



## 2SA1740/2SC4548

### High-Voltage Driver Applications

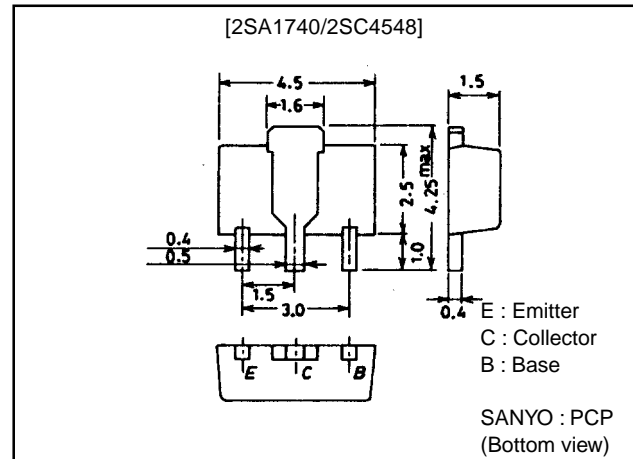
#### Features

- High breakdown voltage.
- Adoption of MBIT process.
- Excellent  $h_{FE}$  linearity.

#### Package Dimensions

unit:mm

2038



() : 2SA1740

#### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-)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	$P_C$	Mounted on ceramic board (250mm <sup>2</sup> ×0.8mm)	1.3	W
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)300\text{V}, I_E = 0$			(-)0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4\text{V}, I_C = 0$			(-)0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = (-)10\text{V}, I_C = (-)50\text{mA}$	60*		200*	
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)30\text{V}, I_C = (-)10\text{mA}$		70		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = (-)30\text{V}, f = 1\text{MHz}$		(5)4		pF
Reverse Transfer Capacitance	$C_{re}$	$V_{CB} = (-)30\text{V}, f = 1\text{MHz}$		(4)3		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)50\text{mA}, I_B = (-)5\text{mA}$			(-)0.8	V
					0.6	V

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# 2SA1740/2SC4548

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)50mA, I_B=(-)5mA$			(-) $1.0$	V
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		$\mu s$
Turn-OFF Time	$t_{off}$	See specified Test Circuit		5.0		$\mu s$

\* The 2SA1740/2SC4548 are classified by 50mA  $h_{FE}$  as follows :

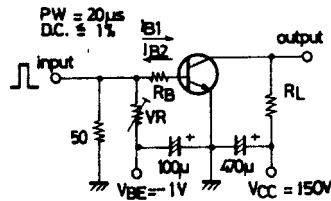
60	D	120	100	E	200
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Marking 2SA1740 : AK

2SC4548 : CN

$h_{FE}$  rank : D, E

## Switching Time Test Circuit

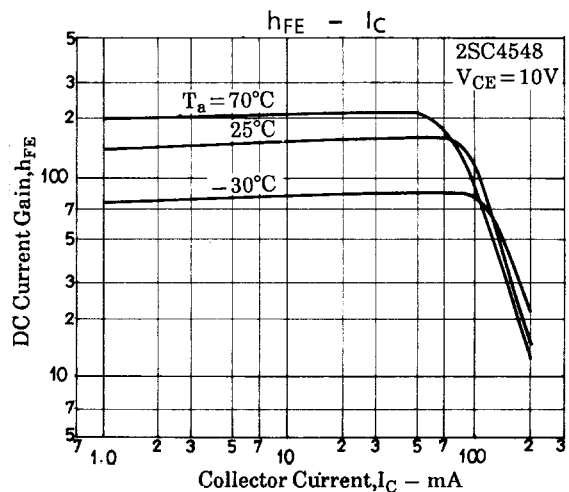
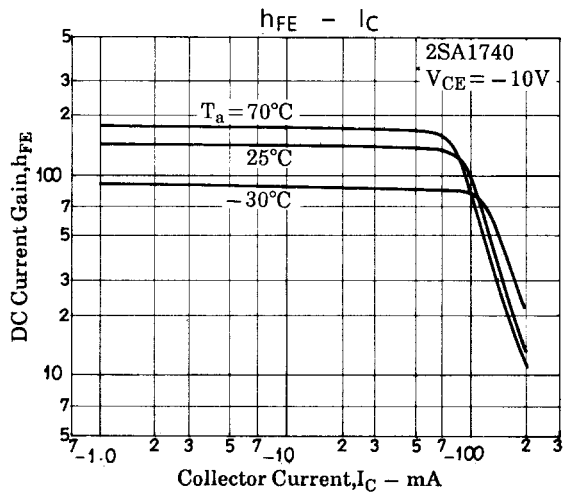
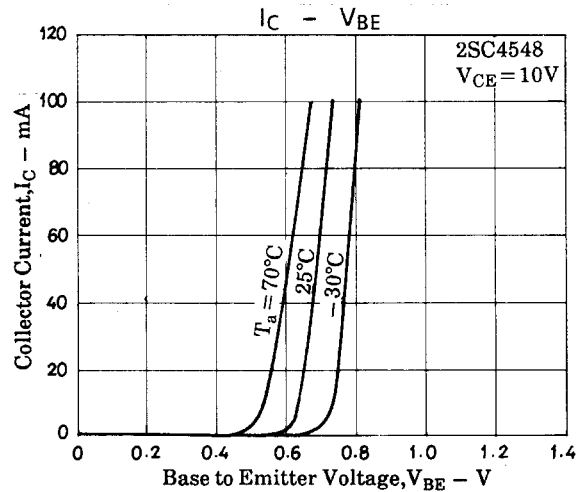
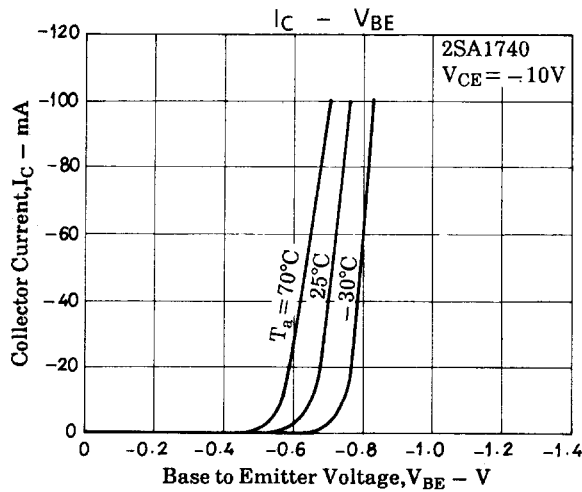


$$10I_{B1} = -10I_{B2} = I_C = 50mA$$

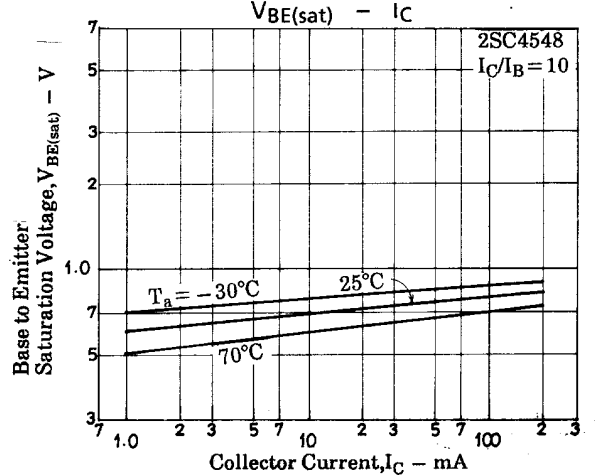
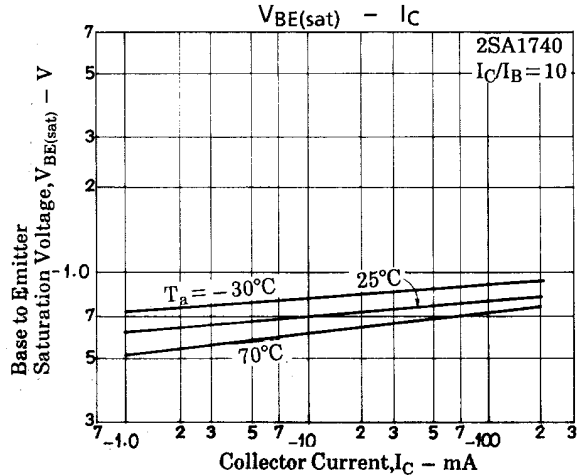
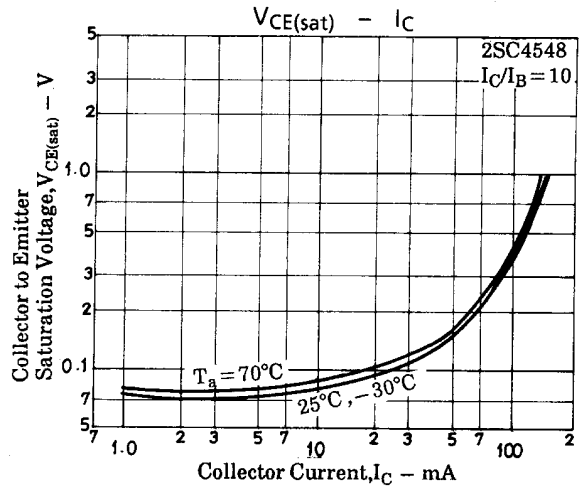
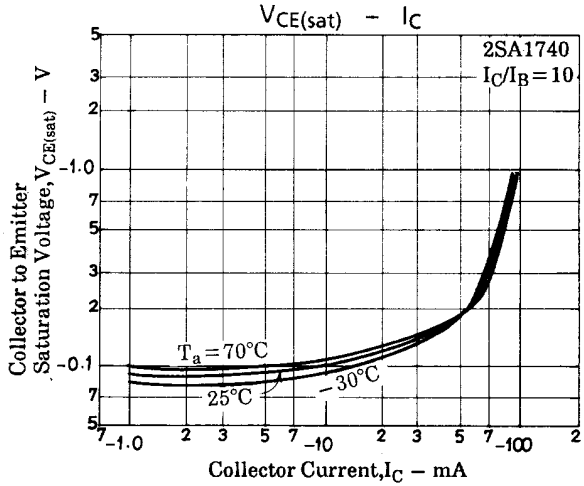
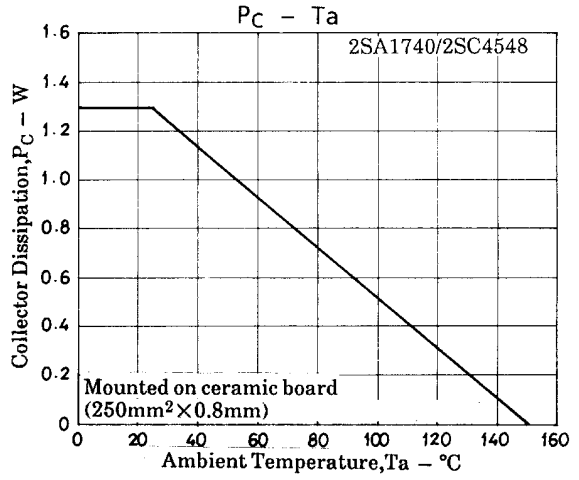
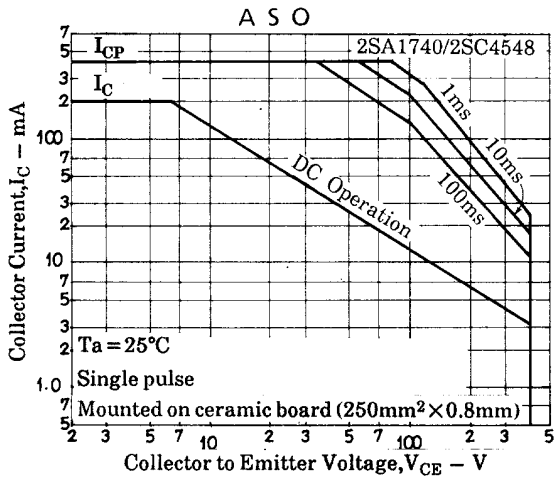
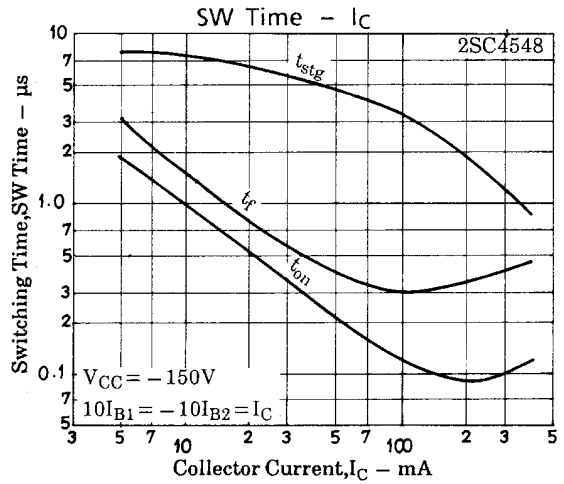
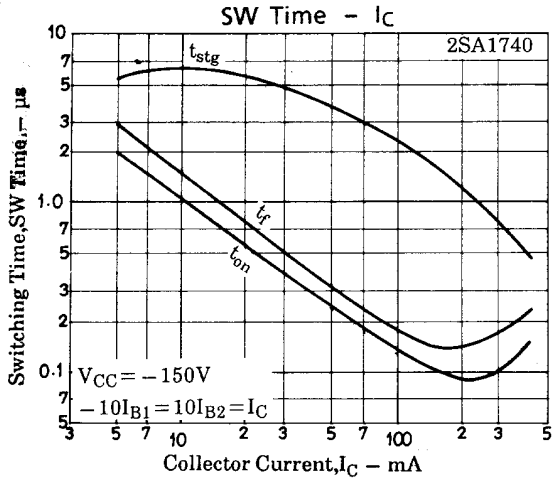
$$R_L = 3k\Omega, R_B = 200\Omega \text{ at } I_C = 50mA$$

For PNP, the polarity is reversed.

Unit (resistance :  $\Omega$ , capacitance : F)



# 2SA1740/2SC4548



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