



2SA1784/2SC4644

High Voltage Driver Applications

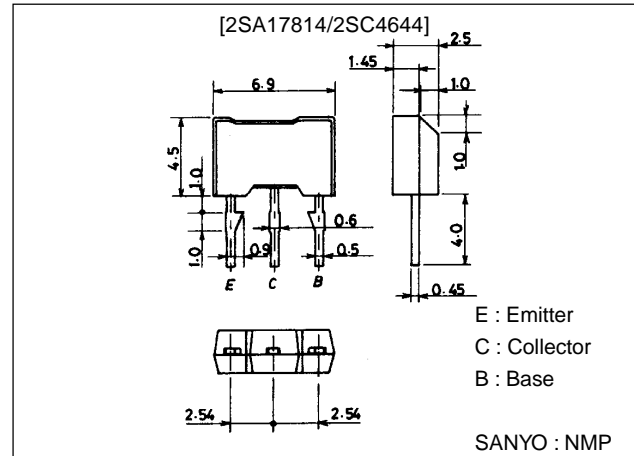
Features

- Adoption of MBIT process.
- High breakdown voltage ($V_{CEO} \geq 400V$).
- Excellent linearity of h_{FE} .

Package Dimensions

unit:mm

2064



() : 2SA1784

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		(-200)	mA
Collector Current (Pulse)	I_{CP}		(-400)	mA
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}	$V_{CB} = (-)300V, I_E = 0$			(-0.1)	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4V, I_C = 0$			(-0.1)	μA
DC Current Gain	h_{FE}	$V_{CE} = (-)10V, I_C = (-)50mA$	60*		200*	
Gain-Bandwidth Product	f_T	$V_{CE} = (-)30V, I_C = (-)10mA$		70		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)30V, f = 1MHz$		(5)4		pF
Reverse Transfer Capacitance	C_{re}	$V_{CB} = (-)30V, f = 1MHz$		(4)3		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)50mA, I_B = (-)5mA$			(-0.8)	V
					0.6	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)50mA, I_B = (-)5mA$			(-1.0)	V

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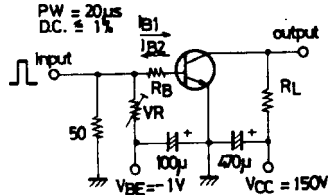
2SA1784/2SC4644

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		μs
Turn-OFF Time	t_{off}	See specified Test Circuit		5.0		μs

* : The 2SA1784/2SC4644 are classified by 50mA h_{FE} as follows :

60	D	120	100	E	200
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Switching Time Test Circuit

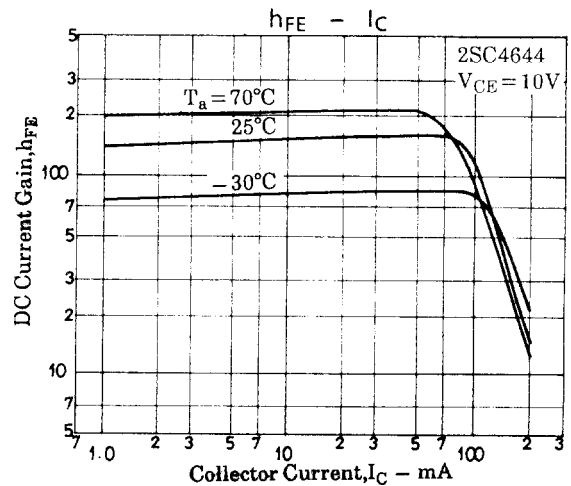
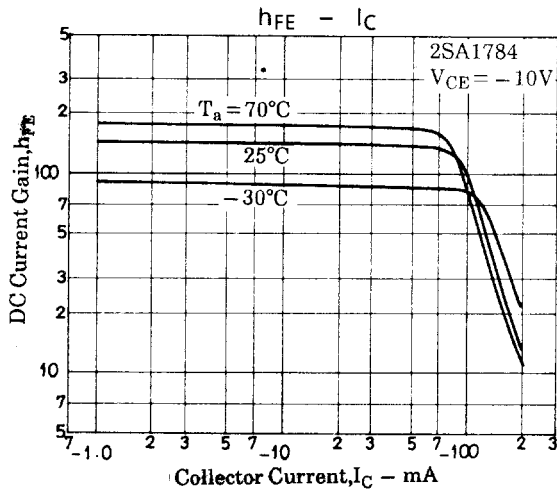
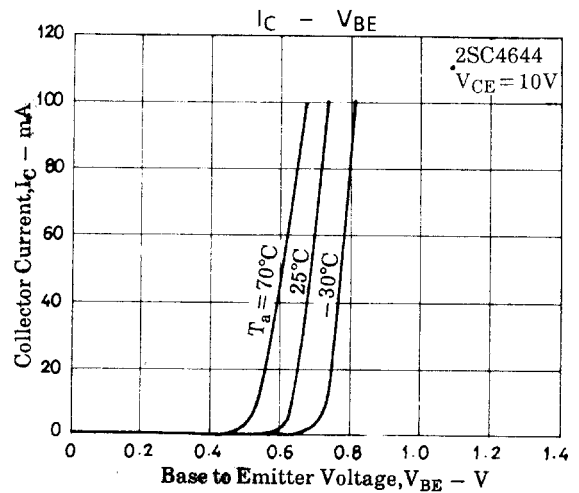
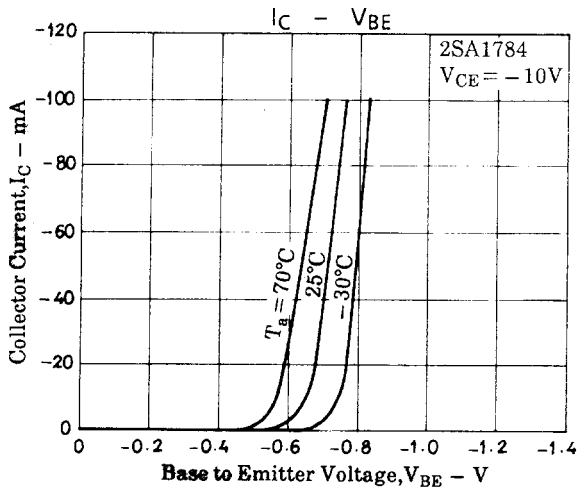


$$10I_{B1} = -10I_{B2} = I_C = 50mA$$

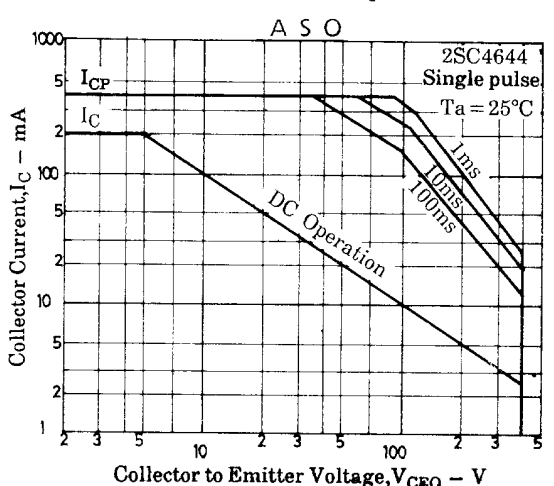
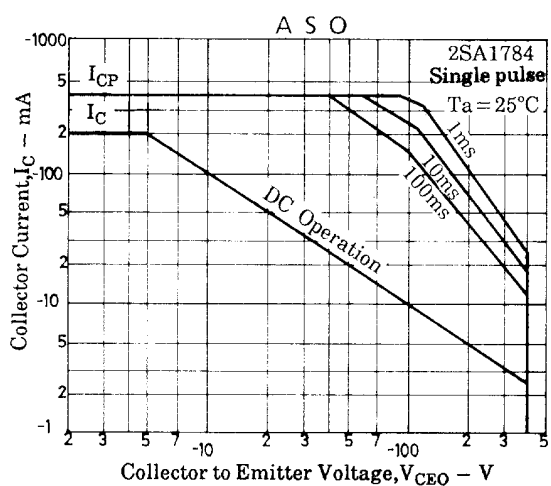
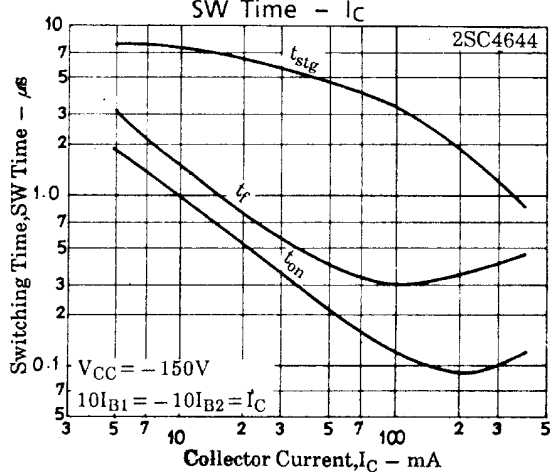
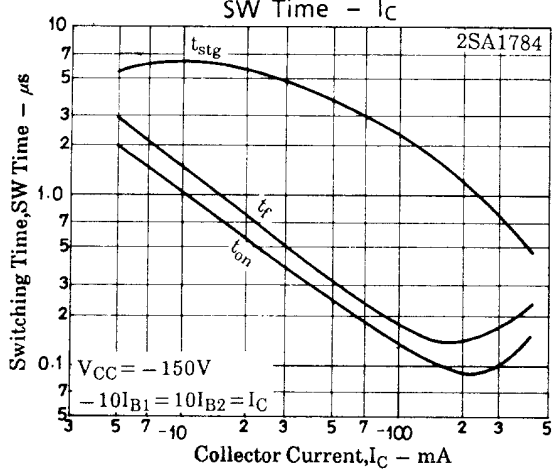
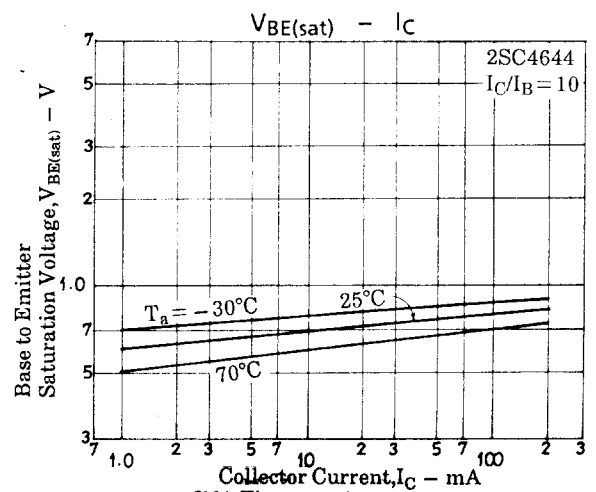
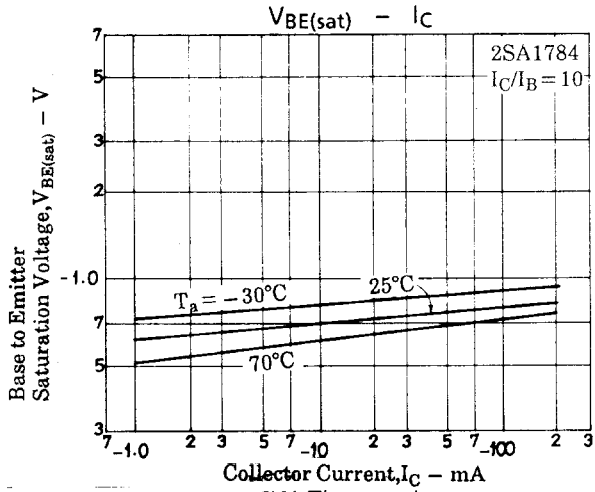
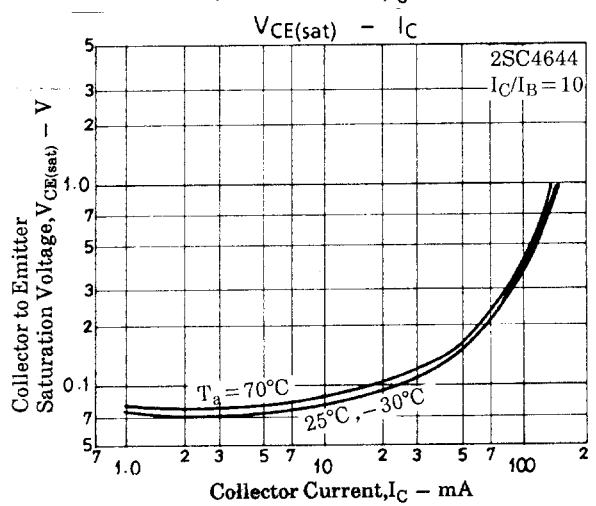
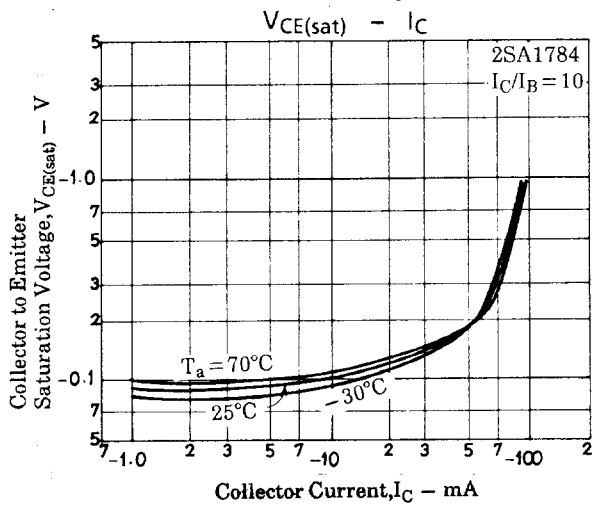
$$R_L = 3k\Omega, R_B = 200\Omega, \text{ at } I_C = 50mA$$

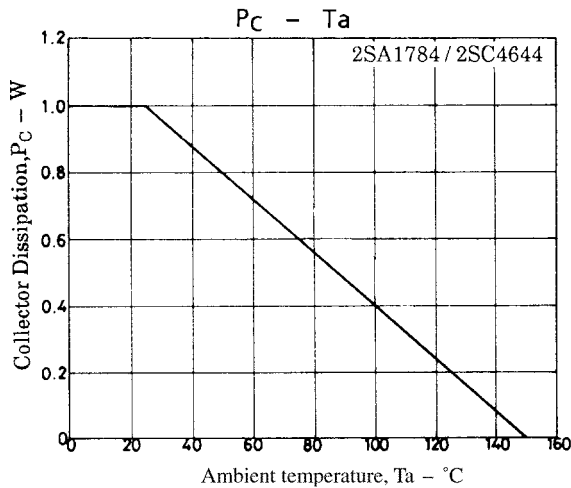
(For PNP, the polarity is reversed)

Unit (resistance : Ω , capacitance : F)



2SA1784/2SC4644





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