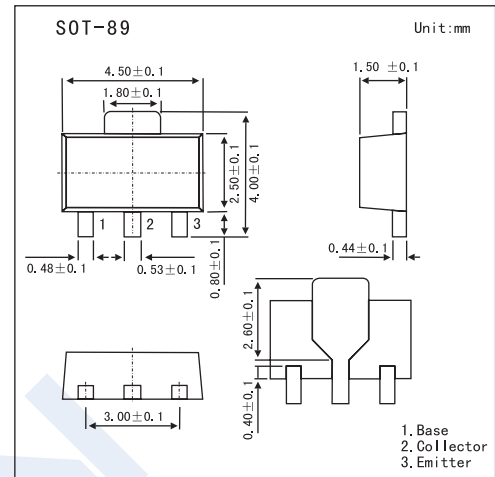


## High-Voltage Driver Applications

## 2SA1740

## ■ Features

- High Breakdown Voltage
- Adoption of MBIT Process
- Excellent  $h_{FE}$  Linearity.

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

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CB0}$	-400	V
Collector-Emitter Voltage	$V_{CE0}$	-400	V
Emitter-Base Voltage	$V_{EB0}$	-5	V
Collector Current	$I_C$	-200	mA
Collector Current (Pulse)	$I_{CP}$	-400	mA
Collector Power Dissipation	$P_C^*$	1.3	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature Range	$T_{stg}$	-55 to +150	$^\circ\text{C}$

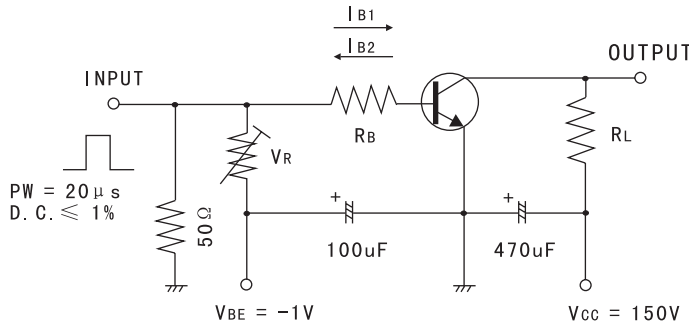
\* Mounted on ceramic board (250 mm<sup>2</sup> x 0.8 mm)

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

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = -300\text{V}$ , $I_E = 0$			-0.1	$\mu\text{A}$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = -4\text{V}$ , $I_C = 0$			-0.1	$\mu\text{A}$
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}$ , $I_E = 0$	-400			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}$ , $R_{BE} = \infty$	-400			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}$ , $I_C = 0$	-5			V
DC Current Gain	$h_{FE}$	$V_{CE} = -10\text{V}$ , $I_C = -50\text{mA}$	60		200	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -50\text{mA}$ , $I_B = -5\text{mA}$			-0.8	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -50\text{mA}$ , $I_B = -5\text{mA}$			-1.0	V
Gain-Bandwidth Product	$f_T$	$V_{CE} = -30\text{V}$ , $I_C = -10\text{mA}$		70		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = -30\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$		5		pF
Reverse Transfer Capacitance	$C_{re}$	$V_{CB} = -30\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$		4		pF
Turn-On Time	$t_{on}$	See Test Circuit.		0.25		$\mu\text{s}$
Turn-Off Time	$t_{off}$			5.0		

# 2SA1740

## Test Circuit

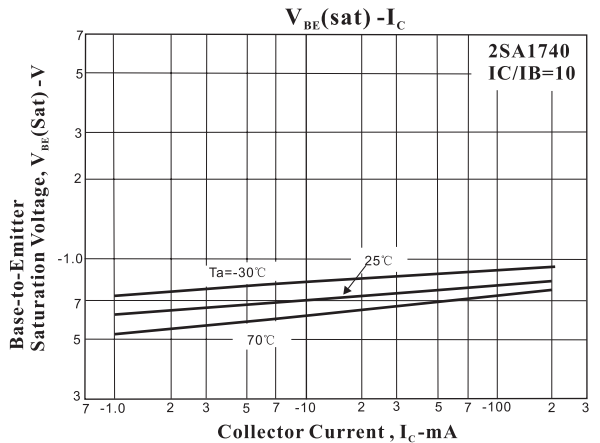
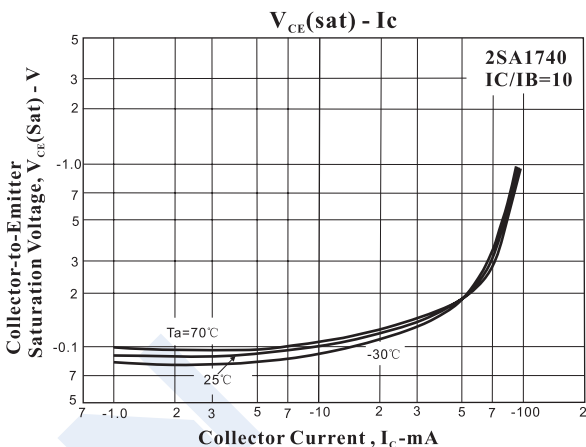
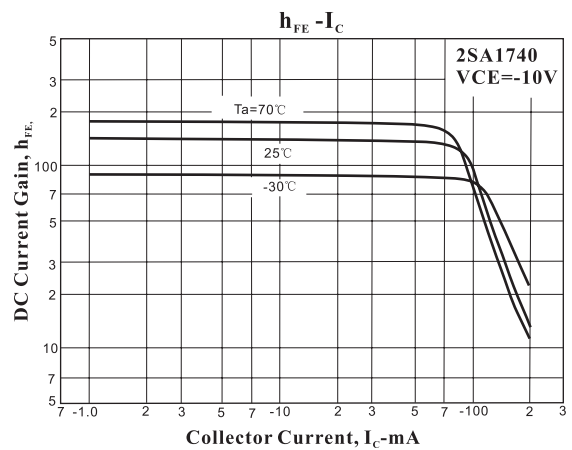
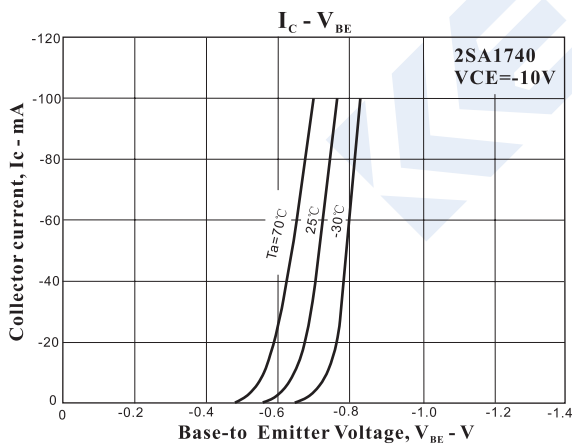


$10I_{B1} = -10I_{B2} = I_C = 50\text{mA}$   
 $R_L = 3\text{k}\Omega, R_B = 200\Omega$  at  $I_C = 50\text{mA}$   
 The polarity is reversed.

## hFE Classification

Marking	AK	
Rank	D	E
hFE	60 ~ 120	100 ~ 200

## Electrical Characteristics Curves



### 2SA1740

