



# 2SA1207/2SC2909

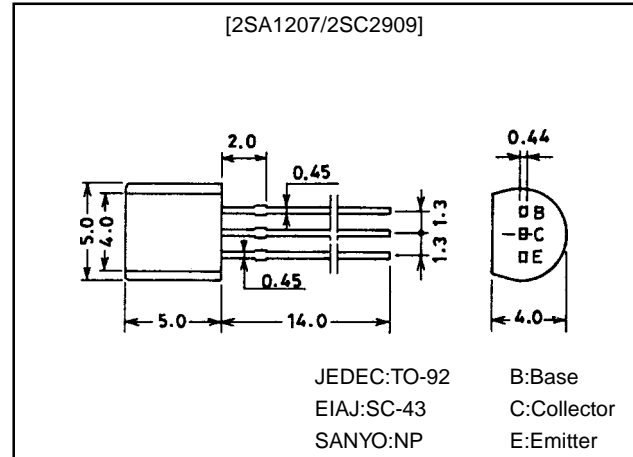
## High-Voltage Switching AF 60W Predriver Applications

### Features

- Adoption of FBET process.
- High breakdown voltage.
- Excellent linearity of  $h_{FE}$  and small  $C_{ob}$ .
- Fast switching speed.

### Package Dimensions

unit:mm  
2003A



( ) : 2SA1207

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-)180	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)160	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)5	V
Collector Current	$I_C$		(-)70	mA
Collector Current (Pulse)	$I_{CP}$		(-)140	mA
Collector Dissipation	$P_C$		600	mW
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

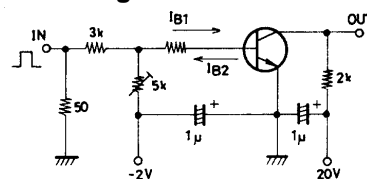
#### Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CB0}$	$V_{CB} = (-)80\text{V}, I_E = 0$			(-)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	$h_{FE}$	$V_{CE} = (-)5\text{V}, I_C = (-)10\text{mA}$	100*		400*	
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)10\text{V}, I_C = (-)10\text{mA}$		150		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = (-)10\text{V}, f = 1\text{MHz}$		(2.5)2.0		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)30\text{mA}, I_B = (-)3\text{mA}$		0.08 (-0.14)	0.3 (-0.4)	V
Turn-ON Time	$t_{on}$	See specified Test Circuit		0.1		$\mu\text{s}$
Fall Time	$t_f$	See specified Test Circuit		0.2		$\mu\text{s}$
Storage Time	$t_{stg}$	See specified Test Circuit		1.0		$\mu\text{s}$

\* : The 2SA1207/2SC2909 are classified by 10mA  $h_{FE}$  as follows :

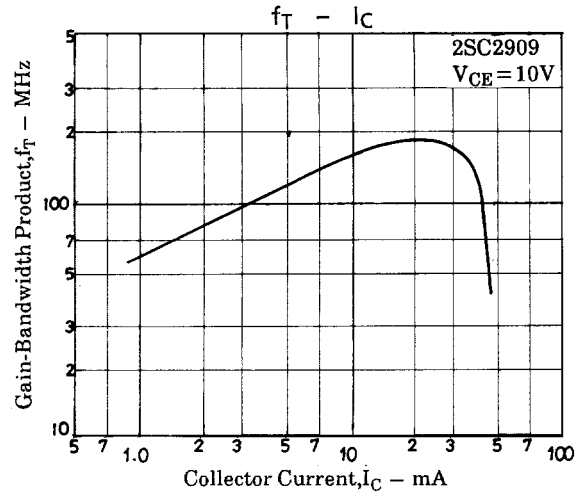
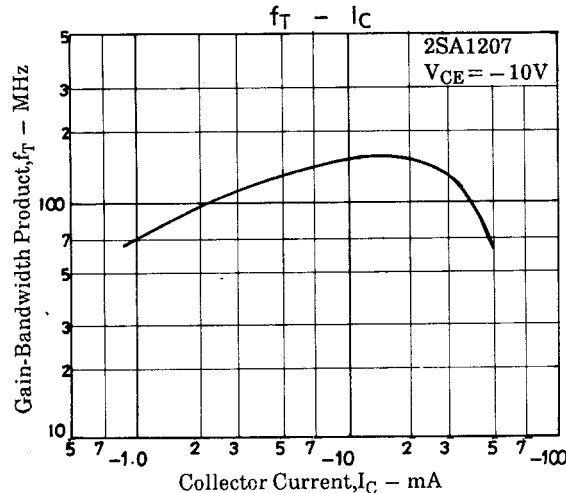
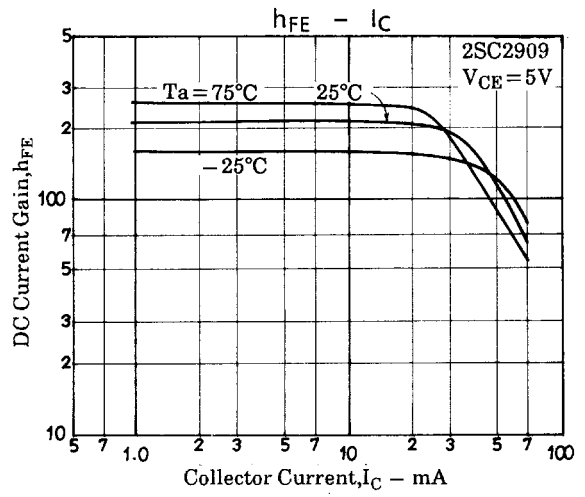
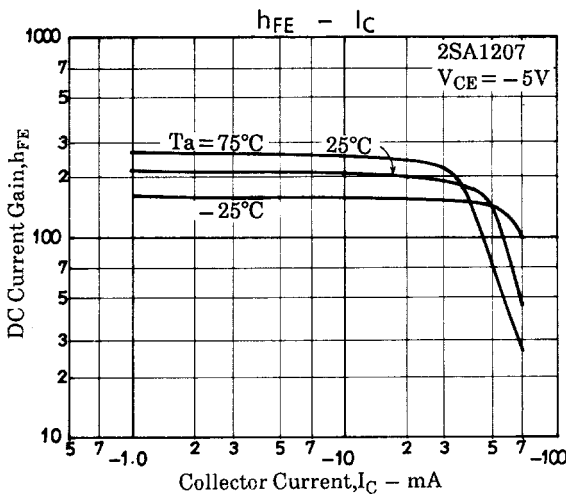
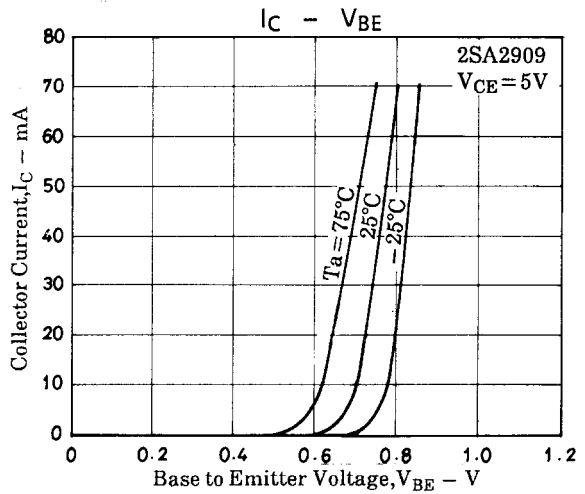
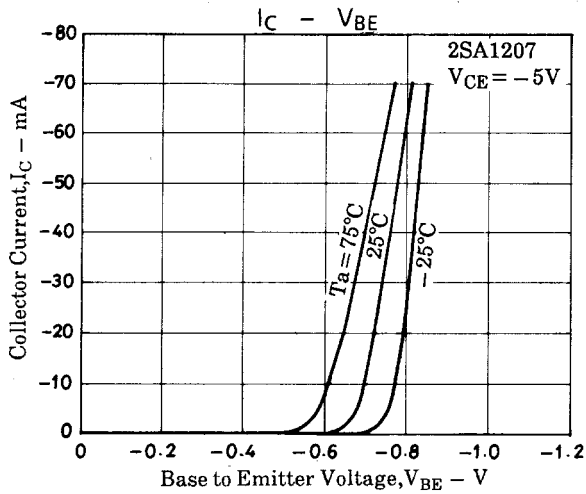
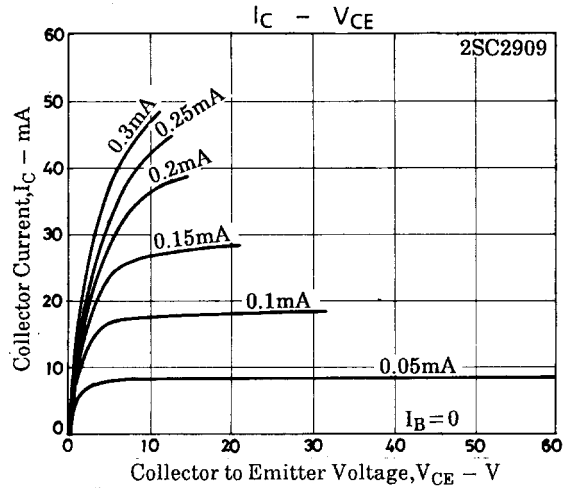
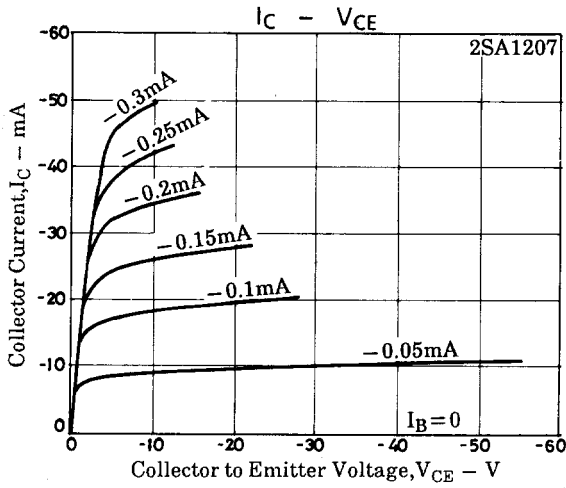
100	R	200	140	S	280	200	T	400
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#### Switching Time Test Circuit

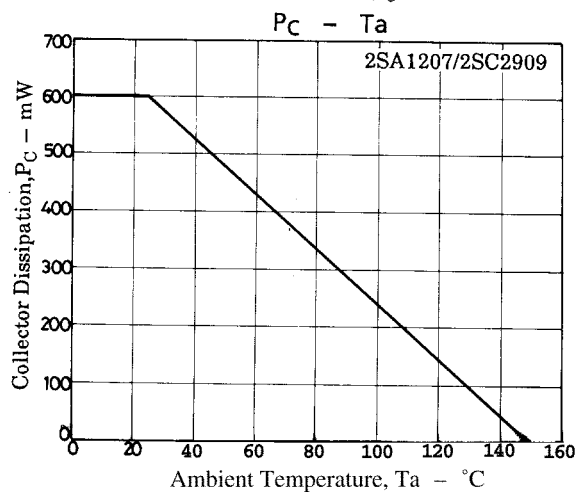
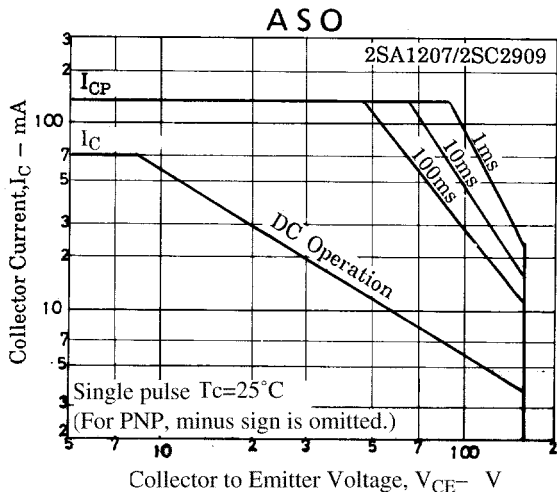
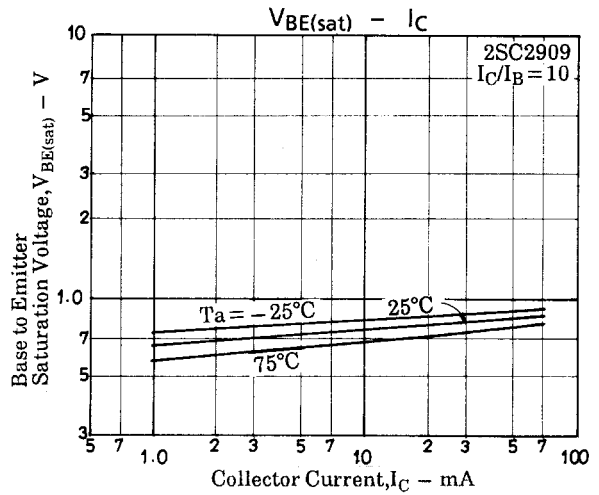
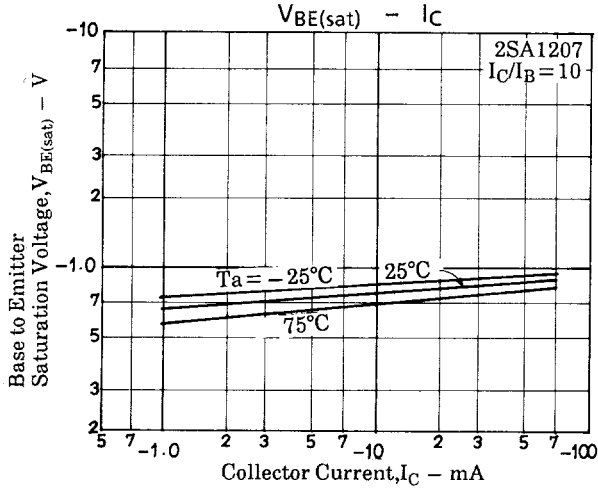
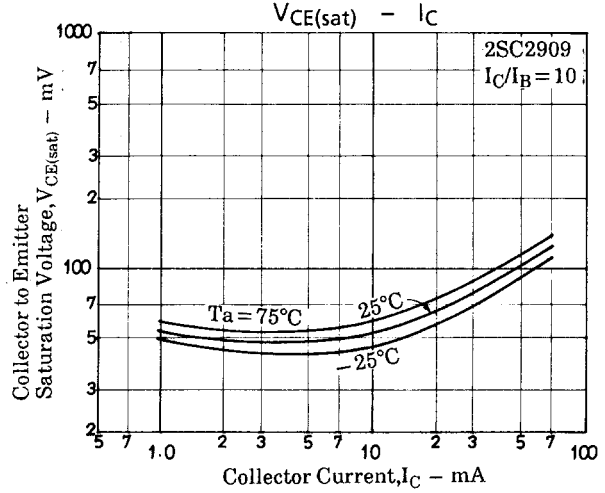
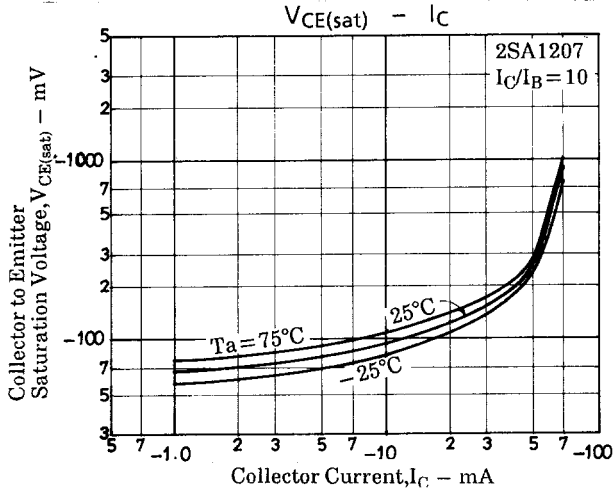
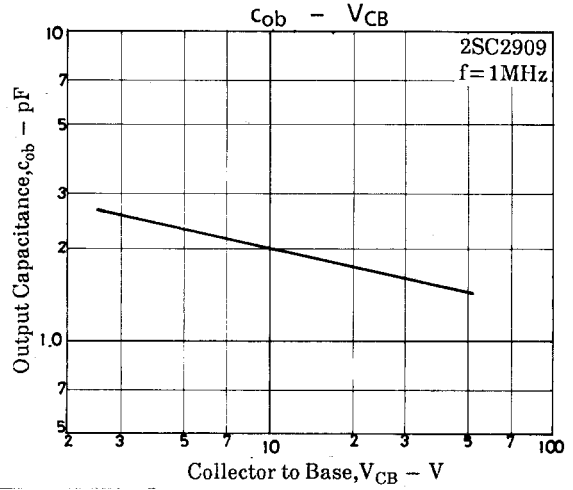
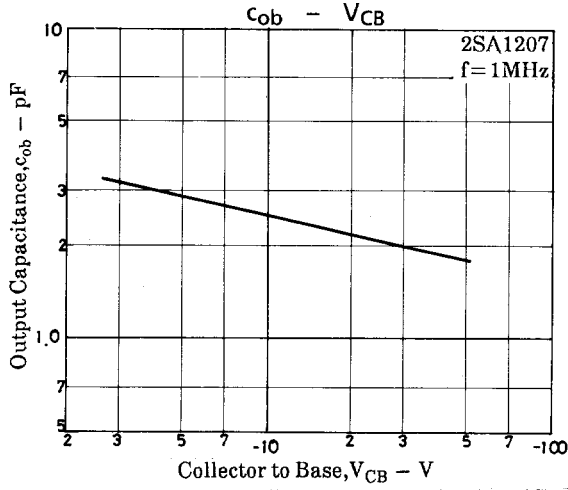


$I_C = 10\text{mA}, I_{B1} = -10\text{mA}, I_{B2} = 10\text{mA}$  (For PNP, the polarity is reversed)  
Unit (resistance :  $\Omega$ , capacitance : F)

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