



## High-hFE AF Amplifier Applications

### Applications

- AF amplifier, various drivers.

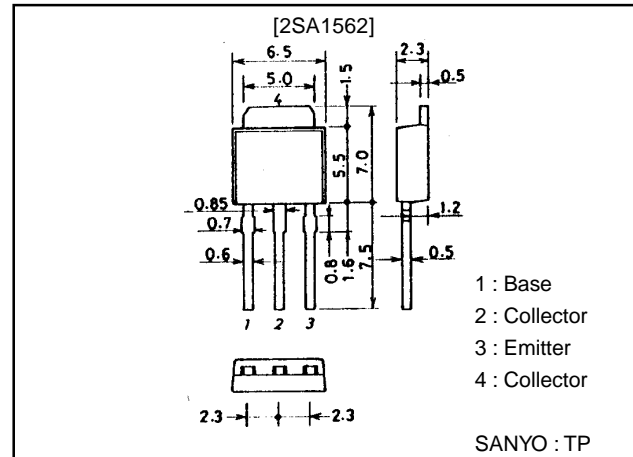
### Features

- Adoption of MBIT process.
- High DC current gain.
- Large current capacity.
- Low collector-to-emitter saturation voltage.
- High  $V_{EBO}$ .

### Package Dimensions

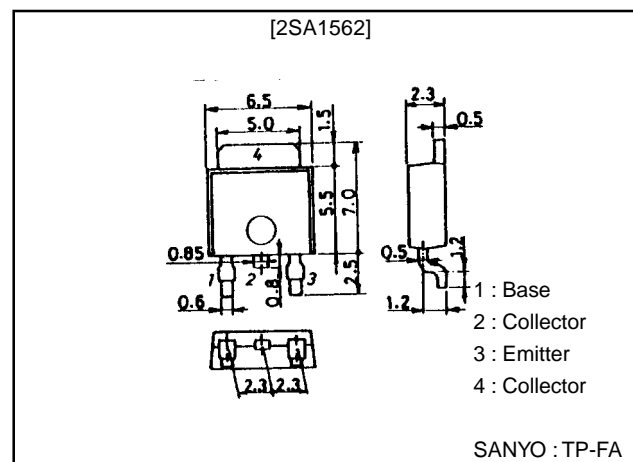
unit:mm

2045B



unit:mm

2044B



### Specifications

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

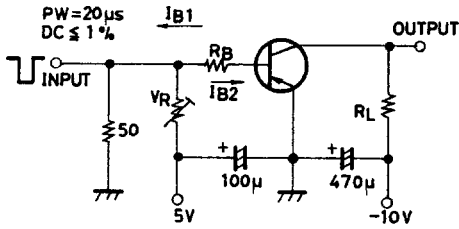
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		-30	V
Collector-to-Emitter Voltage	$V_{CEO}$		-25	V
Emitter-to-Base Voltage	$V_{EBO}$		-15	V
Collector Current	$I_C$		-1.2	A
Collector Current (Pulse)	$I_{CP}$		-2	A
Collector Dissipation	$P_C$		1	W
		$T_c=25^\circ\text{C}$	15	W
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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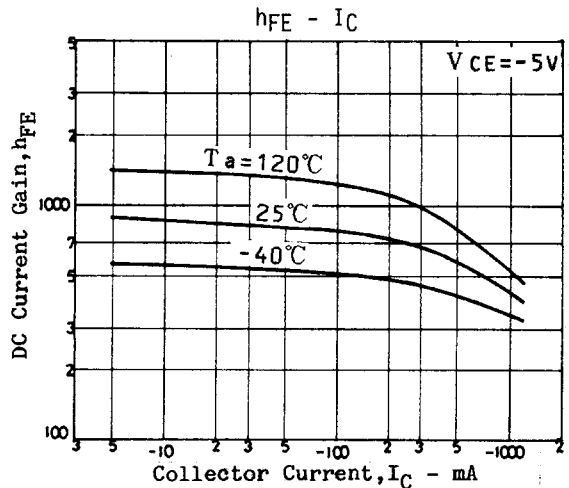
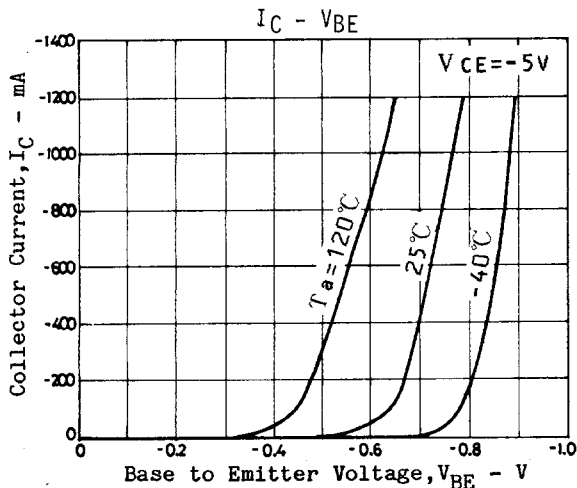
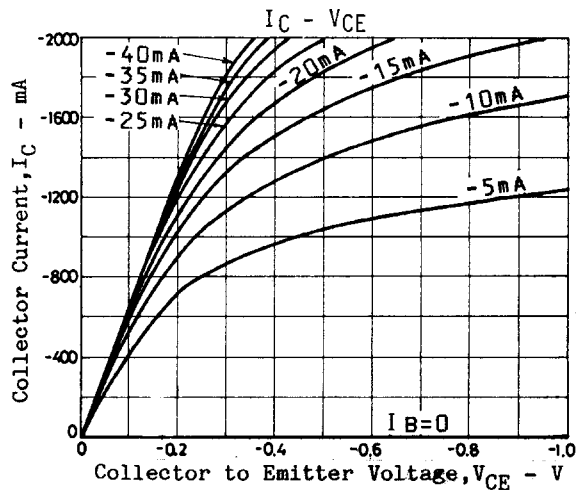
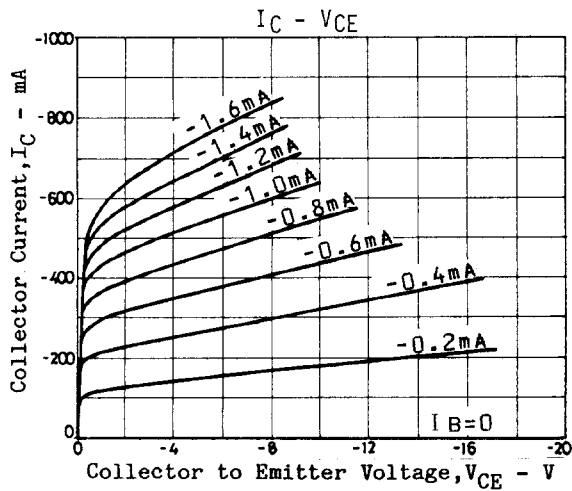
## Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-20\text{V}, I_E=0$			-1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-10\text{V}, I_C=0$			-1	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=-5\text{V}, I_C=-100\text{mA}$	500	800	1200	
	$h_{FE2}$	$V_{CE}=-5\text{V}, I_C=-10\text{mA}$	350			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10\text{V}, I_C=-50\text{mA}$		130		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-10\text{V}, f=1\text{MHz}$		40		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}, I_B=-10\text{mA}$		-0.1	-0.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-500\text{mA}, I_B=-10\text{mA}$		-0.78	-1.1	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\text{A}, I_E=0$	-30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	-25			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	-15			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		0.31		$\mu\text{s}$
Storage Time	$t_{stg}$	See specified Test Circuit.		0.88		$\mu\text{s}$
Fall Time	$t_f$	See specified Test Circuit.		0.23		$\mu\text{s}$

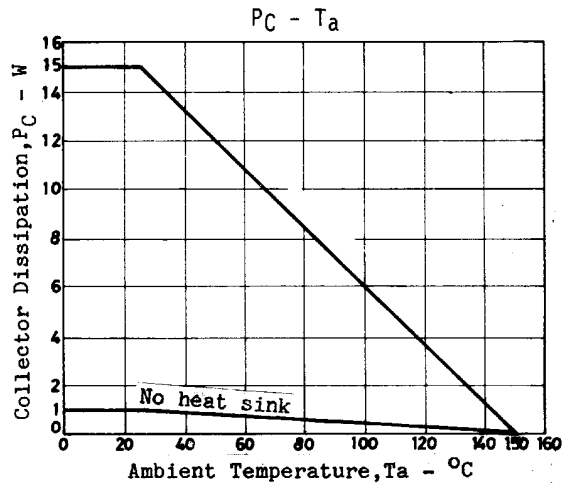
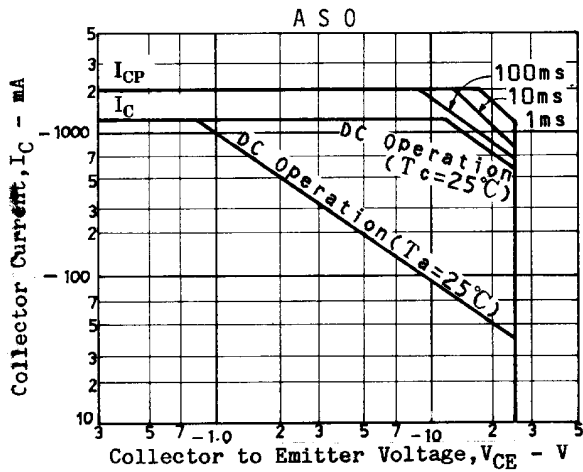
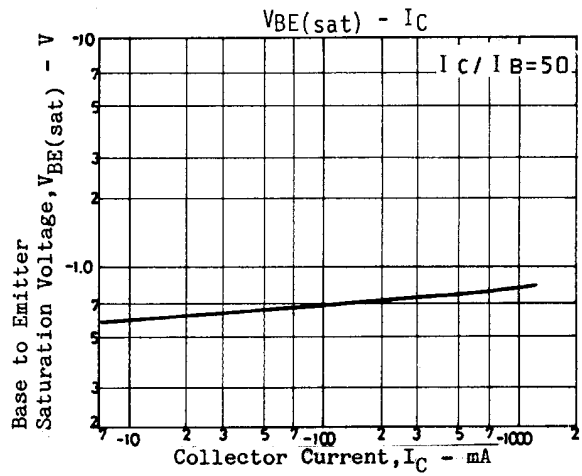
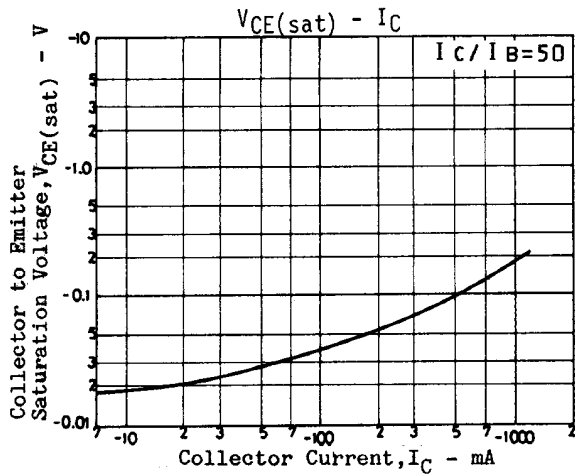
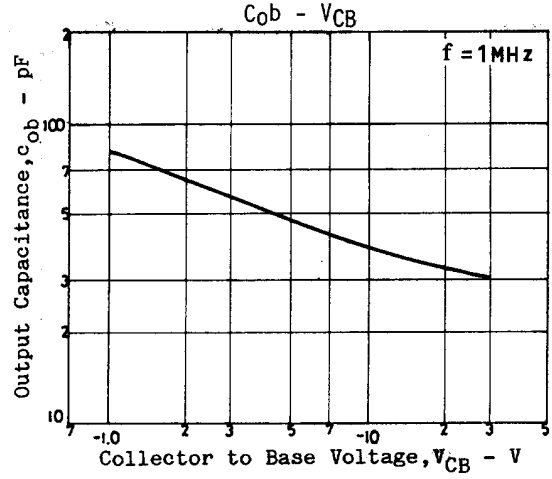
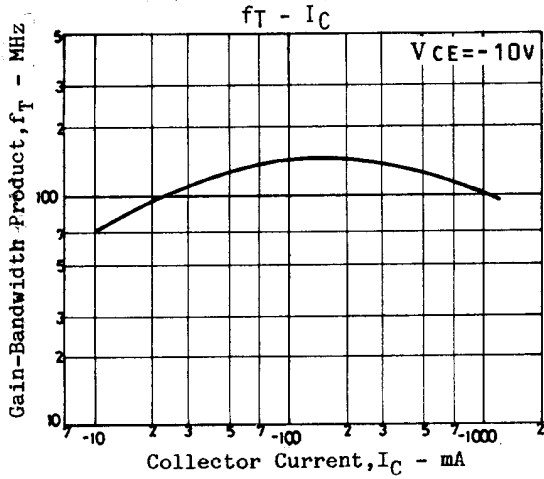
## Switching Time Test Circuit



$-100 I_{B1} = 100 I_{B2} = I_C = -700\text{mA}$   
Unit (resistance :  $\Omega$ , capacitance : F)



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