



## 2SA1707/2SC4487

### High-Current Switching Applications

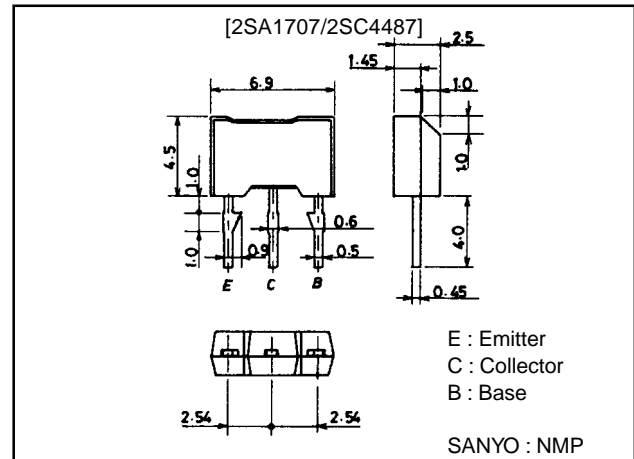
#### Features

- Adoption of FBET, MBIT processes.
- Large current capacity, wide ASO.
- Low collector-to-emitter saturation voltage.
- Fast switching speed.

#### Package Dimensions

unit:mm

2064



() : 2SA1707

#### Specifications

##### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-60)	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-50)	V
Emitter-to-Base Voltage	$V_{EBO}$		(-6)	V
Collector Current	$I_C$		(-3)	A
Collector Current (Pulse)	$I_{CP}$		(-6)	A
Collector Dissipation	$P_C$		1	W
Junction Temperature	$T_j$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

##### Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)40V, I_E = 0$			(-1)	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4V, I_C = 0$			(-1)	$\mu A$
DC Current Gain	$h_{FE1}$	$V_{CE} = (-)2V, I_C = (-)100mA$	100*		400*	
	$h_{FE2}$	$V_{CE} = (-)2V, I_C = (-)3A$	35			
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)10V, I_C = (-)50mA$		150		MHz

\* : 2SA1707/2SC4487 are classified by 100mA  $h_{FE}$  as follows :

100 R	200	140 S	280	200 T	400
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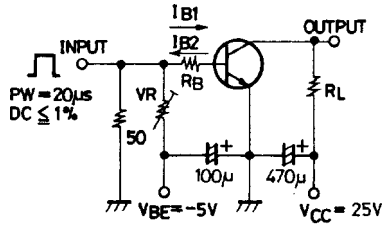
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)2A, I_B=(-)100mA$		(-0.35)	(-0.7)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2A, I_B=(-)100mA$		(-)0.95	(-)1.2	V
Output Capacitance	$C_{ob}$	$V_{CB}=(-)10V, f=1MHz$		(39)25		pF
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-)6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		70		ns
Storage Time	$t_{stg}$	See specified Test Circuit		(450)		ns
				650		ns
Fall Time	$t_f$	See specified Test Circuit		35		ns

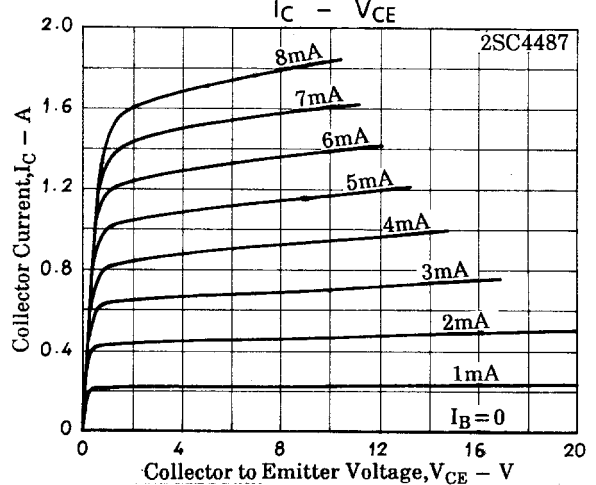
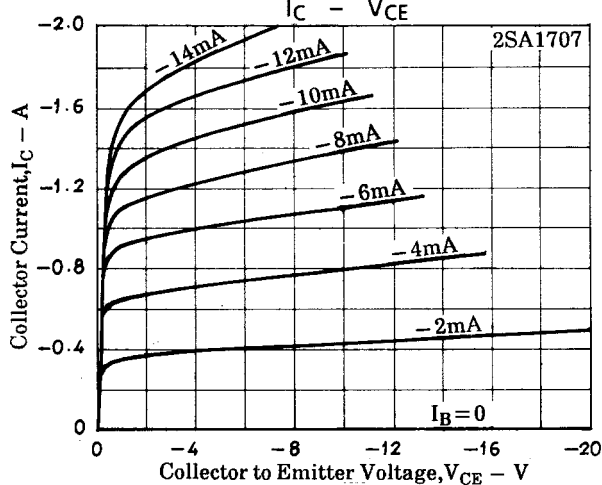
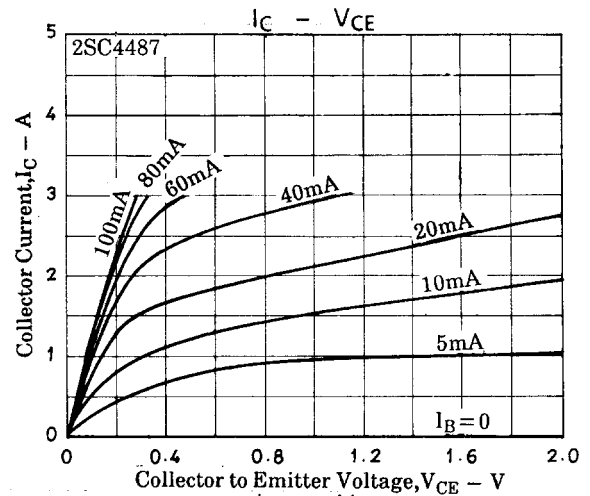
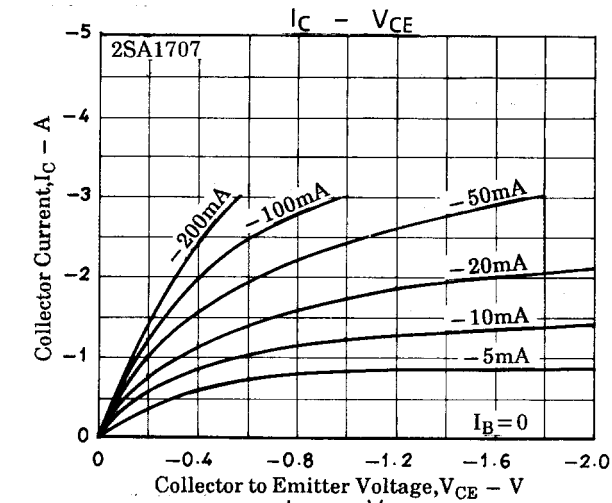
## Switching Time Test Circuit



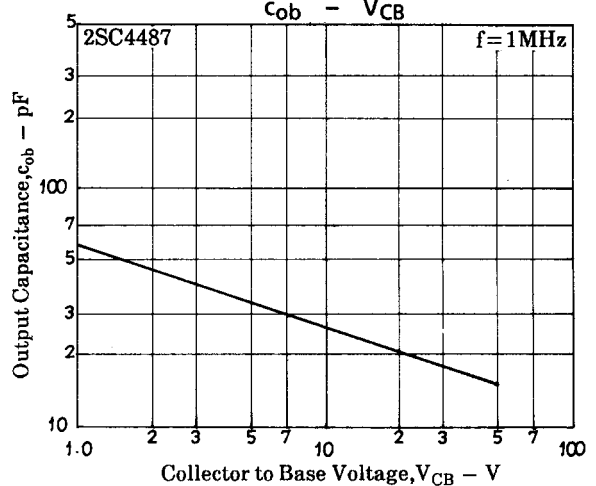
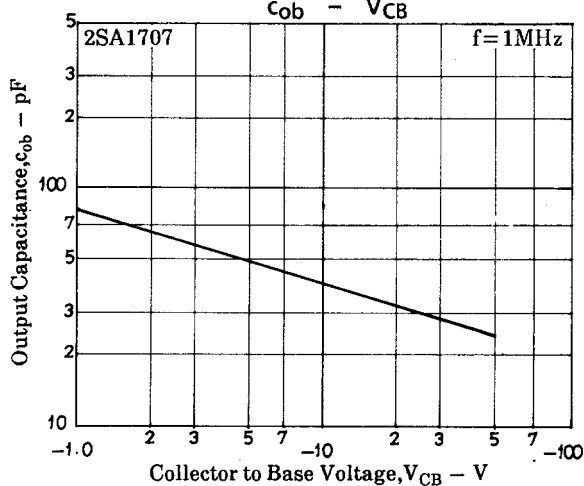
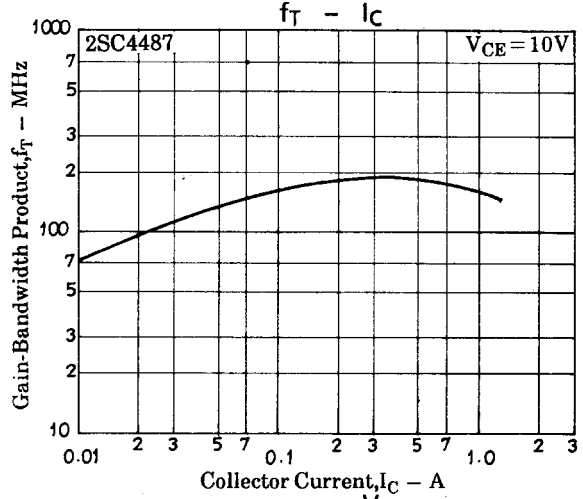
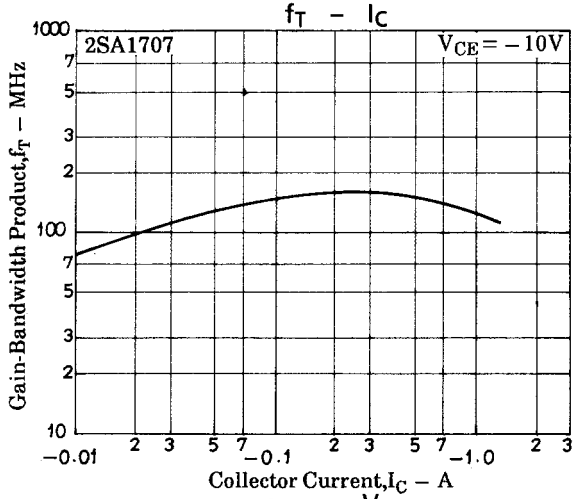
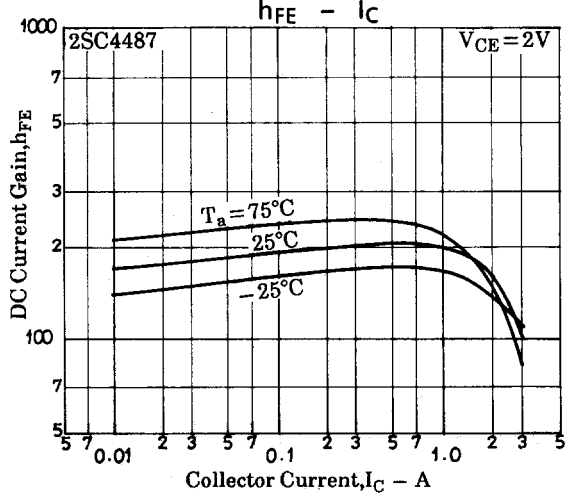
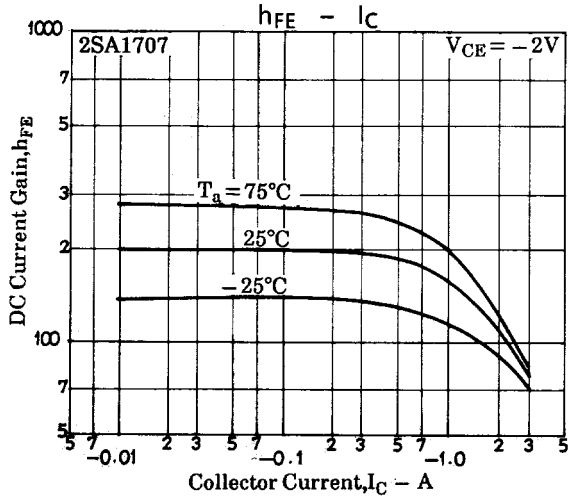
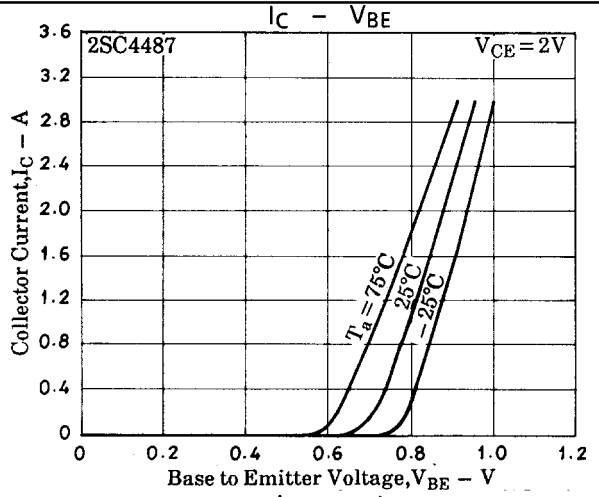
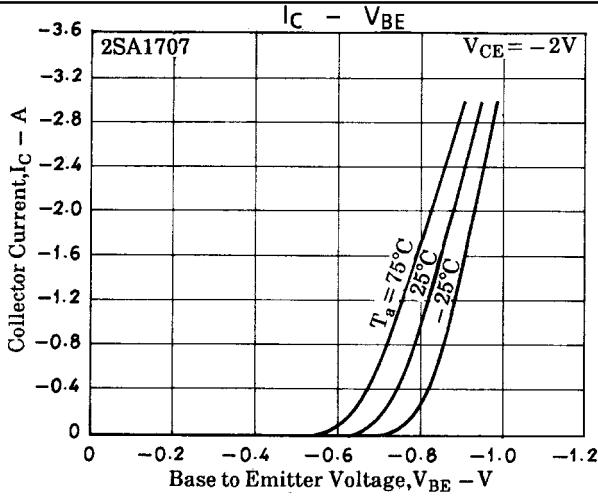
$$10I_{B1} = -10I_{B2} = I_C = 1A$$

(For PNP, the polarity is reversed.)

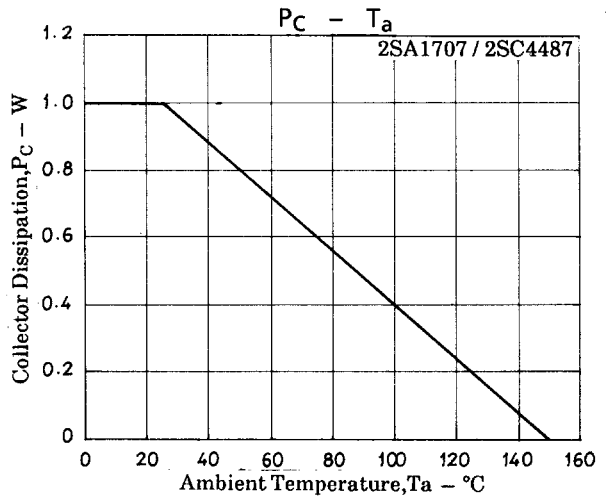
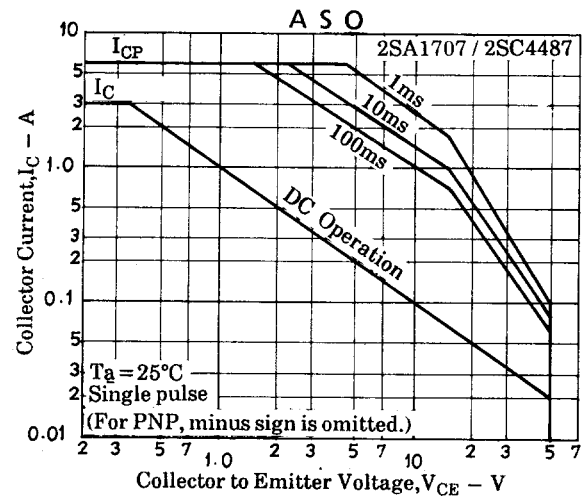
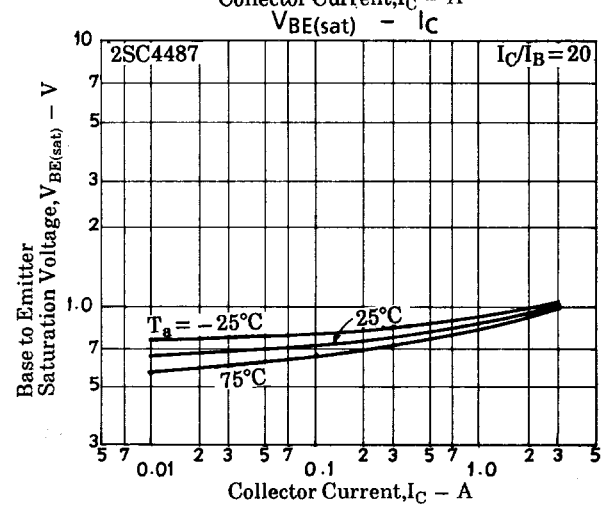
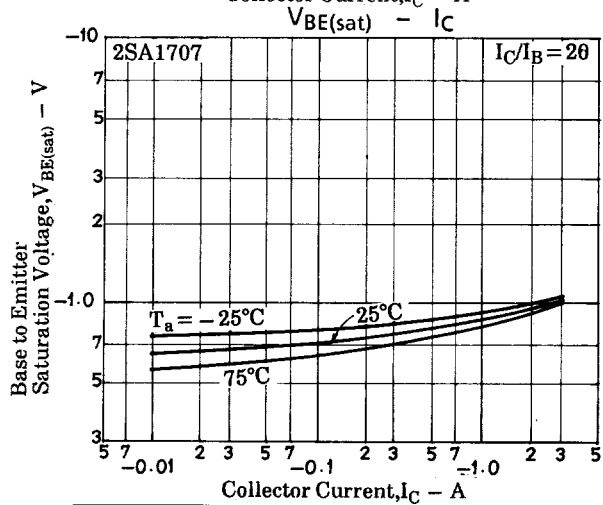
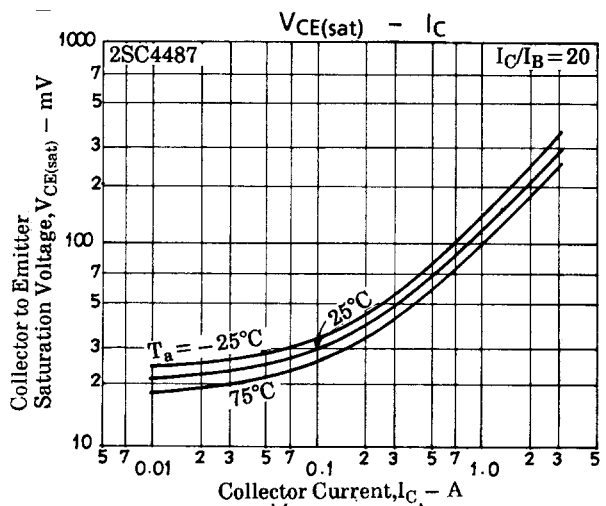
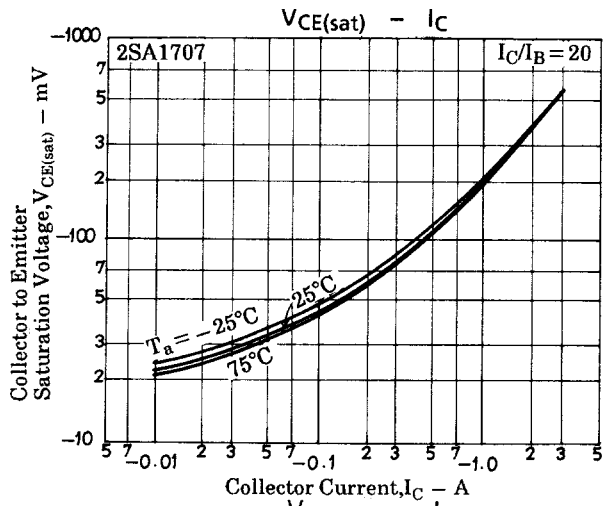
Unit (resistance :  $\Omega$ , capacitance : F)



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