

High Voltage Driver Applications

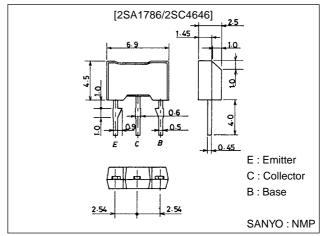
Features

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

Package Dimensions

unit:mm

2064



(): 2SA1786

Specifications

Absolute Maximum Ratings at Ta = 25°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	IC		(-)2	Α
Colletor Current (Pulse)	I _{CP}		(-)4	Α
Collector Dissipation	PC		1	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

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Parameter	Symbol	Conditions		Ratings				
			min	typ	max	Unit		
Collector Cutoff Current	I _{CBO}	V _{CB} =(-)300V, I _E =0			(–)1.0	μΑ		
Emitter Cutoff Current	I _{EBO}	V _{EB} =(-)4V, I _C =0			(–)1.0	μΑ		
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	VCE(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		

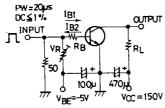
 $[\]mbox{\ensuremath{^{*}}}$: The 2SA1786/2SC4646 are classified by 100mA $\mbox{\ensuremath{h_{FE}}}$ as follows :

40 C 80 60 D 120 100 E 200

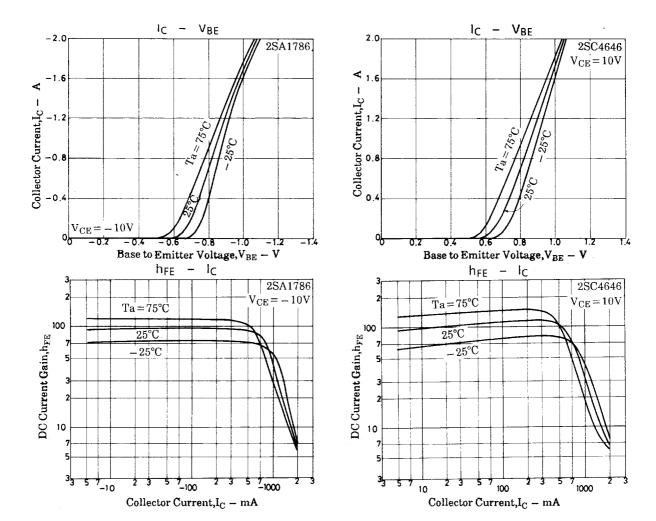
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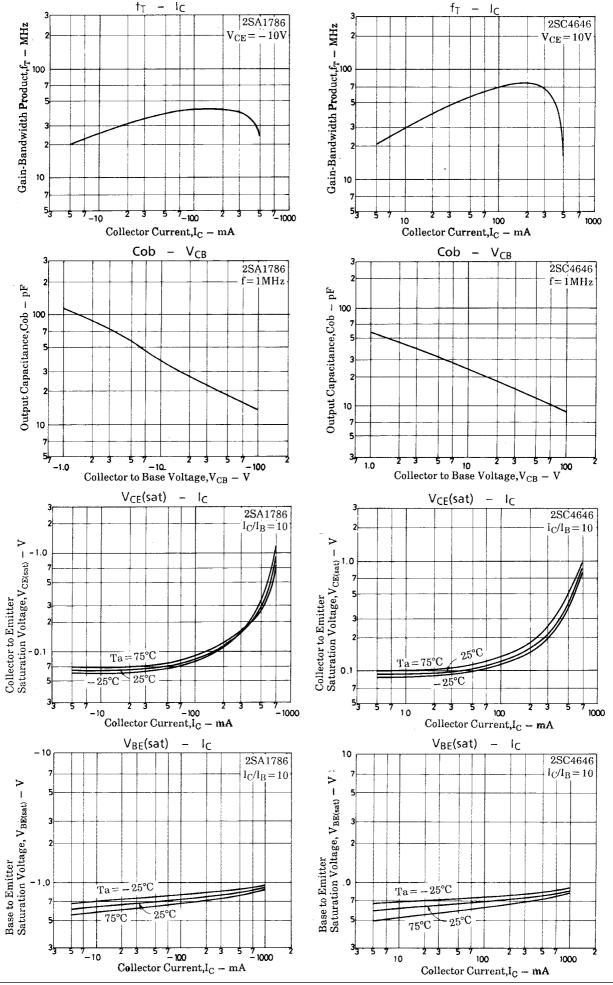
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	1 UIIII
Collector-to-Base Breakdown Voltage	V(BR)CBO	I _C =(-)10μA, I _E =0	(-)400			V
Collector-to-Emitter Breakdown Voltage	V _(BR) CEO	I _C =(-)1mA, R _{BE} =∞	(-)400			V
Emitter-to-Base Breakdown Voltage	V _{(BR)EBO}	$I_E=(-)10\mu A, I_C=0$	(–)5			V
Turn-ON Time	ton	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	toff	See specified Test Circuit.		(0.3)		μs
				0.6		μs

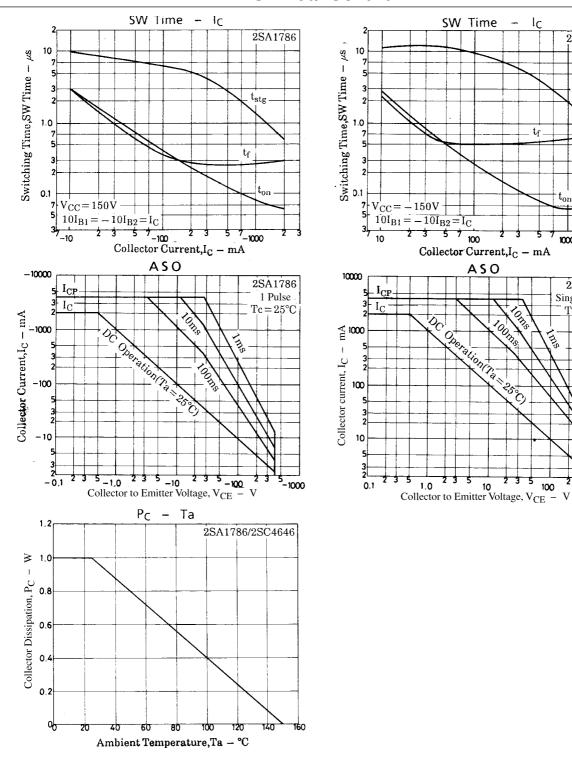
Switching Time Test Circuit



 $\begin{array}{l} 10I_{B1}=-10I_{B2}=I_{C}=500\text{mA}\\ R_{L}=300\Omega,\,R_{B}=20\Omega,\,\text{at}\,I_{C}=500\text{mA}\\ \text{(For PNP, the polarity is reversed.)}\\ \text{Unit (resistance}:\Omega,\,\text{capacitance}:F) \end{array}$







2SC4646

tstg_

1000

2SC4646

 $Tc = 25^{\circ}C$

1000

Single Pulse

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