



2SA1707/2SC4487

High-Current Switching Applications

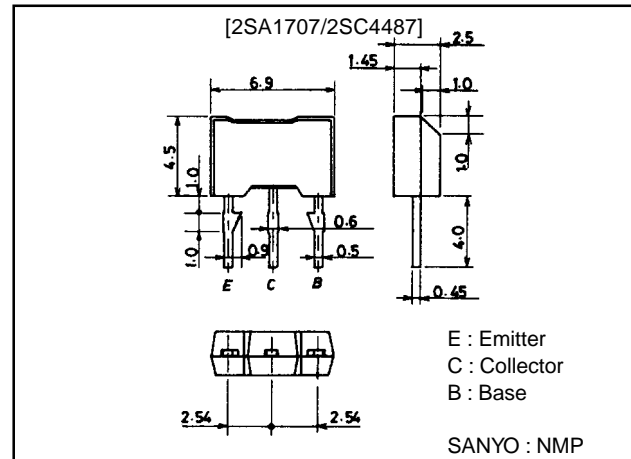
Features

- 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 $T_a = 25^\circ\text{C}$

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	$^\circ\text{C}$
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}	$V_{CB} = (-)40\text{V}, I_E = 0$			(-1)	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4\text{V}, I_C = 0$			(-1)	μA
DC Current Gain	h_{FE1}	$V_{CE} = (-)2\text{V}, I_C = (-)100\text{mA}$	100*		400*	
	h_{FE2}	$V_{CE} = (-)2\text{V}, I_C = (-)3\text{A}$	35			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)10\text{V}, I_C = (-)50\text{mA}$		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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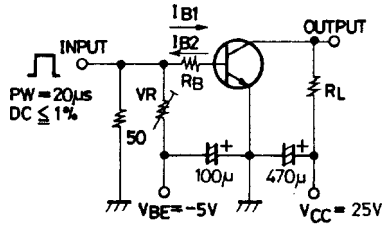
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2SA1707/2SC4487

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

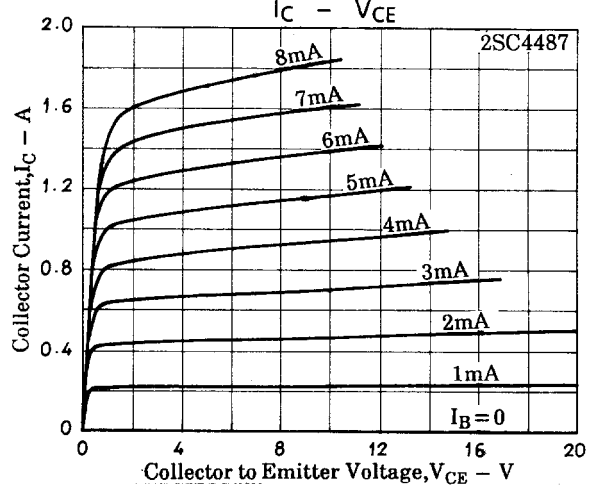
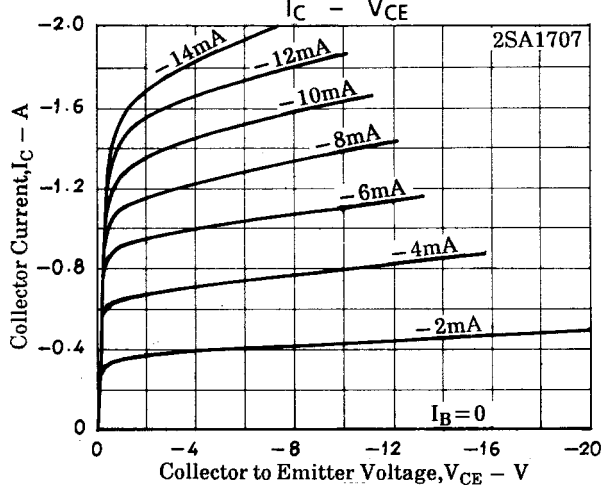
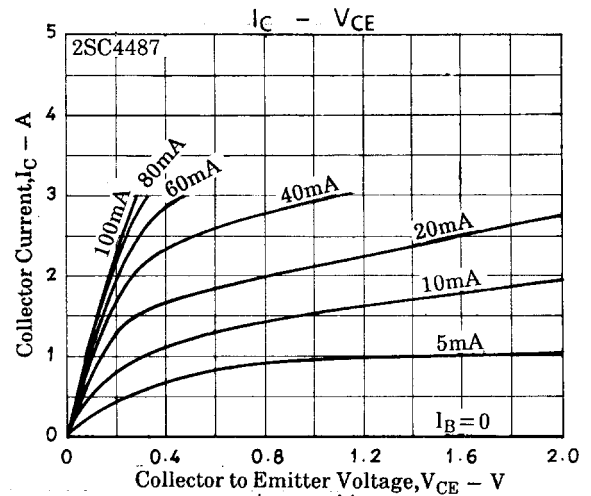
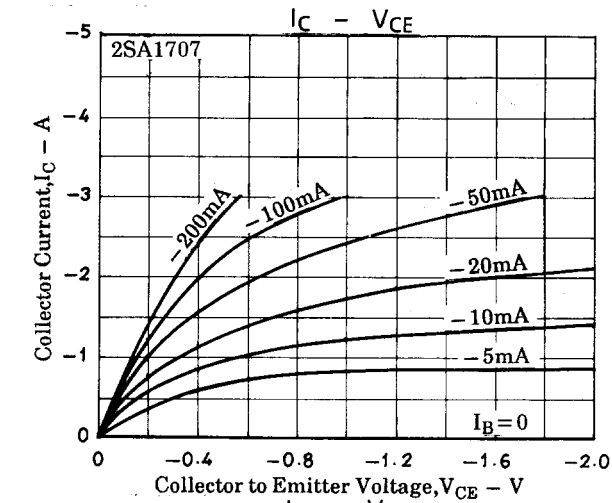
Switching Time Test Circuit



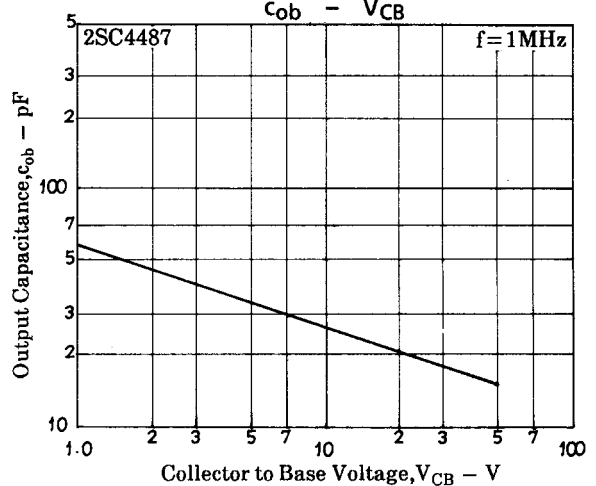
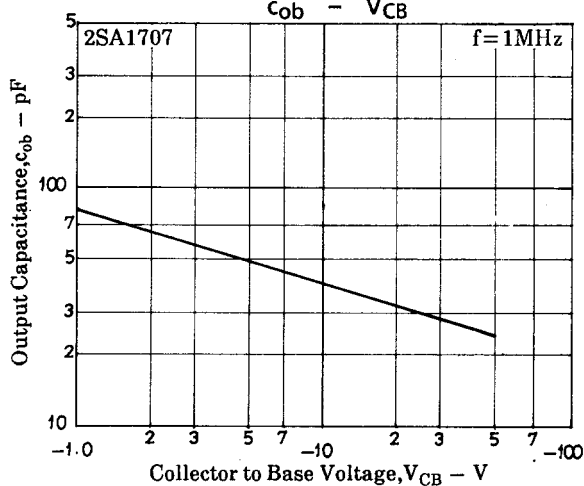
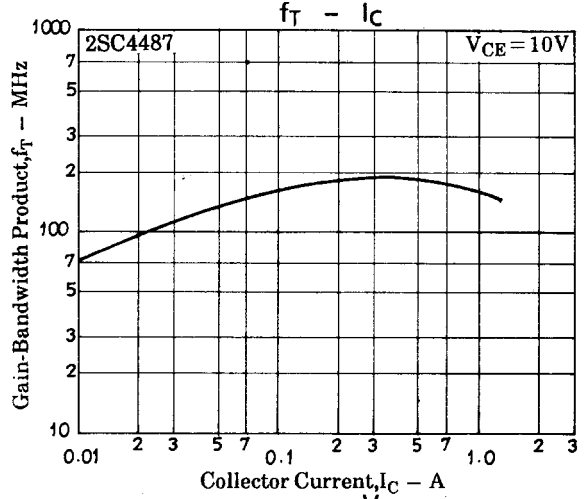
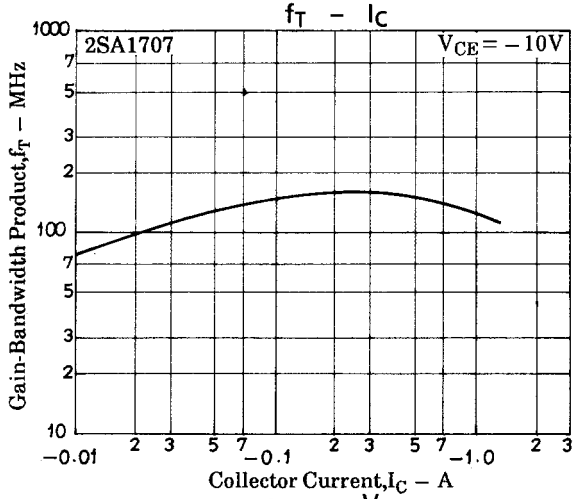
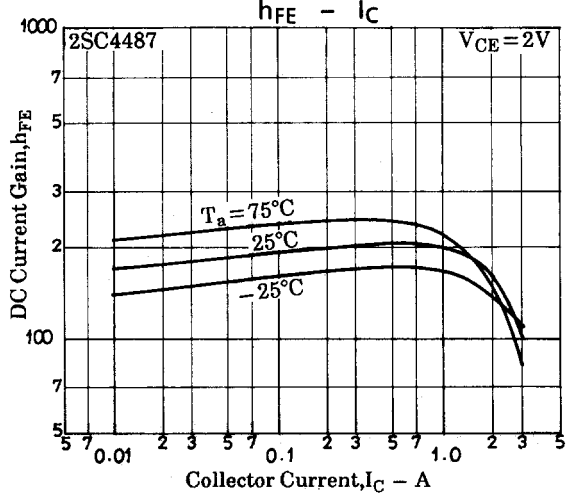
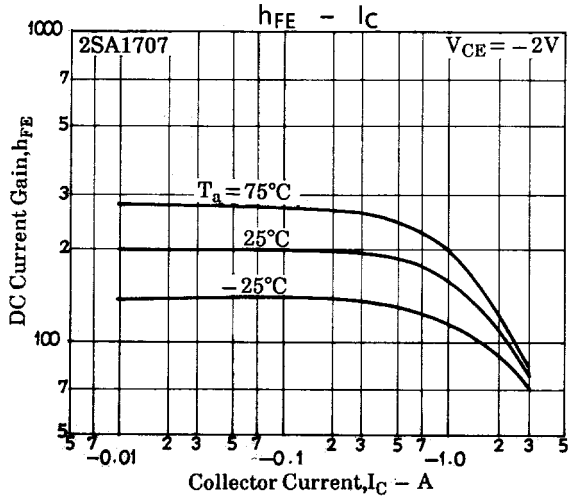
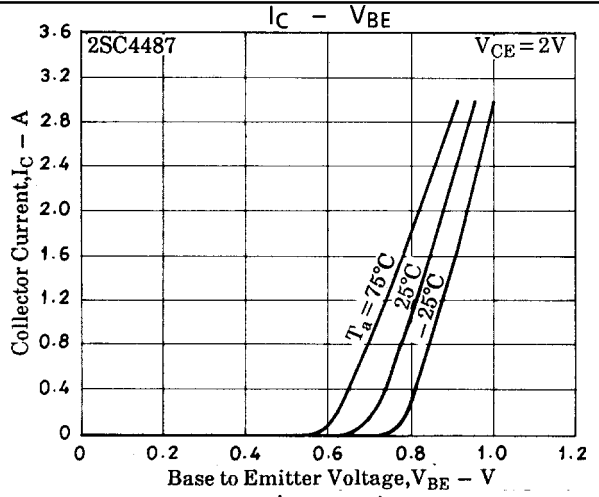
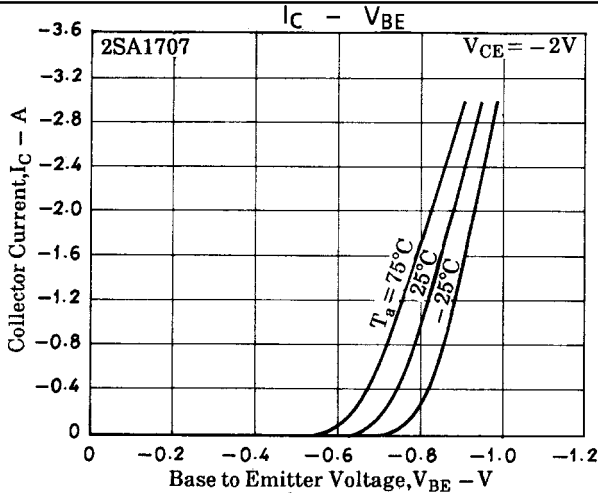
$$10I_{B1} = -10I_{B2} = I_C = 1A$$

(For PNP, the polarity is reversed.)

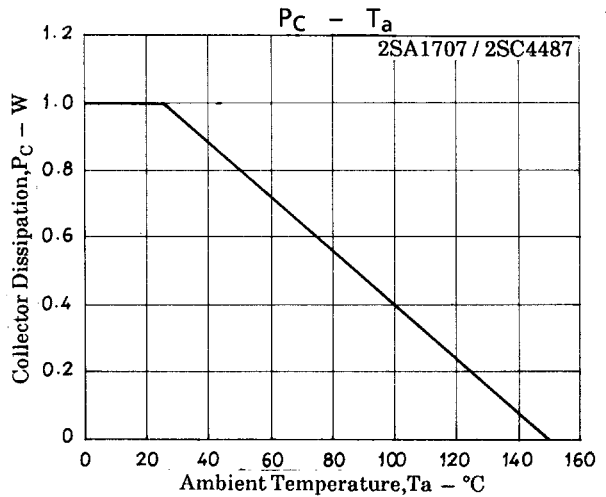
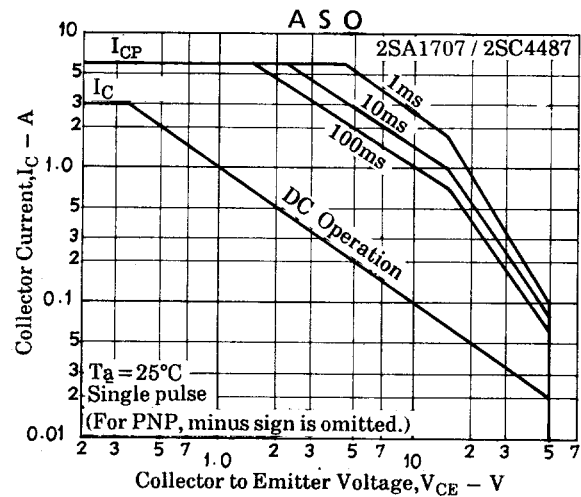
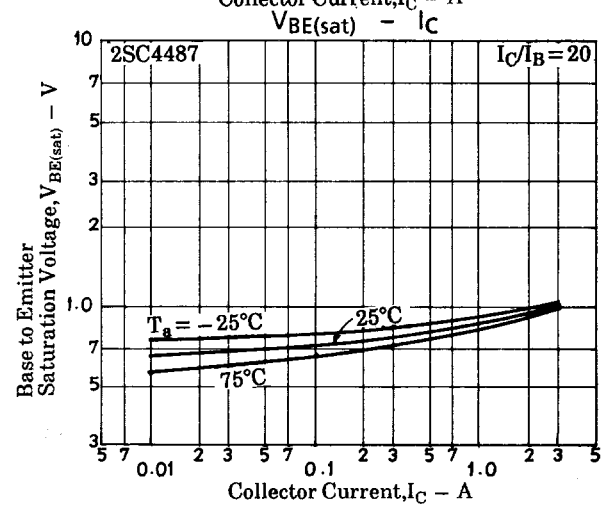
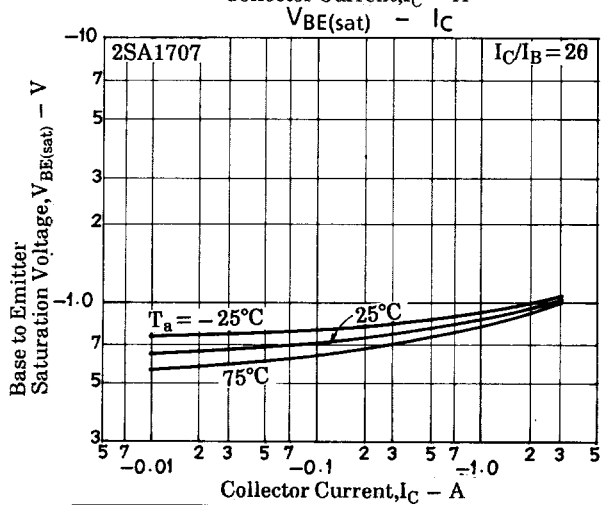
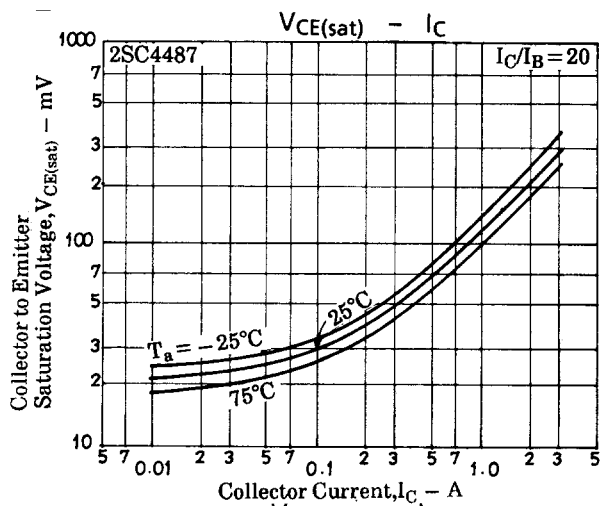
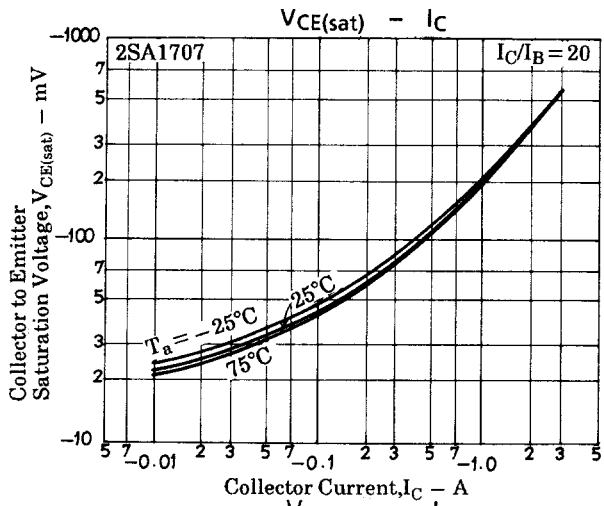
Unit (resistance : Ω , capacitance : F)



2SA1707/2SC4487



2SA1707/2SC4487



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