

Ordering number:EN3093

PNP/NPN Epitaxial Planar Silicon Transistors



2SA1707/2SC4487

High-Current Switching Applications

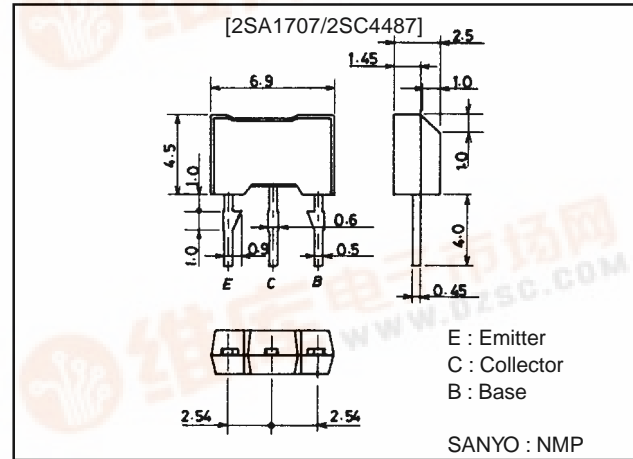
Features

- 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	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =(-)4V, I _C =0			(-)1	μA
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 :

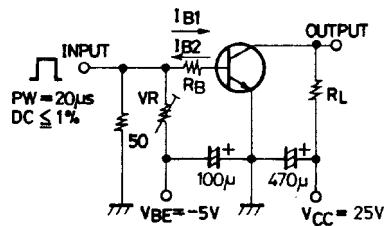
100	R	200	140	S	280	200	T	400
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)2A, I_B=(-)100mA$		(-0.35)	(-0.7)	V
				0.2	0.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2A, I_B=(-)100mA$		(-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

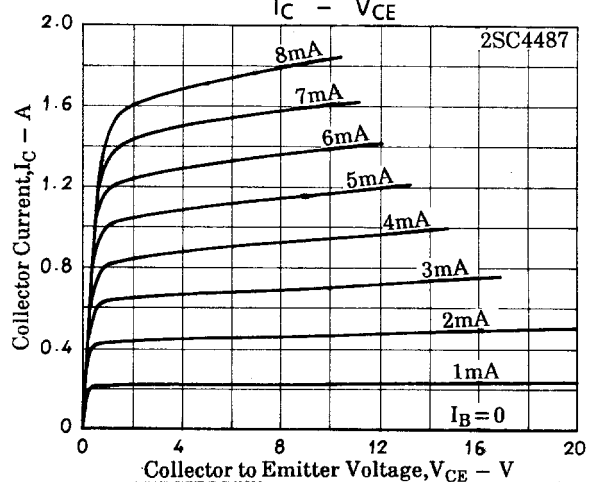
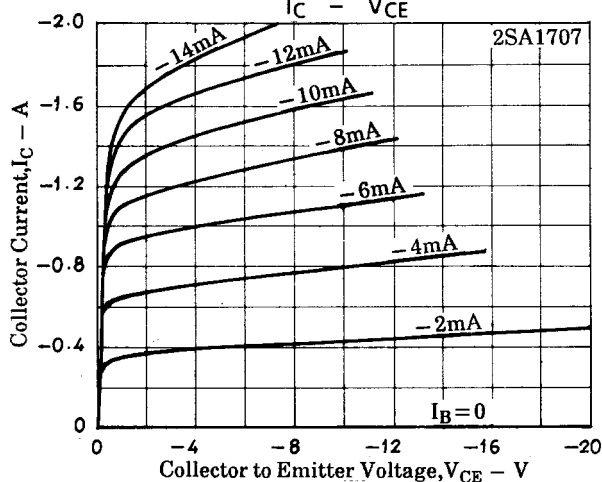
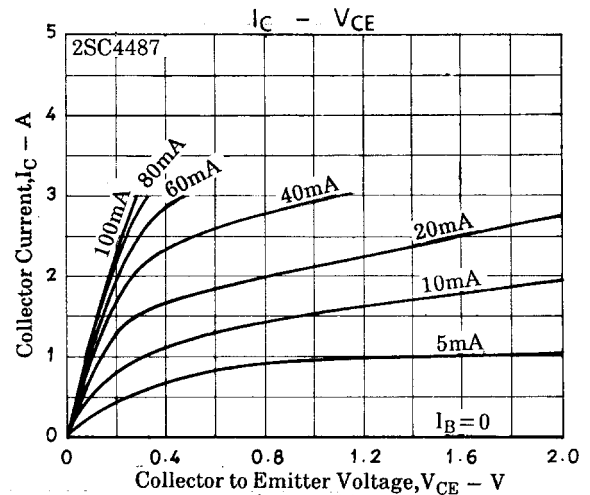
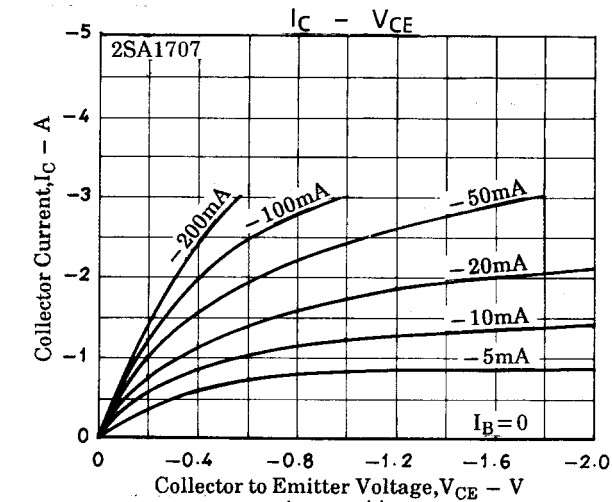
Switching Time Test Circuit



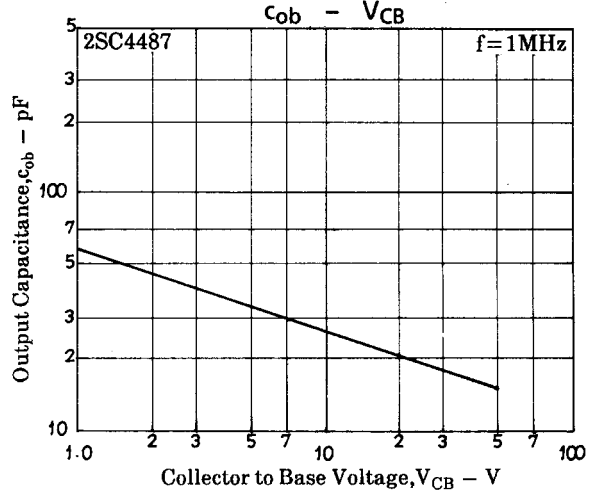
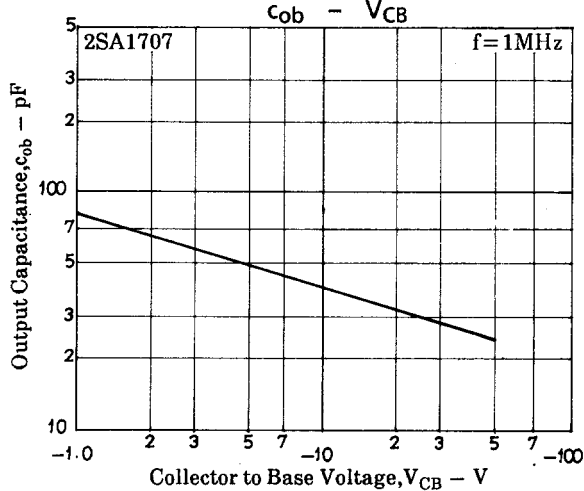
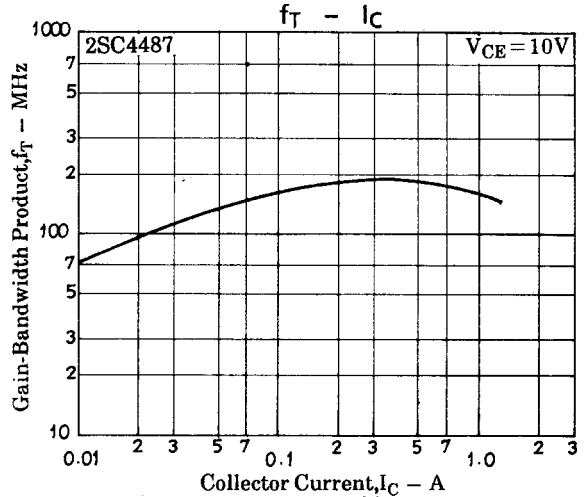
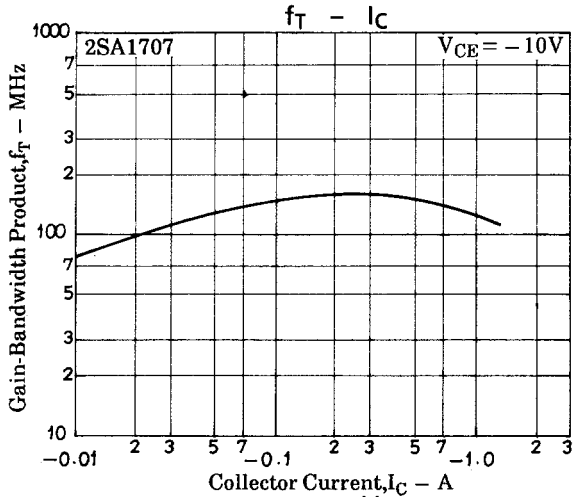
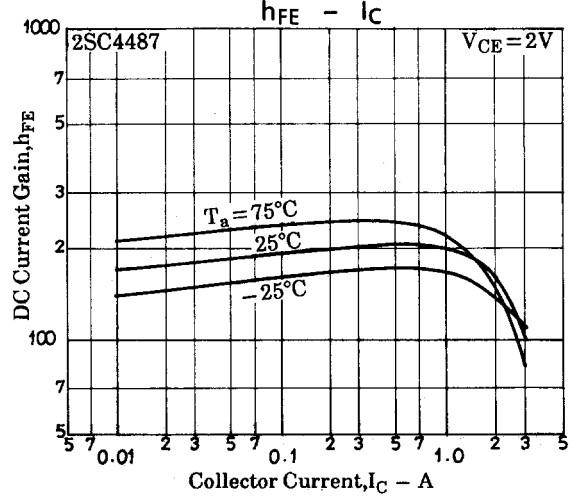
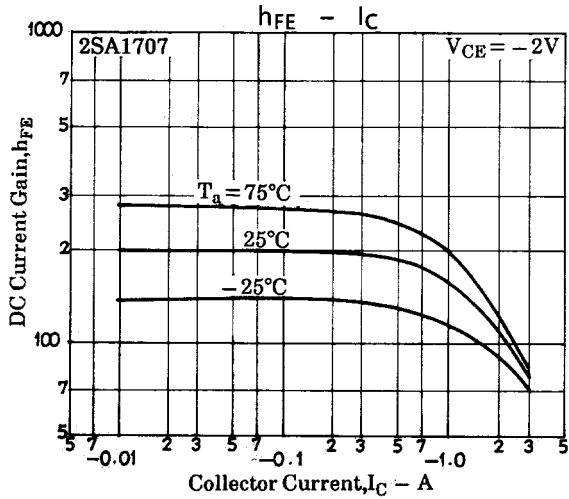
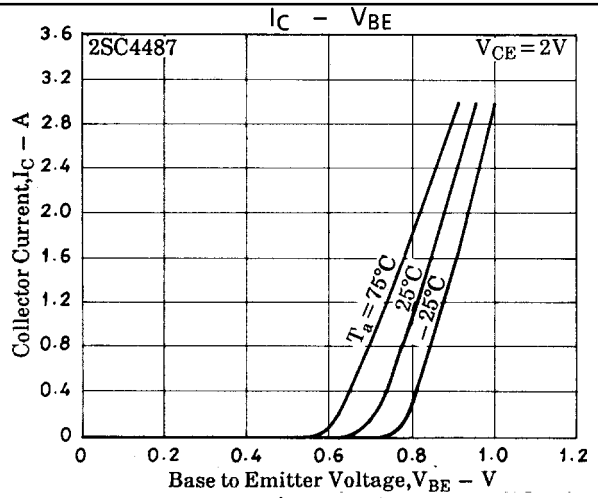
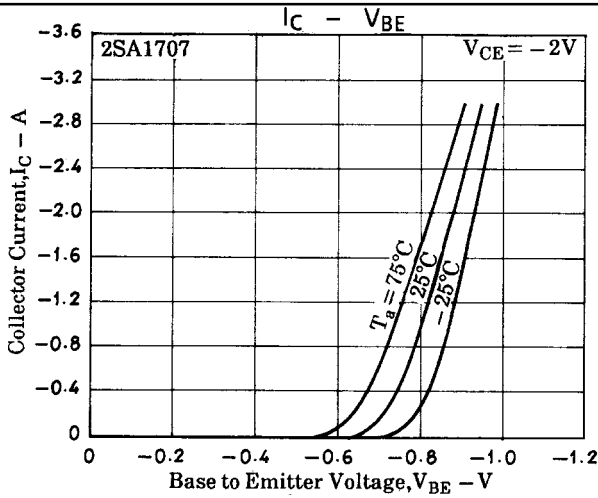
$$10|I_{B1}| = -10|I_{B2}| = I_C = 1A$$

(For PNP, the polarity is reversed.)

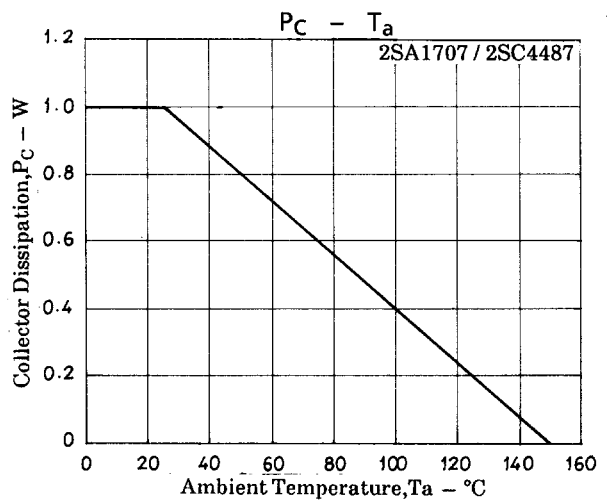
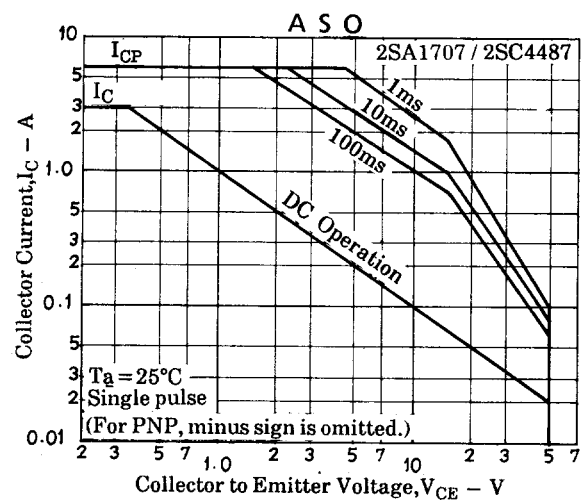
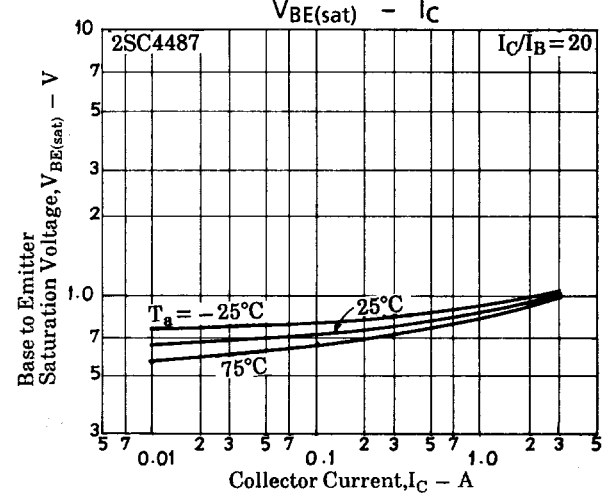
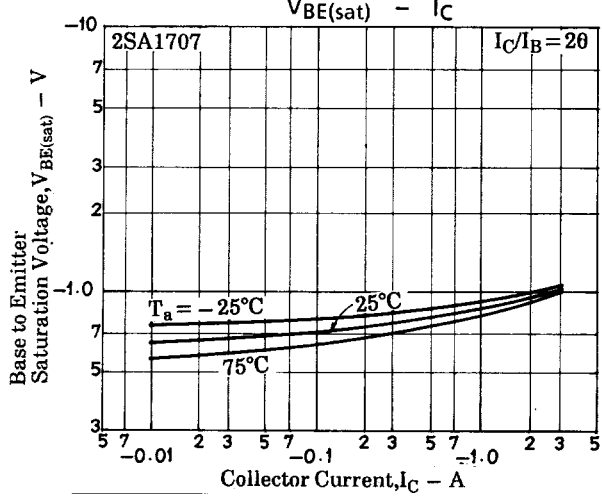
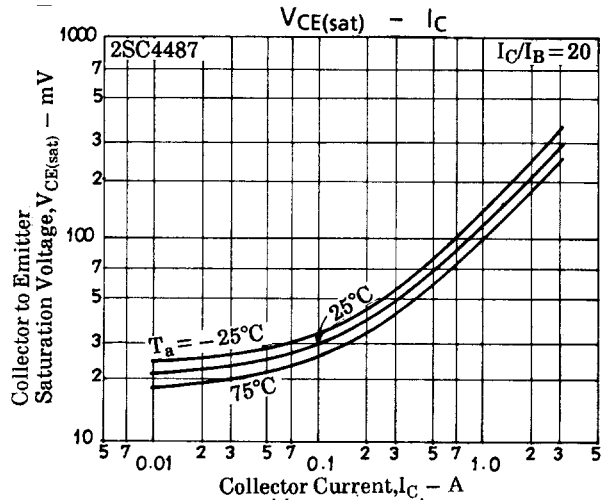
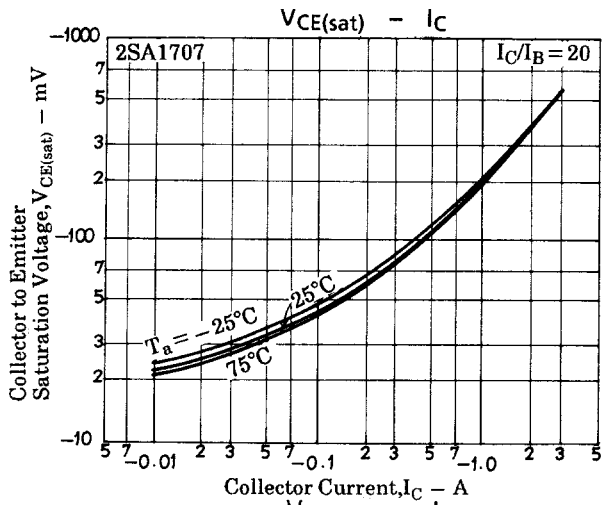
Unit (resistance : Ω , capacitance : F)



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