

2SB1123 / 2SD1623**High-Current Switching Applications****Applications**

- Voltage regulators, relay drivers, lamp drivers, electrical equipment.

Features

- Adoption of FBET, MBIT processes.
- Low collector-to-emitter saturation voltage.
- Large current capacity and wide ASO.
- Fast switching speed.
- The ultraminiature package facilitates higher-density mounting, thus allows the applied hybrid IC's further miniaturization.

Specifications

() : 2SB1123

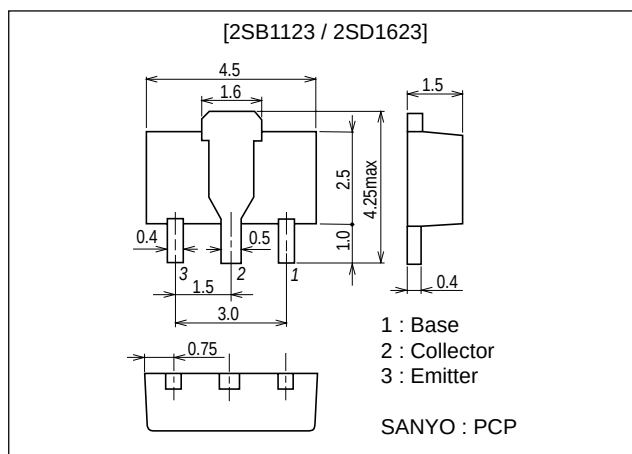
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-)60	V
Collector-to-Emitter Voltage	V _{CE0}		(-)50	V
Emitter-to-Base Voltage	V _{EB0}		(-)6	V
Collector Current	I _C		(-)2	A
Collector Current (Pulse)	I _{CP}		(-)4	A
Collector Dissipation	P _C		0.5	W
		Mounted on a ceramic board (250mm ² ×0.8mm)	1.3	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Package Dimensions

unit : mm

2038A

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CB0}	V _{CB} =(-)50V, I _E =0			(-)100	nA
Emitter Cutoff Current	I _{EB0}	V _{EB} =(-)4V, I _C =0			(-)100	nA
DC Current Gain	h _{FE} (1)	V _{CE} =(-)2V, I _C =(-)100mA	100*		560*	
	h _{FE} (2)	V _{CE} =(-)2V, I _C =(-)1.5A	40			

* : The 2SB1123 / 2SD1623 are classified by 100mA h_{FE} as follows :

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Rank	R	S	T	U
h _{FE}	100 to 200	140 to 280	200 to 400	280 to 560

Marking 2SB1123 : BF

2SD1623 : DF

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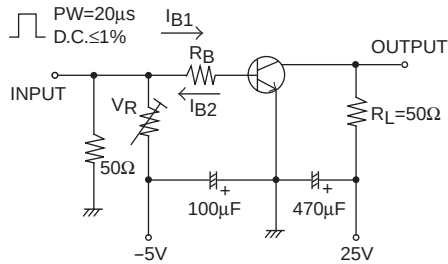
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

N1501 TS IM / 92098 HA (KT) / 4107 KI / N275 KI / 3045 MW, TS No.1727-1/5

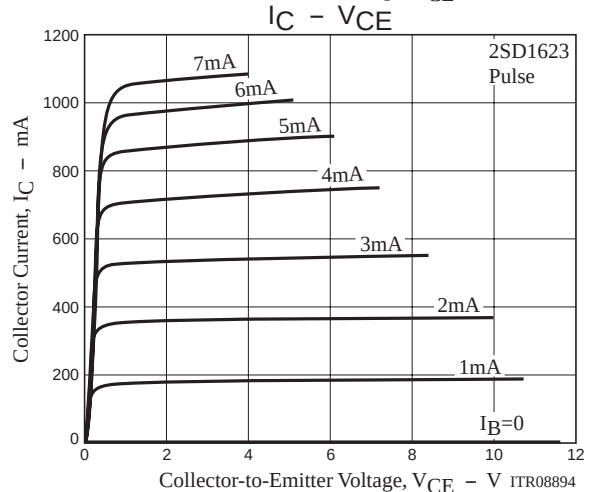
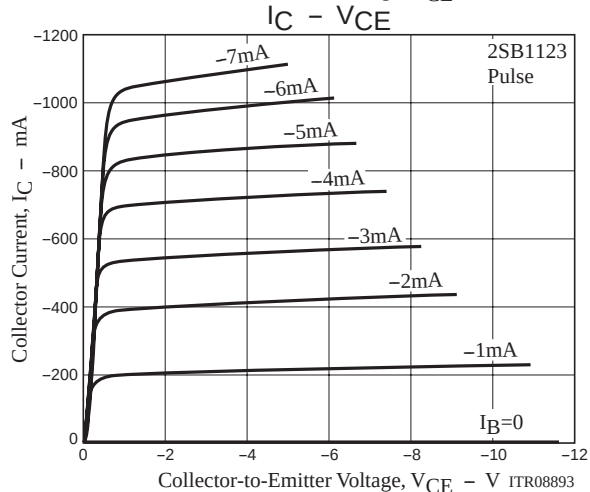
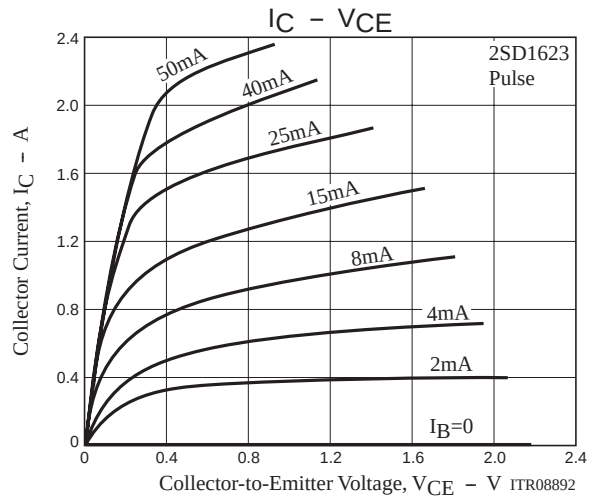
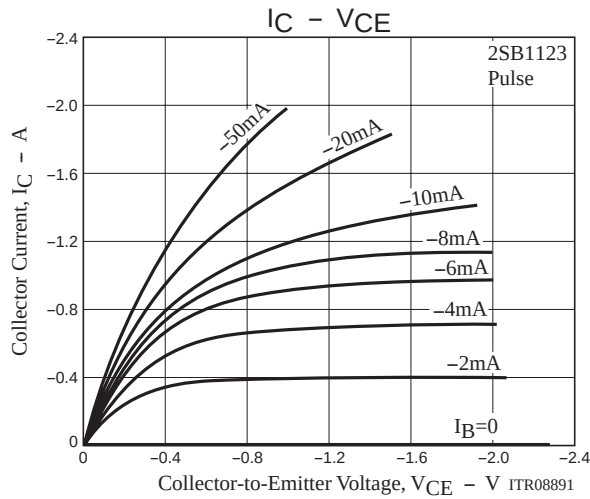
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)50mA$		150		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		(22)12		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)1A, I_B=(-)50mA$		(-0.3)0.15	(-0.7)0.4	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)1A, I_B=(-)50mA$		(-)0.9	(-)1.2	V
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.		(60)60		ns
Storage Time	t_{stg}	See specified Test Circuit.		(450)550		ns
Fall Time	t_f	See specified Test Circuit.		(30)30		ns

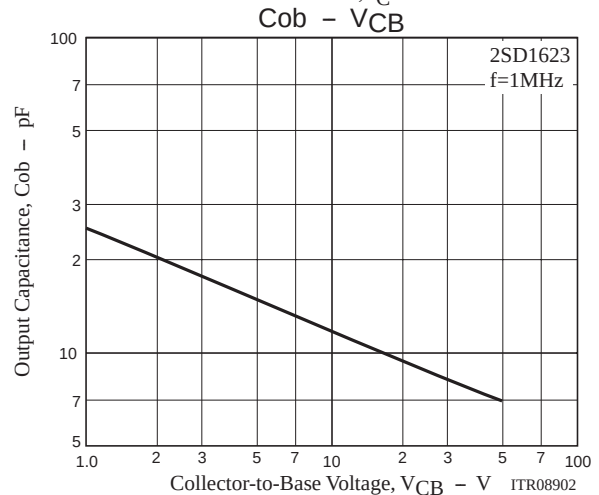
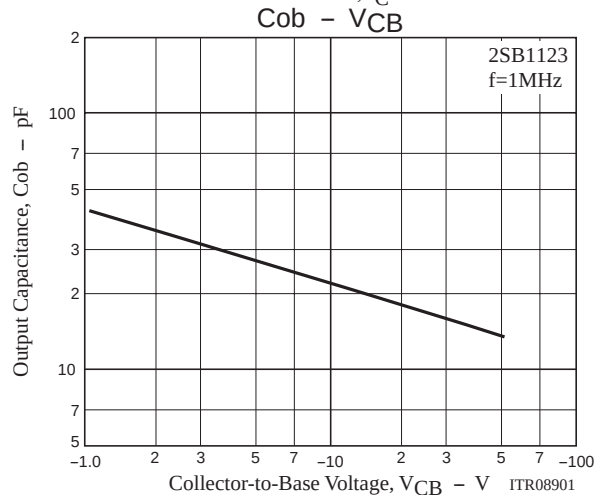
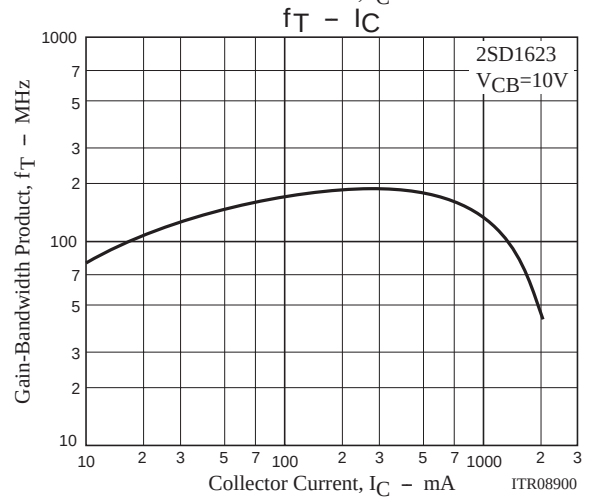
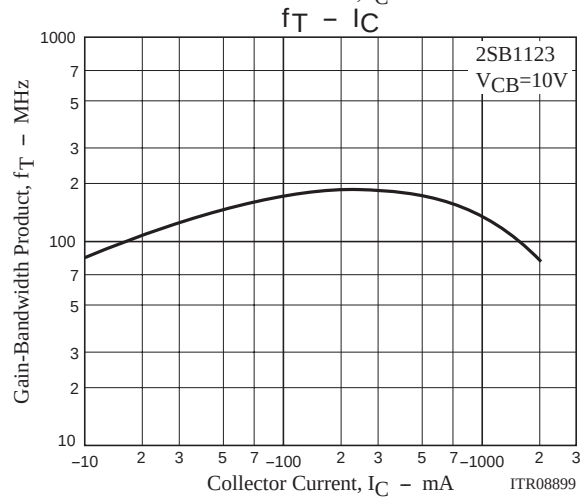
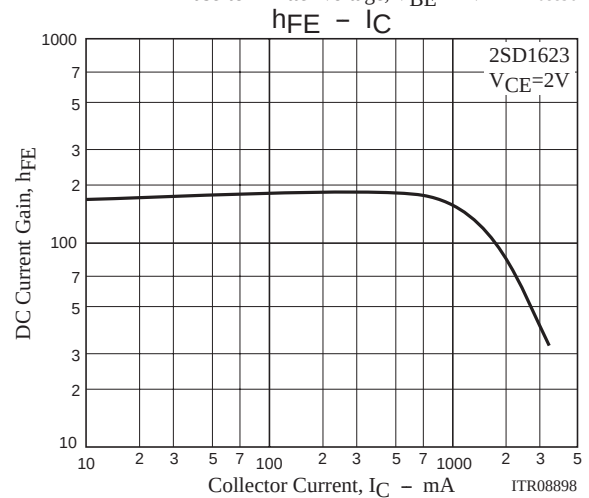
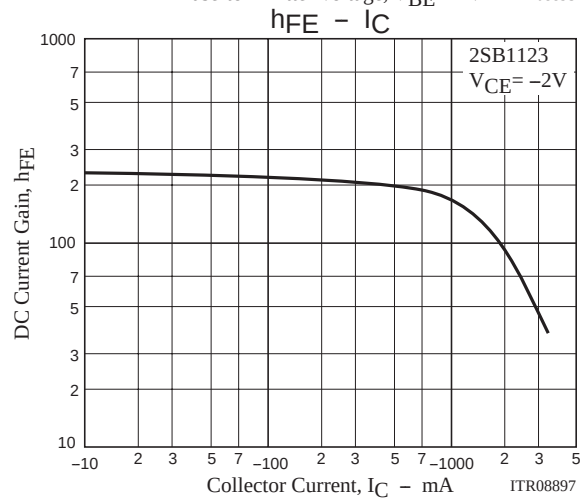
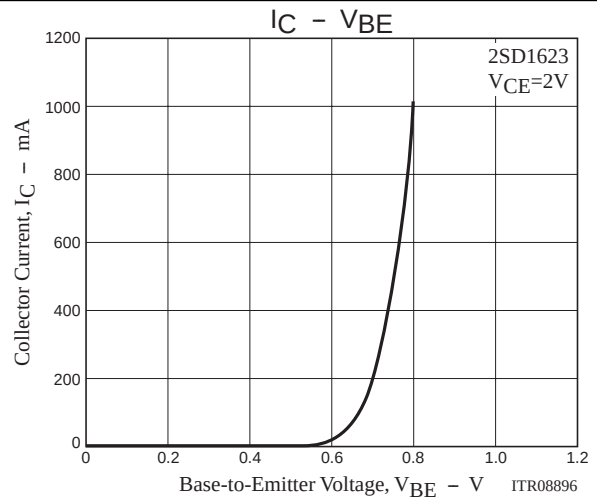
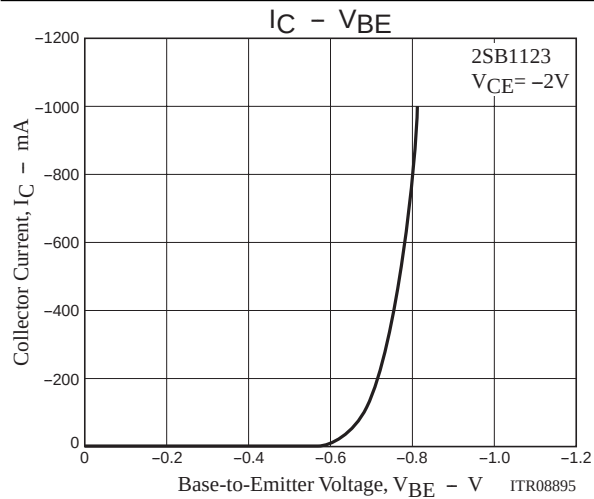
Switching Time Test Circuit



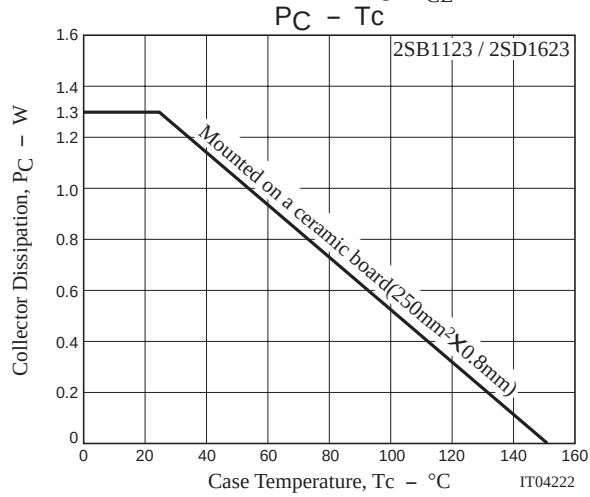
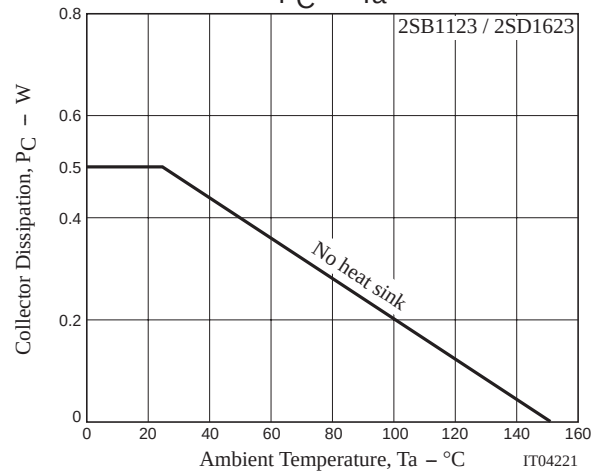
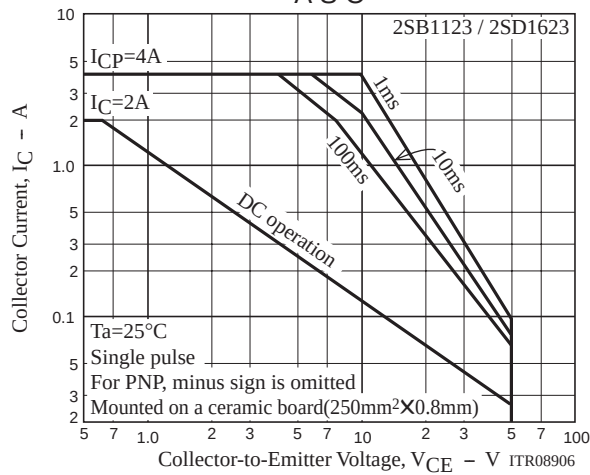
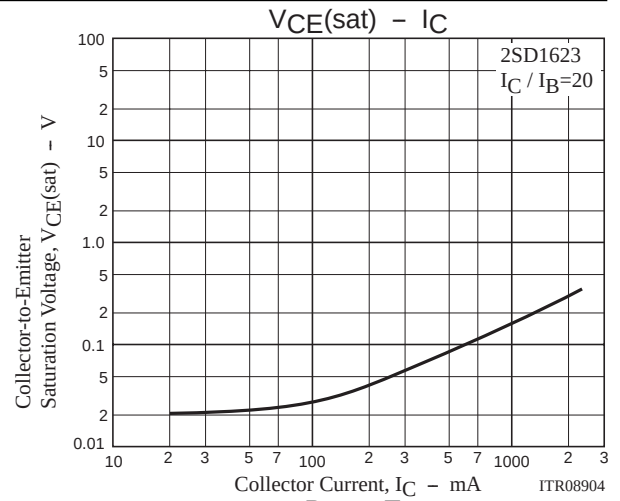
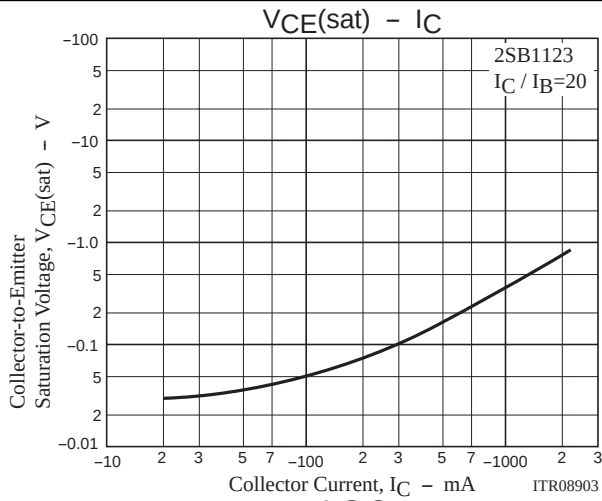
$10I_{B1} = -10I_{B2} = I_C = 500mA$
(For PNP, the polarity is reversed)



2SB1123 / 2SD1623



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