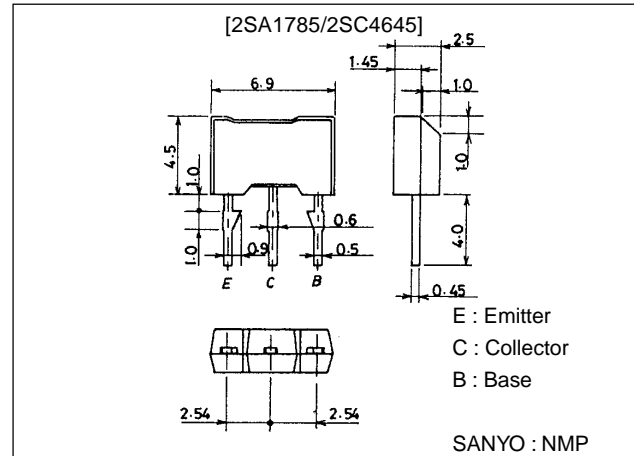
#### Features

- Large current capacity ( $I_C=1A$ ).
- High breakdown voltage ( $V_{CEO} \geq 400V$ ).

#### Package Dimensions

unit:mm

2064



() : 2SA1785

#### Specifications

##### Absolute Maximum Ratings at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-)400	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)400	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)5	V
Collector Current	$I_C$		(-)1	A
Collector Current (Pulse)	$I_{CP}$		(-)2	A
Collector Dissipation	$P_C$		1	W
Junction Temperature	$T_J$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$

##### Electrical Characteristics at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)300V, I_E=0$			(-)1.0	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4V, I_C=0$			(-)1.0	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=(-)10V, I_C=(-)100mA$	40*		200*	
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)10V, I_C=(-)50mA$		(50)70		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=(-)30V, f=1MHz$		(12)8		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)200mA, I_B=(-)20mA$			(-)1.0	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)200mA, I_B=(-)20mA$			(-)1.0	V

\* : The 2SA1785/2SC4645 are classified by 100mA  $h_{FE}$  as follows :

40 C 80	60 D 120	100 E 200
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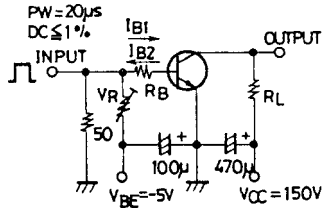
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

83198HA (KT)/12894TH AX-8287/5170TA (KOTO) 8-6910 No.3511-1/5

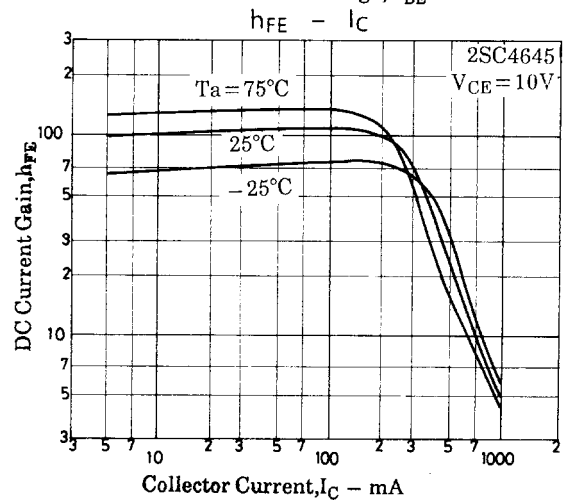
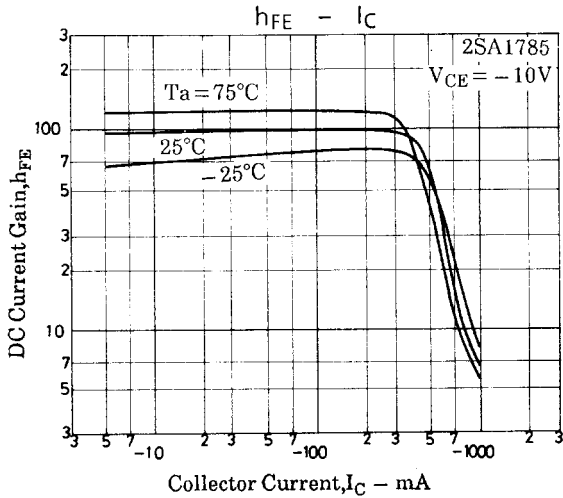
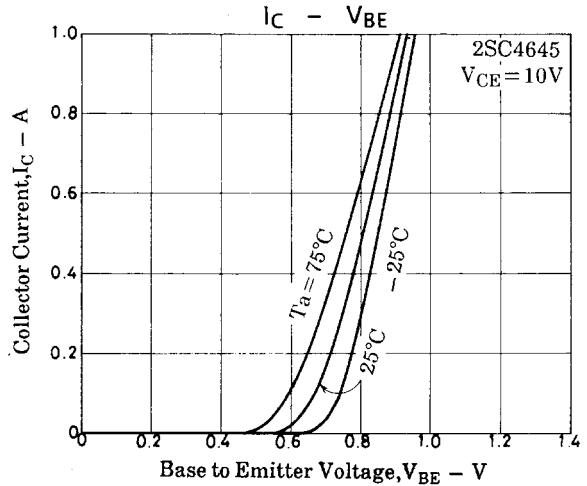
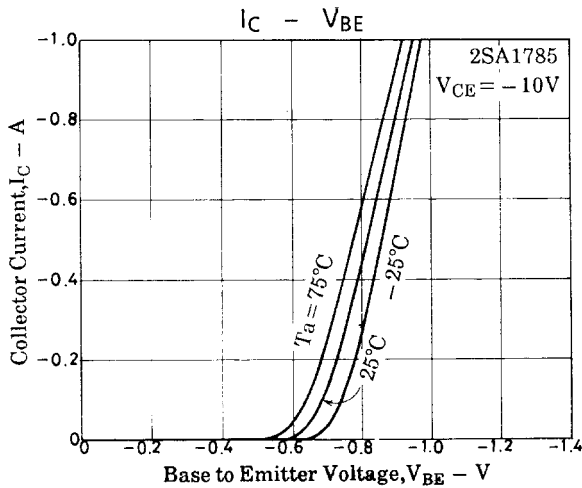
## 2SA1785/2SC4645

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-)400			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0$	(-)5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		(0.25)		$\mu s$
				0.11		$\mu s$
Storage Time	$t_{stg}$	See specified Test Circuit		(3.0)		$\mu s$
				4.0		$\mu s$
Fall Time	$t_f$	See specified Test Circuit		(0.3)		$\mu s$
				0.65		$\mu s$

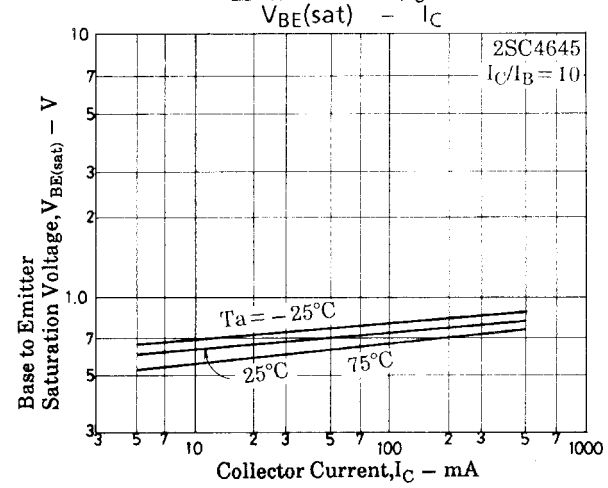
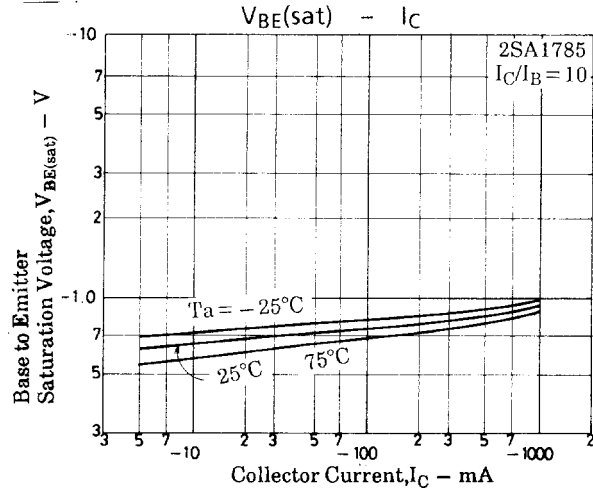
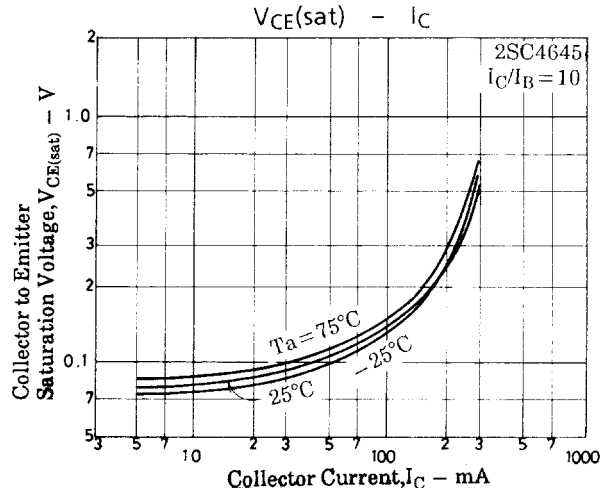
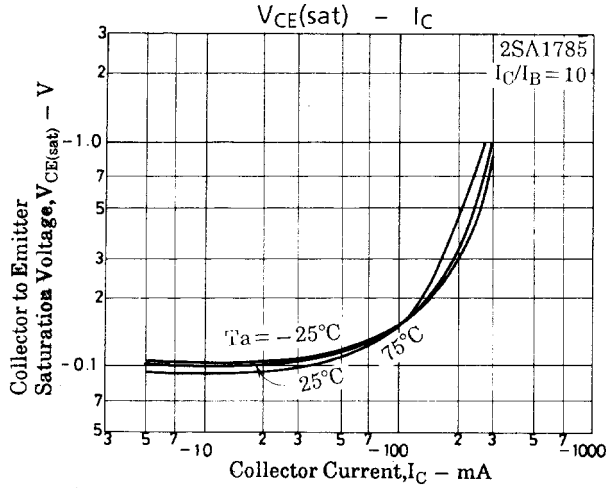
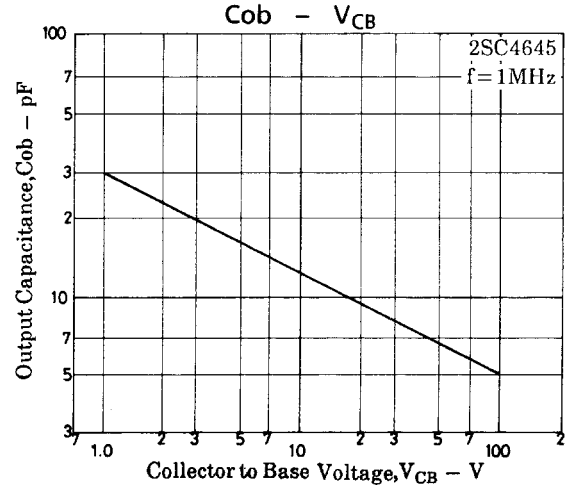
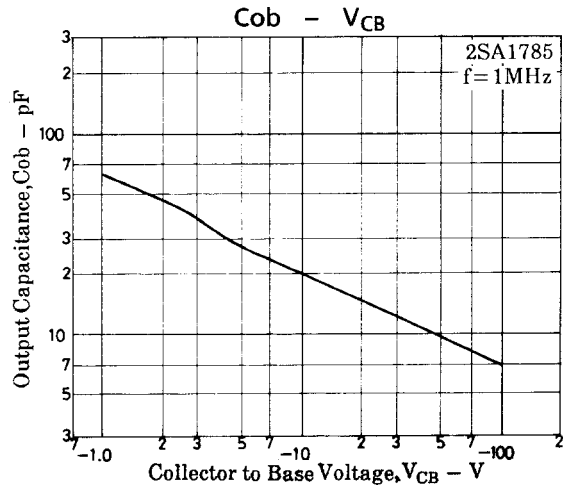
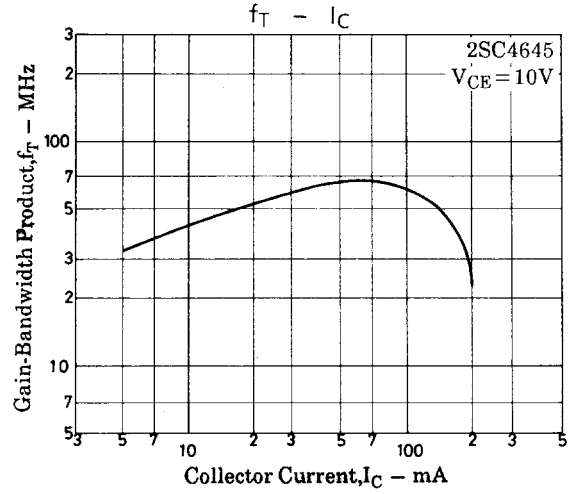
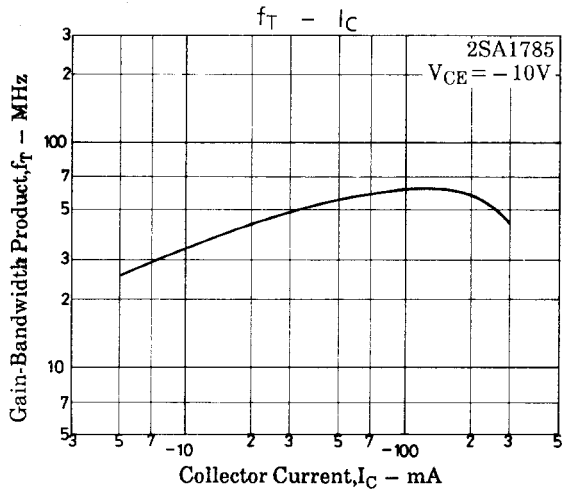
### Switching Time Test Circuit



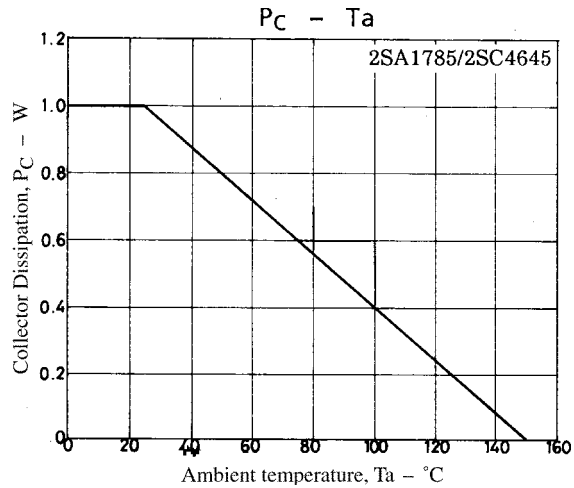
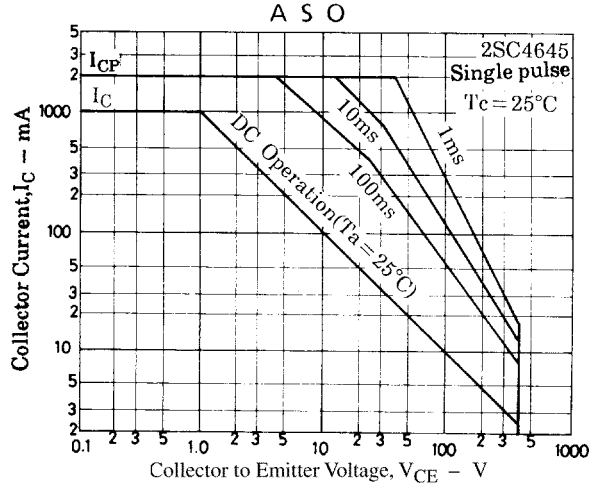
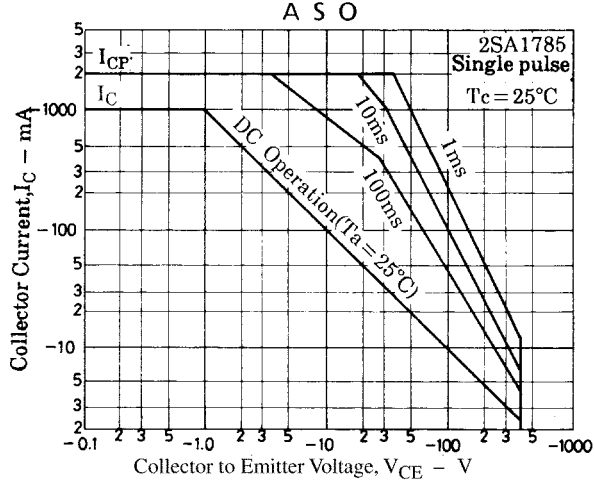
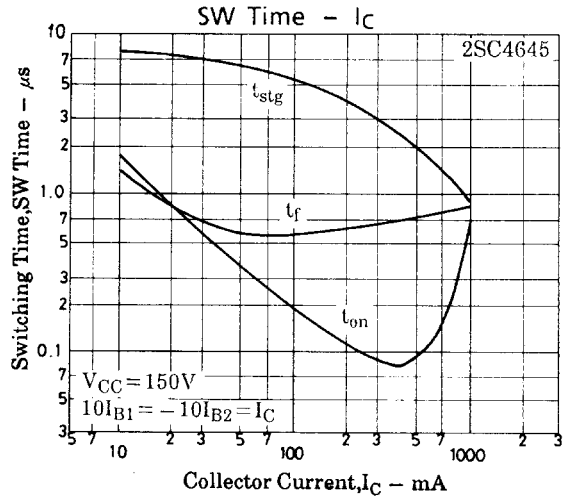
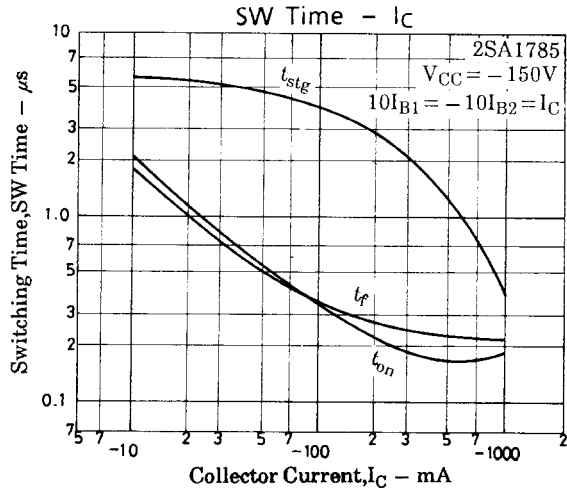
$10I_{B1} = -10I_{B2} = I_C = 200mA$   
 $R_L = 750\Omega, R_B = 50\Omega, \text{ at } I_C = 200mA$   
 (For PNP, the polarity is reversed.)  
 Unit (resistance :  $\Omega$ , capacitance : F)



# 2SA1785/2SC4645



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