Ordering number:ENN3094

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1708/2SC4488

High-Voltage Switching Applications

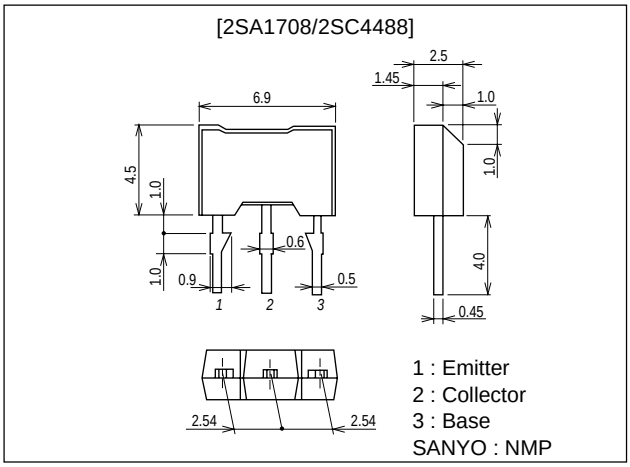
Features

- Adoption of FBET, MBIT processes.
- High breakdown voltage, large current capacity.
- Fast switching speed.

Package Dimensions

unit:mm

2064A



( ) : 2SA1708

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)120	V
Collector-to-Emitter Voltage	V_{CEO}		(–)100	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)1	A
Collector Current (Pulse)	I_{CP}		(–)2	A
Collector Dissipation	P_C		1	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–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}=(–)100V, I_E=0			(–)100	nA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)100	nA
DC Current Gain	h_{FE}	V_{CE}=(–)5V, I_C=(–)100mA	100*		400*	
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)100mA		120		MHz

* : The 2SA1708/2SC4488 are classified by 100mA h_{FE} as follows :

Continued on next page.

Rank	R	S	T
h_{FE}	100 to 200	140 to 280	200 to 400

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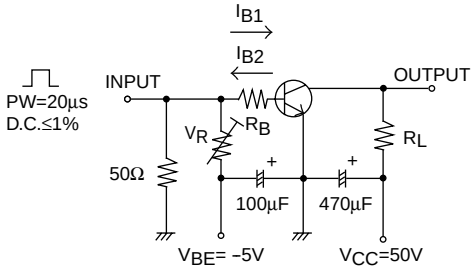
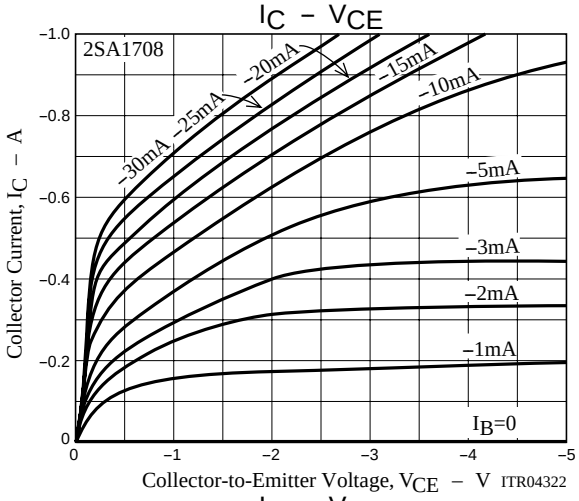
Continued from preceding page.

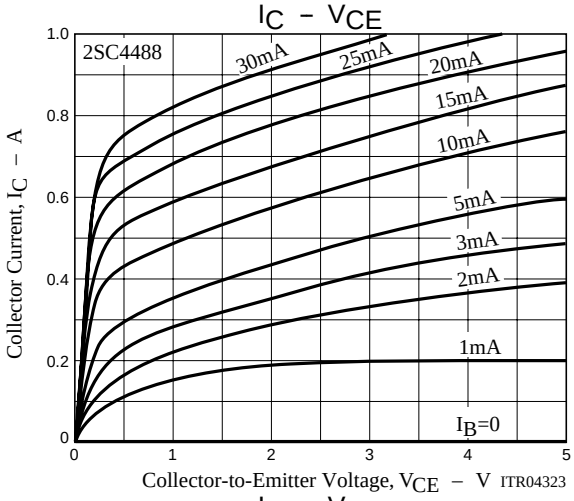
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)400mA, I_B=(–)40mA		(–0.2)	(–0.6)	V
				0.1	0.4	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)400mA, I_B=(–)40mA		(–)0.85	(–)1.2	V
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		(13)8.5		pF
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)120			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)100			V
Emitter-to-Base Breakdown Votage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)6			V
Turn-ON TIme	t_{on}	See specified Test Circuit		80		ns
Storage Time	t_{stg}	See specified Test Circuit		(700)		ns
				850		ns
Fall Time	t_f	See specified Test Circuit		(40)50		ns

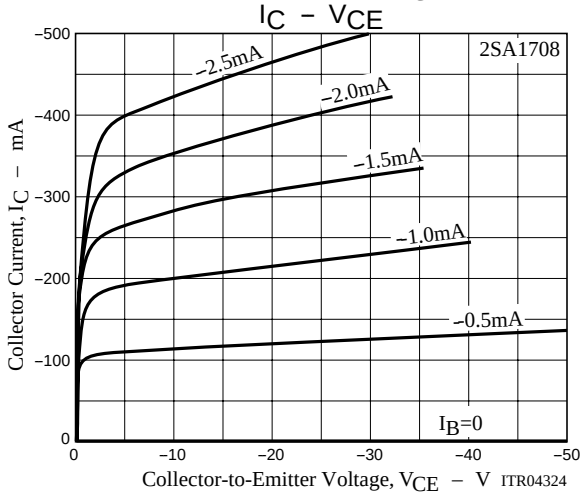
Switching Time Test Circuit

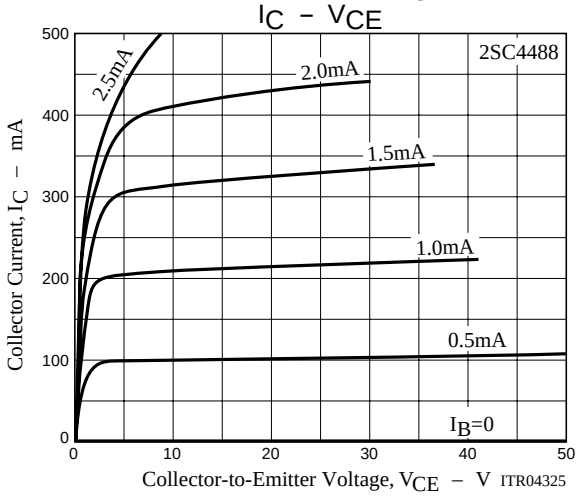


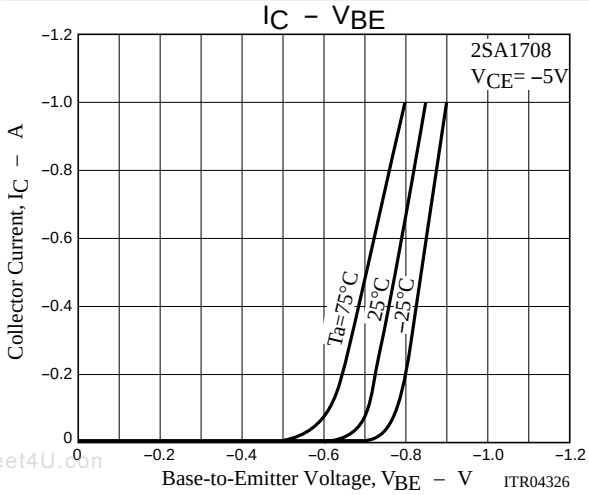
$10I_{B1}$= $-10I_{B2}$= I_C=400mA
(For PNP, the polarity is reversed.)

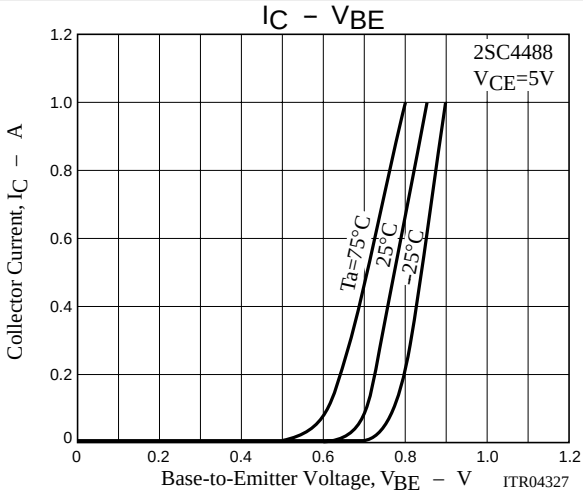


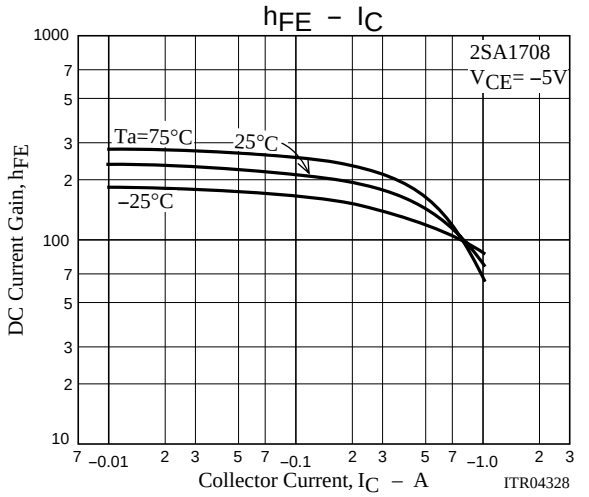


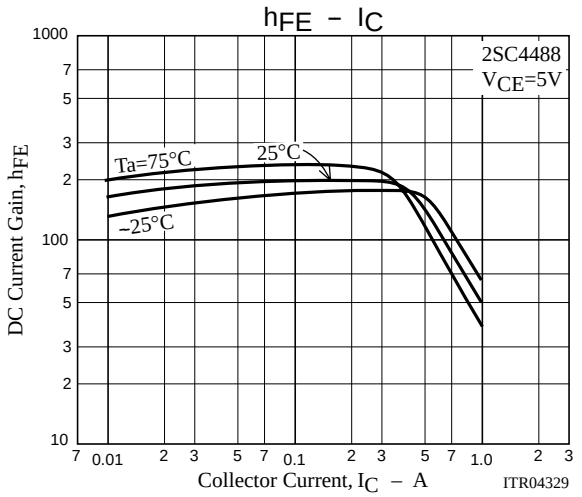


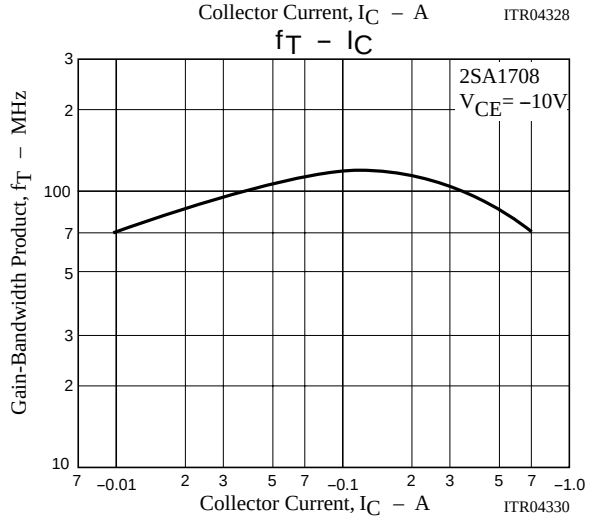


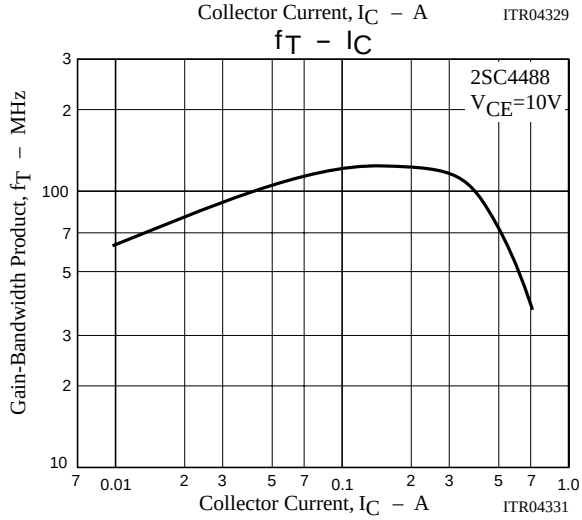


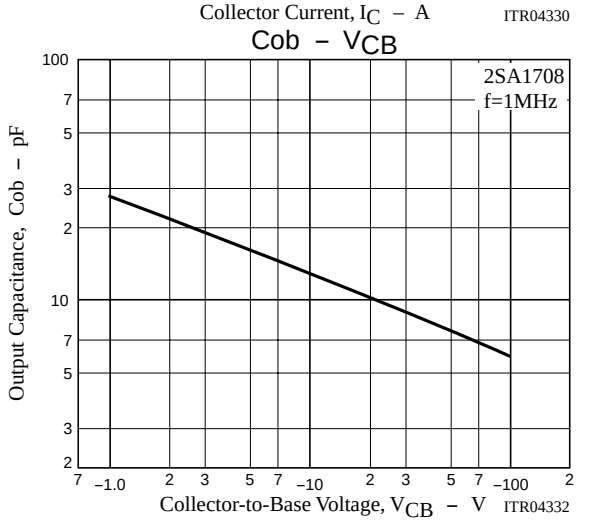


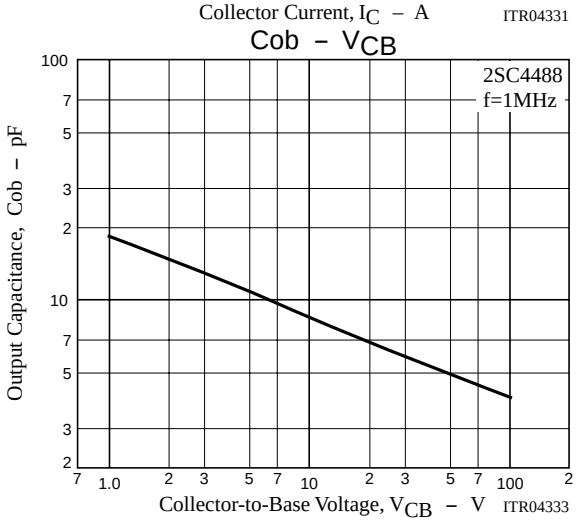




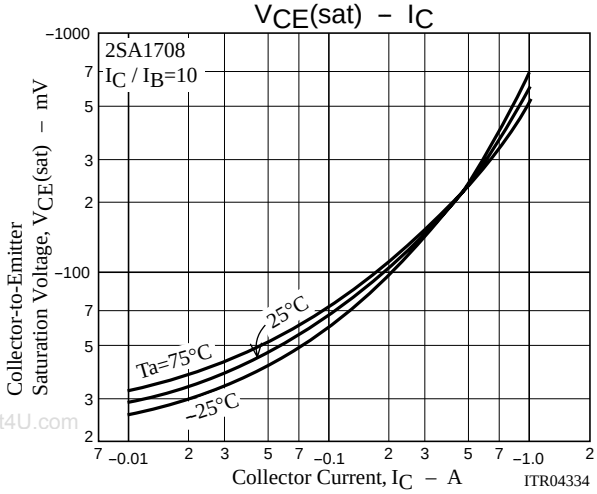




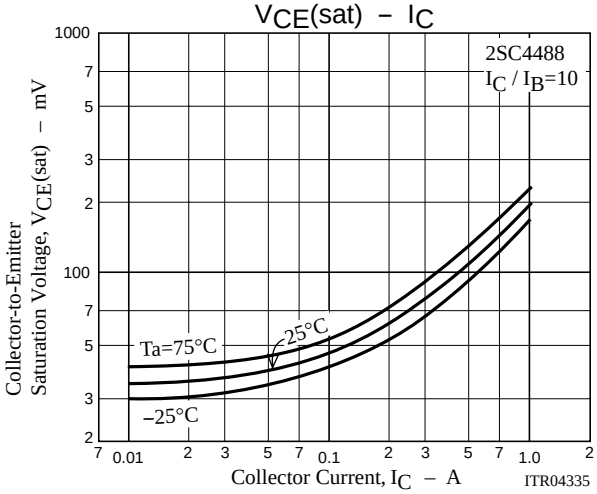




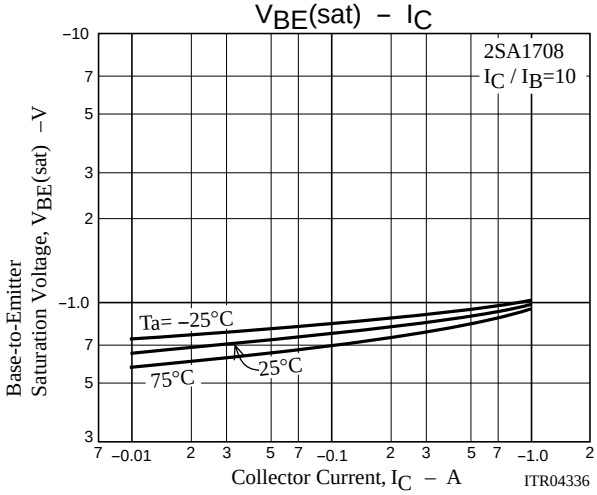
$V_{CE}(sat)$ – I_C



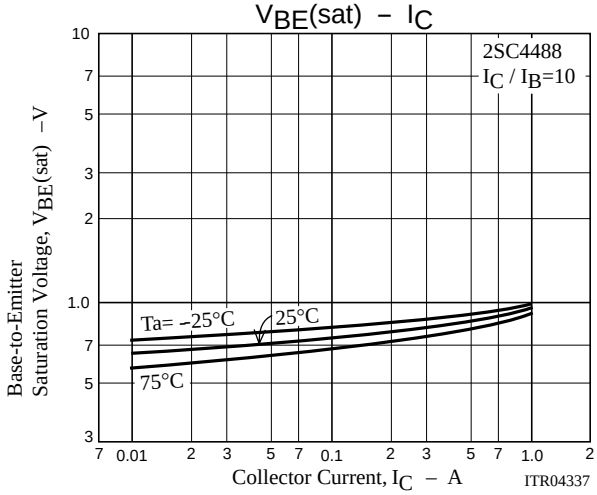
$V_{CE}(sat)$ – I_C



$V_{BE}(sat)$ – I_C



$V_{BE}(sat)$ – I_C



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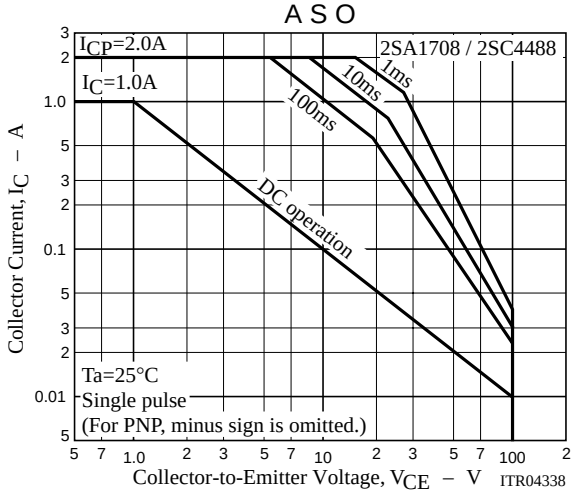
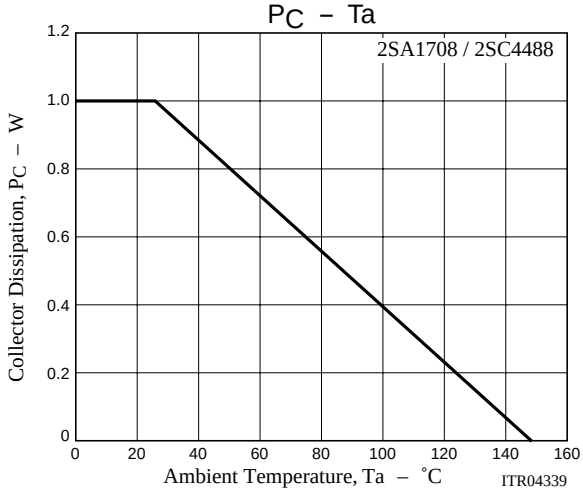


P_C – Ta



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