



2SA1786/2SC4646

High Voltage Driver Applications

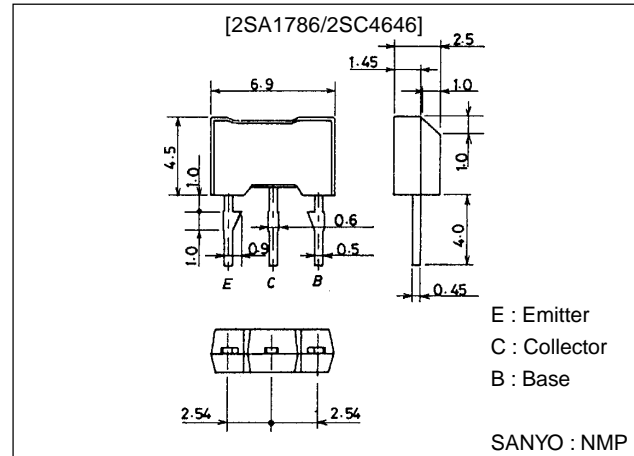
Features

- Large current capacity ($I_C=2A$).
- High breakdown voltage ($V_{CEO} \geq 400V$).

Package Dimensions

unit:mm

2064



() : 2SA1786

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		(-2)	A
Collector Current (Pulse)	I_{CP}		(-4)	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)	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4V, I_C = 0$			(-1.0)	μA
DC Current Gain	h_{FE}	$V_{CE} = (-)10V, I_C = (-)100mA$	40*		200*	
Gain-Bandwidth Product	f_T	$V_{CE} = (-)10V, I_C = (-)100mA$		(40)60		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)30V, f = 1MHz$		(25)15		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)500mA, I_B = (-)50mA$			(-1.0)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)500mA, I_B = (-)50mA$			(-1.0)	V

* : The 2SA1786/2SC4646 are classified by 100mA h_{FE} as follows :

40	C	80	60	D	120	100	E	200
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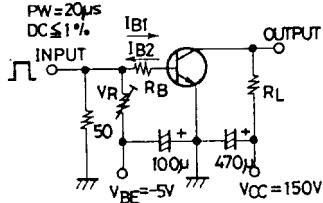
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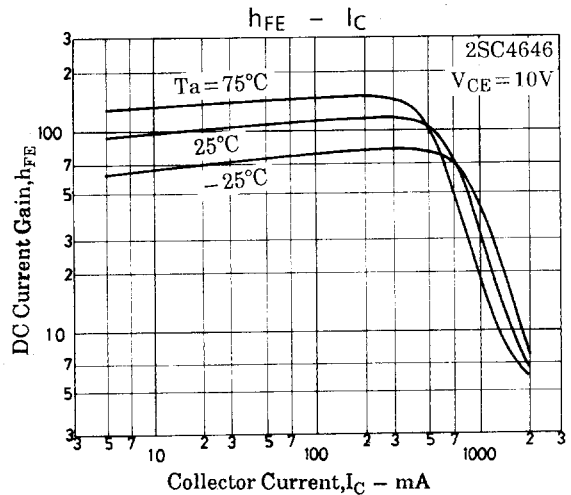
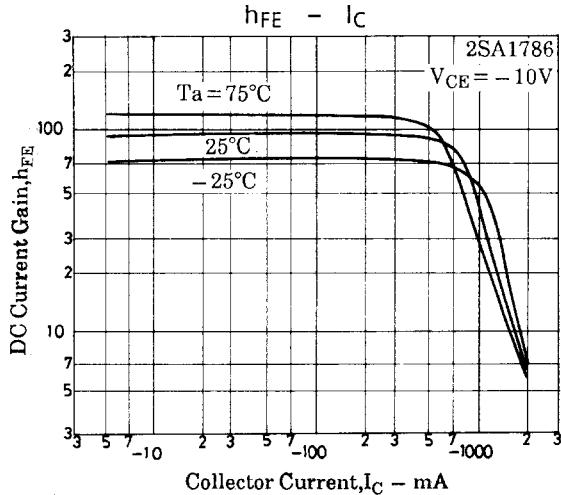
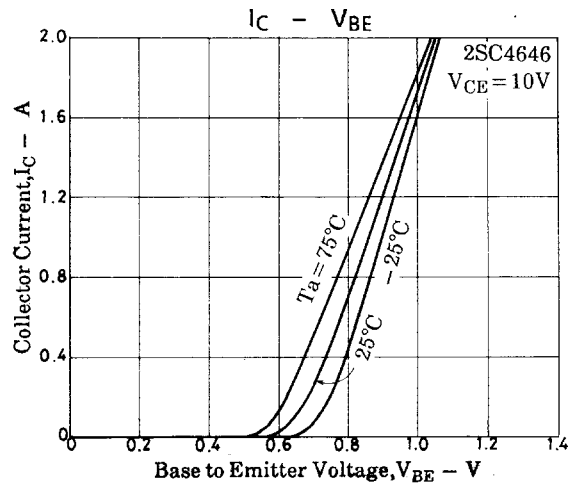
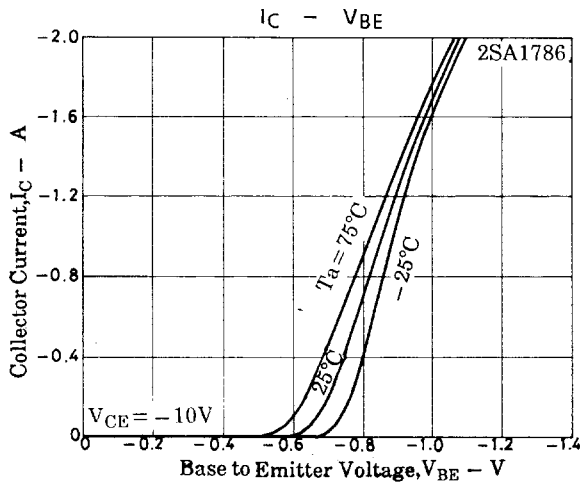
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-)400			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0$	(-)5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		(0.12)		μs
				0.085		μs
Storage Time	t_{stg}	See specified Test Circuit.		(3.0)		μs
				4.0		μs
Turn-OFF Time	t_{off}	See specified Test Circuit.		(0.3)		μs
				0.6		μs

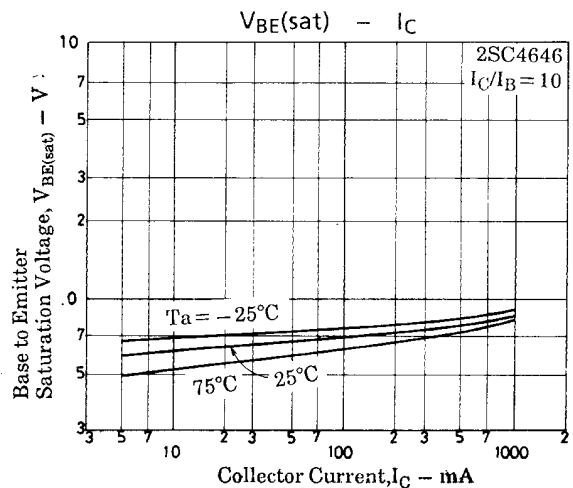
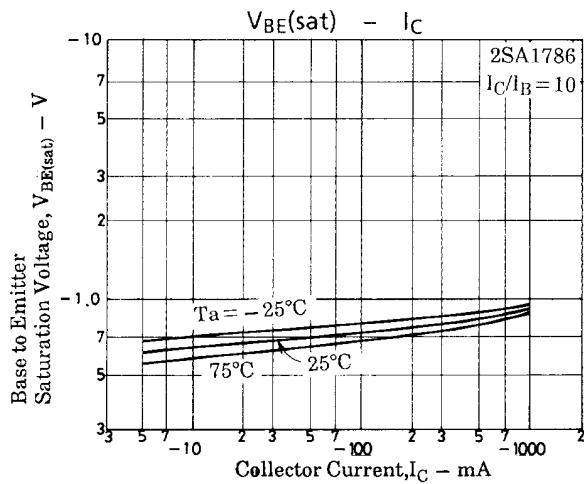
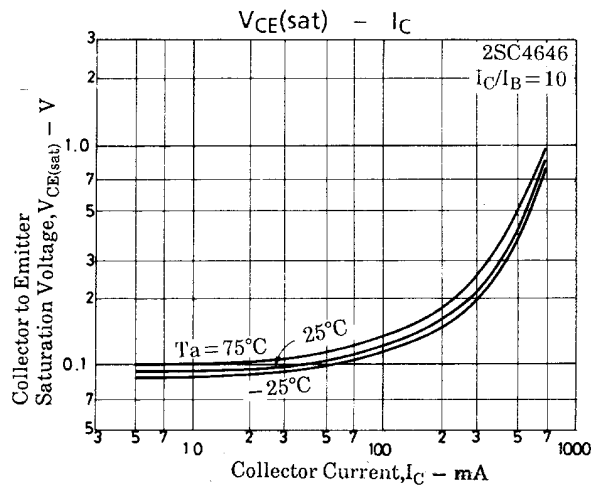
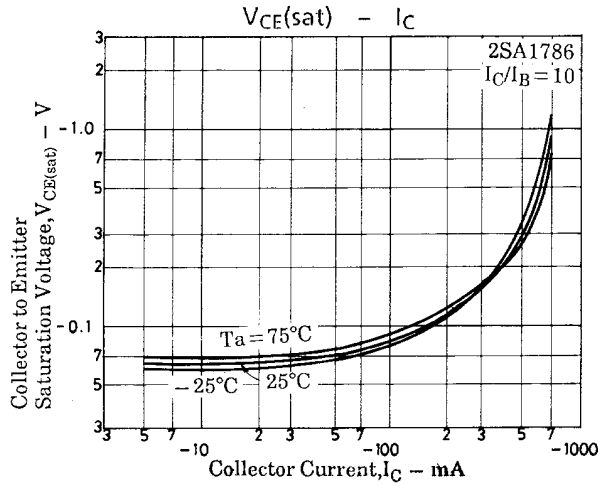
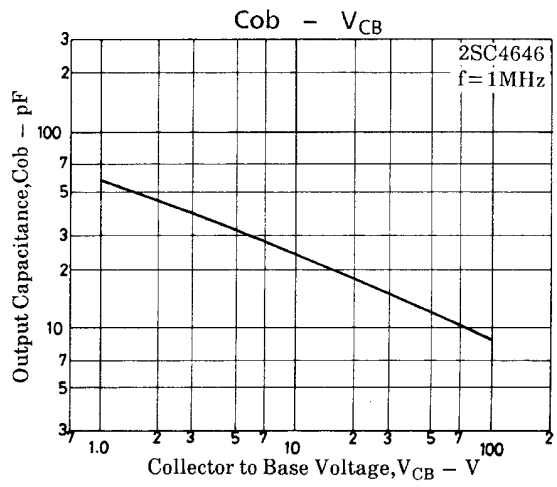
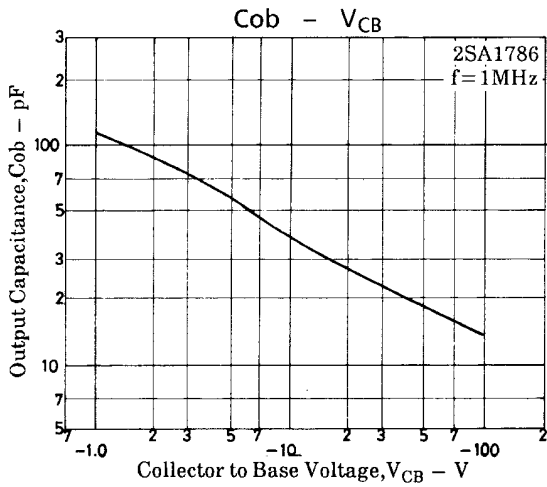
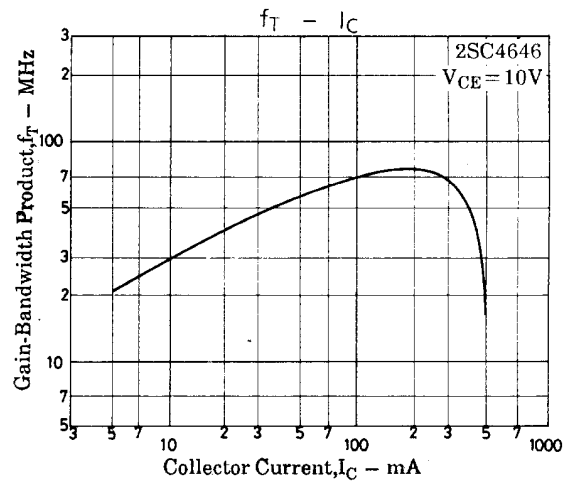
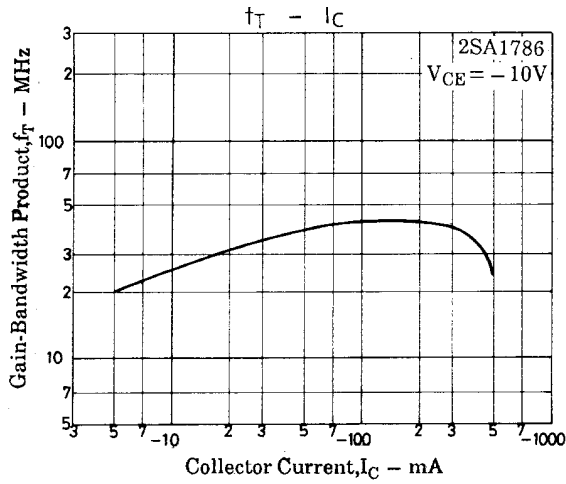
Switching Time Test Circuit



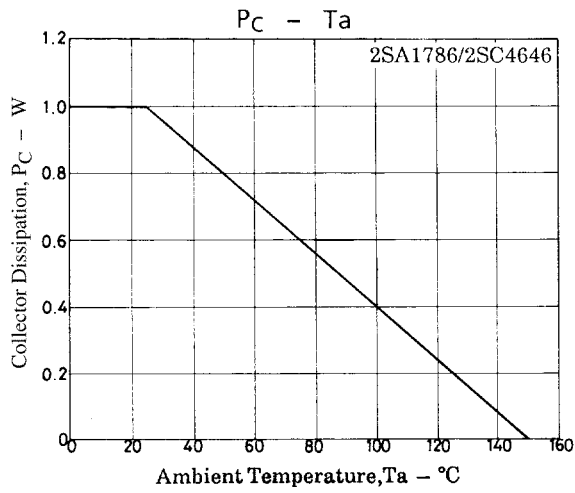
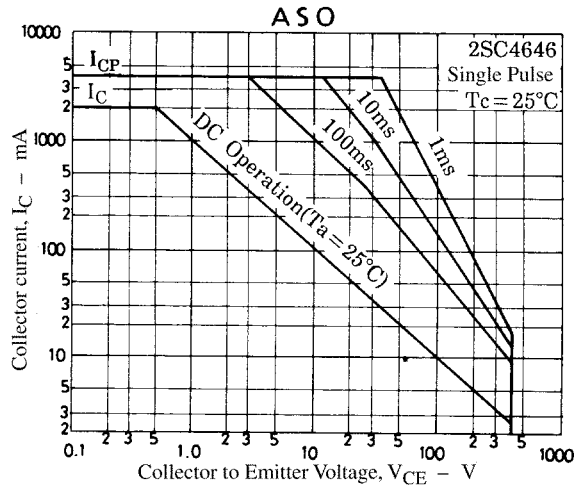
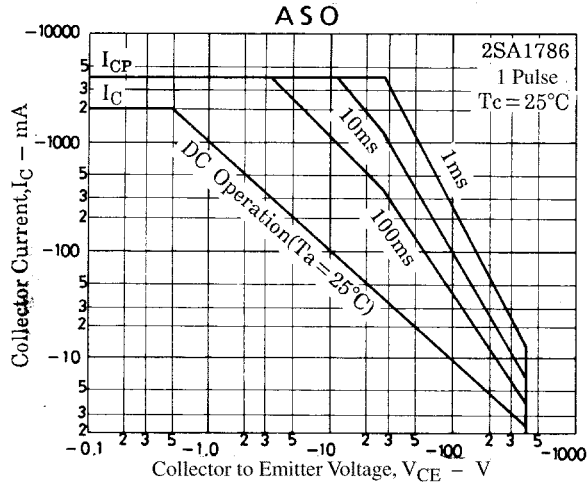
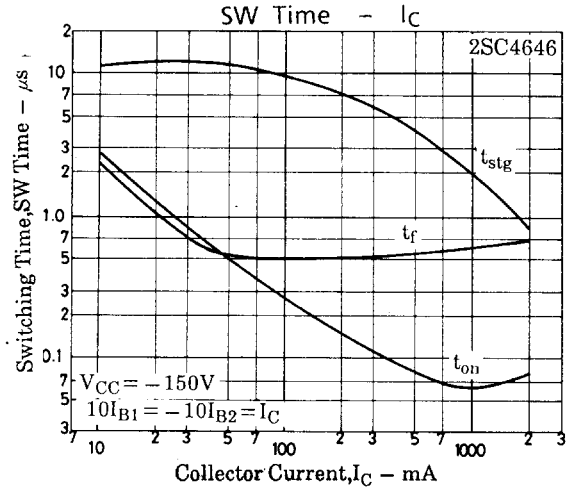
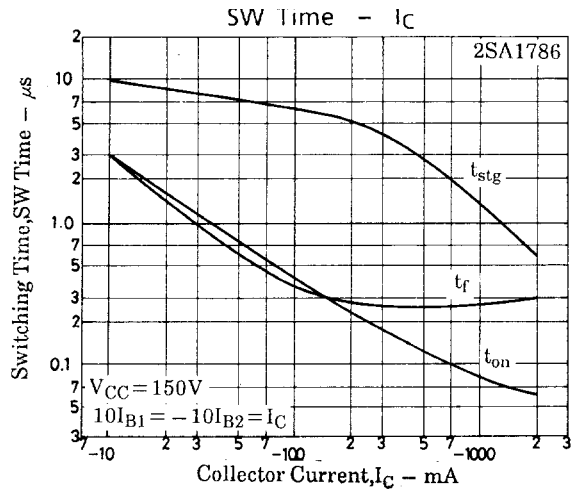
$10I_{B1} = -10I_{B2} = I_C = 500mA$
 $R_L = 300\Omega, R_B = 20\Omega, \text{ at } I_C = 500mA$
 (For PNP, the polarity is reversed.)
 Unit (resistance : Ω , capacitance : F)



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