

SANYO	No.2021A	2SB1166/2SD1723
		PNP/NPN Epitaxial Planar Silicon Transistors 50V/8A Switching Applications

Applications

- Relay drivers, high-speed inverters, converters

Features

- Low collector-to-emitter saturation voltage
- High f_T
- Excellent linearity of h_{FE}
- Fast switching time

(): 2SB1166

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$			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	(-)8	A
Collector Current (Pulse)	I_{CP}	(-)12	A
Collector Dissipation	P_C	1.2	W
		$T_c=25^\circ\text{C}$	20
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

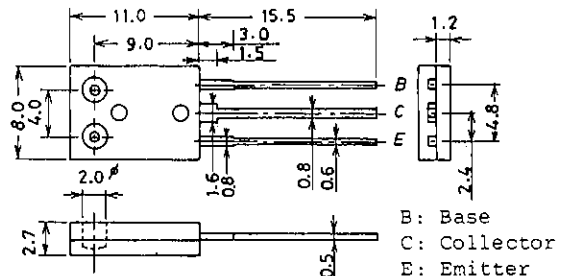
Electrical Characteristics at $T_a=25^\circ\text{C}$		min	typ	max	unit
Collector Cutoff Current	I_{CBO} $V_{CB}=(-)40\text{V}, I_E=0$			(-)1	μA
Emitter Cutoff Current	I_{EBO} $V_{EB}=(-)4\text{V}, I_C=0$			(-)1	μA
DC Current Gain	$h_{FE}(1)$ $V_{CE}=(-)2\text{V}, I_C=(-)0.5\text{A}$	70*		400*	
	$h_{FE}(2)$ $V_{CE}=(-)2\text{V}, I_C=(-)6\text{A}$	35			
Gain-Bandwidth Product	f_T $V_{CE}=(-)5\text{V}, I_C=(-)1\text{A}$		180		MHz
			(130)		MHz
Output Capacitance	c_{ob} $V_{CB}=(-)10\text{V}, f=1\text{MHz}$		65		pF
			(95)		pF
C-E Saturation Voltage	$V_{CE(sat)}$ $I_C=(-)4\text{A}, I_B=(-)0.2\text{A}$		200	400	mV
			(-250)	(-500)	mV

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*: The 2SB1166/2SD1723 are classified by 0.5A h_{FE} as follows:

70	Q	140	100	R	200	140	S	280	200	T	400
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Package Dimensions 2043A
(unit:mm)



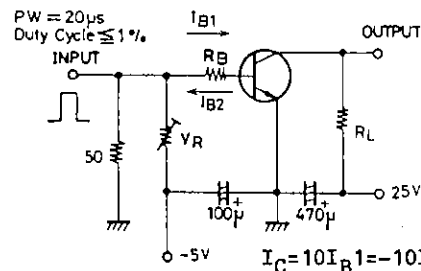
SANYO: TO126LP

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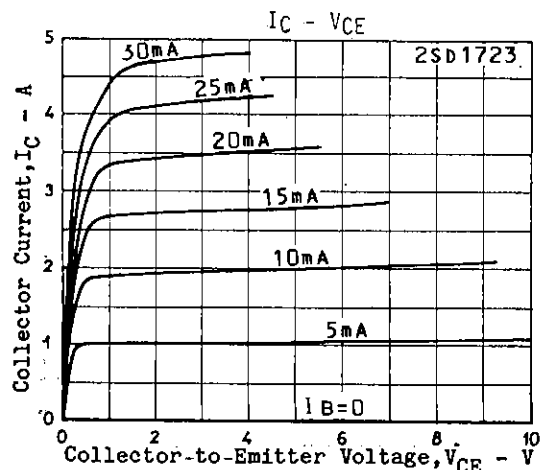
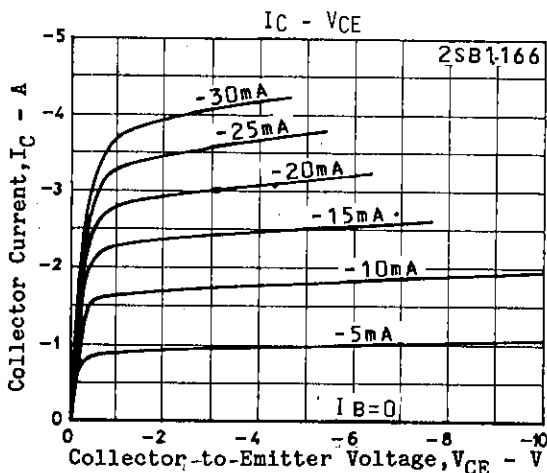
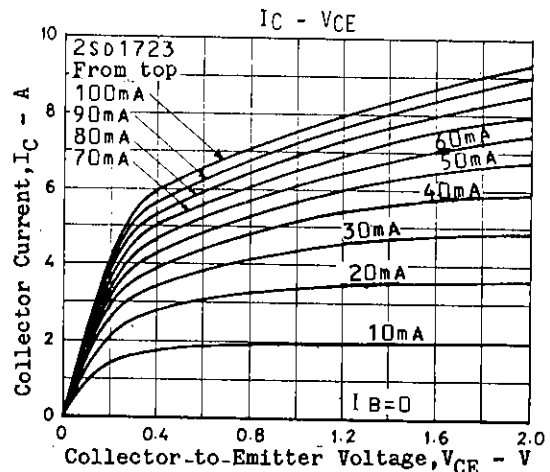
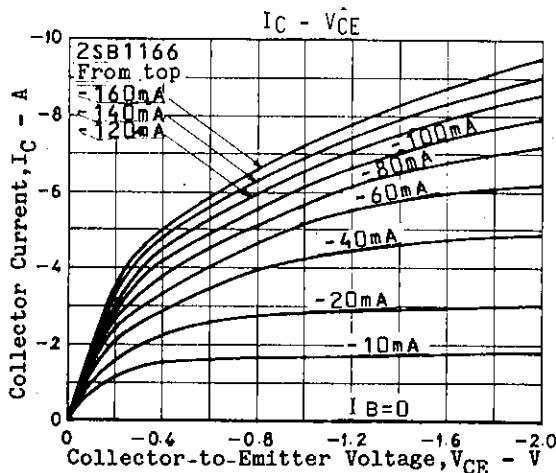
			min	typ	max	unit
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)4A, I_B=(-)0.2A$	(-)0.95	(-)1.3		V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-)60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)50			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-)6			V
Turn-on Time	t_{on}	See specified Test Circuit.		50		ns
Storage Time	t_{stg}	"		(50)		ns
				500		ns
Fall Time	t_f	"		(450)		ns
				20		ns
				(20)		ns

Switching Time Test Circuit

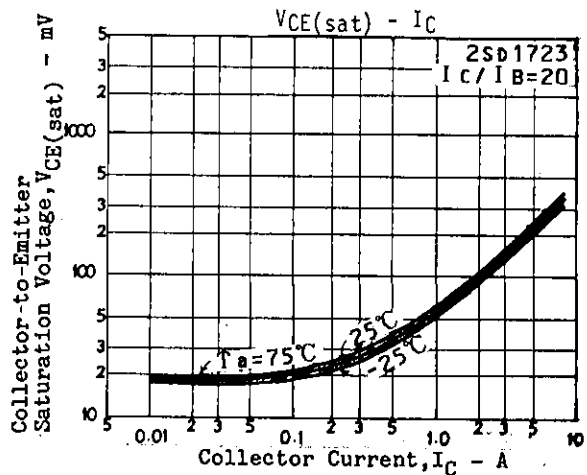
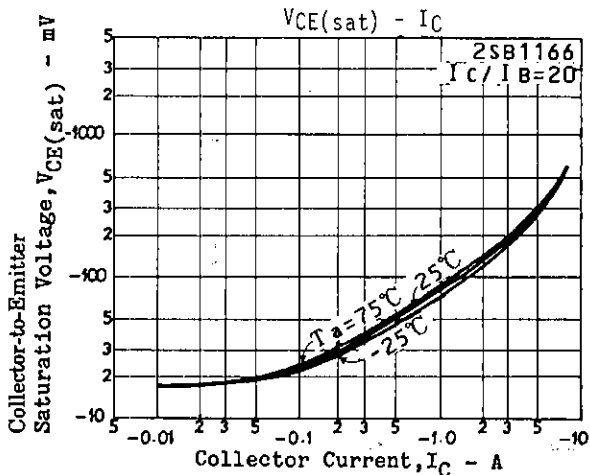
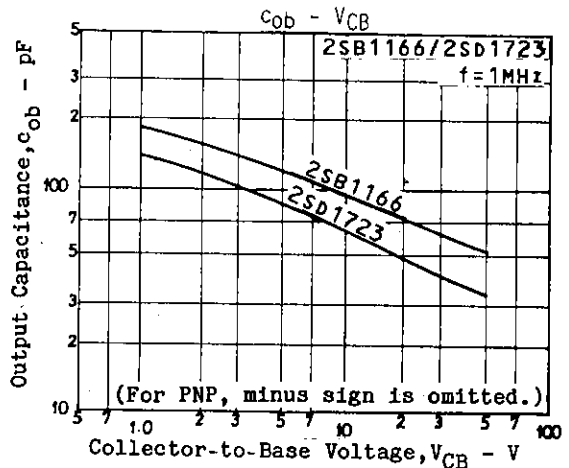
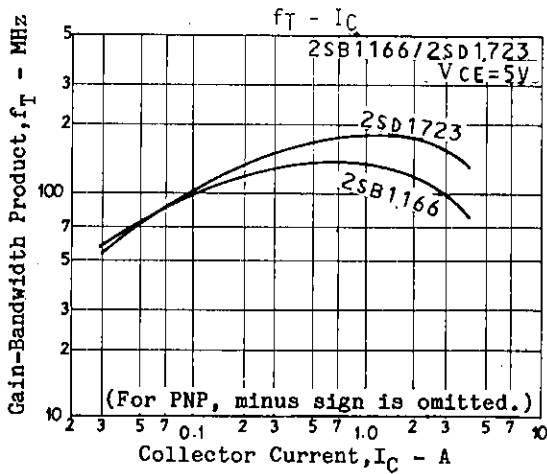
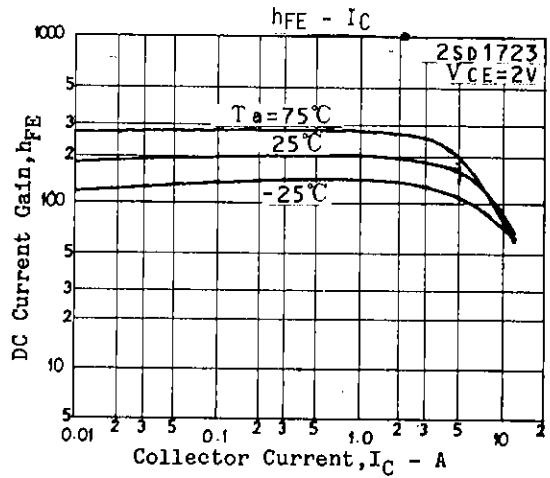
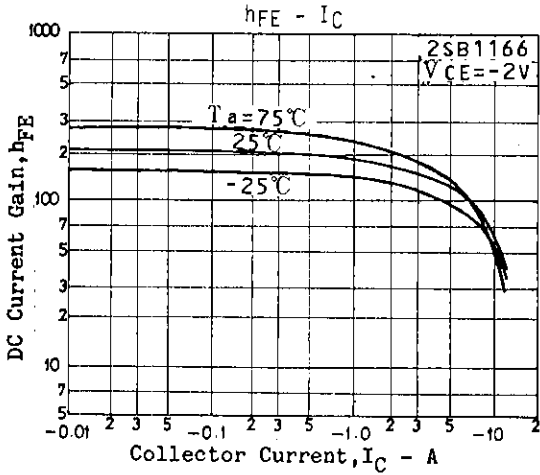
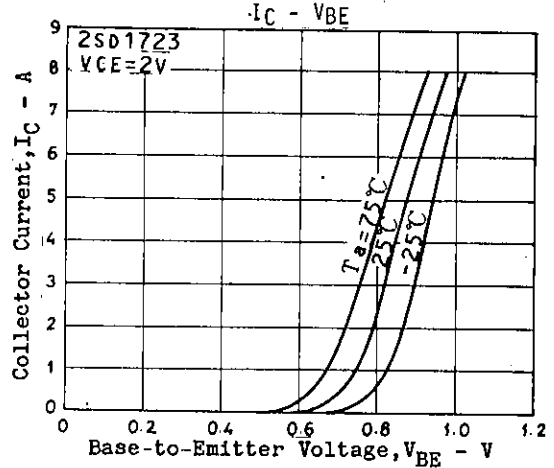
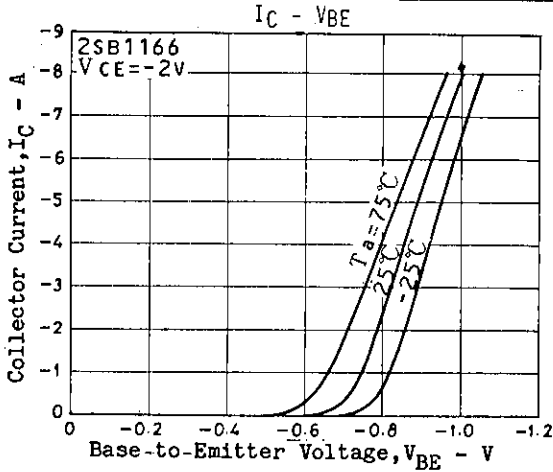


Unit (Resistance: Ω, Capacitance: F)

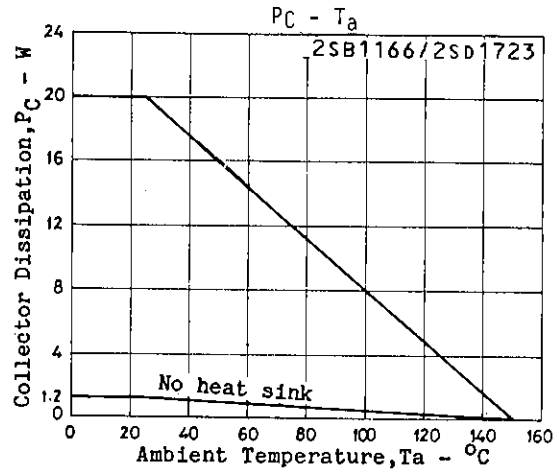
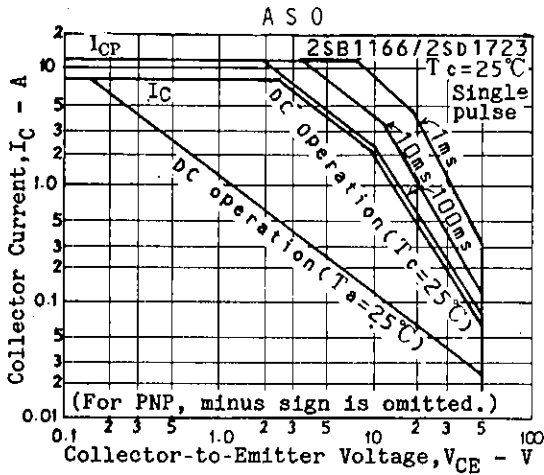
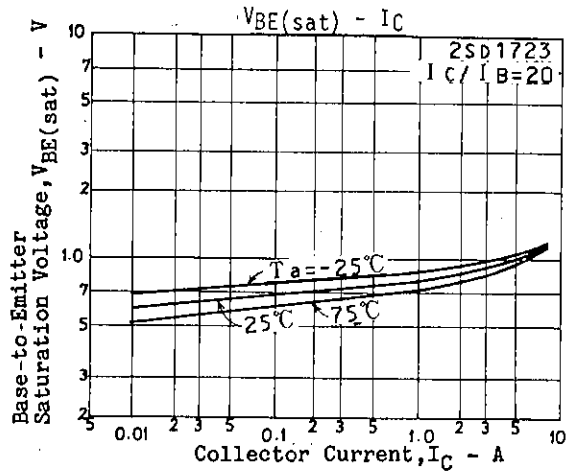
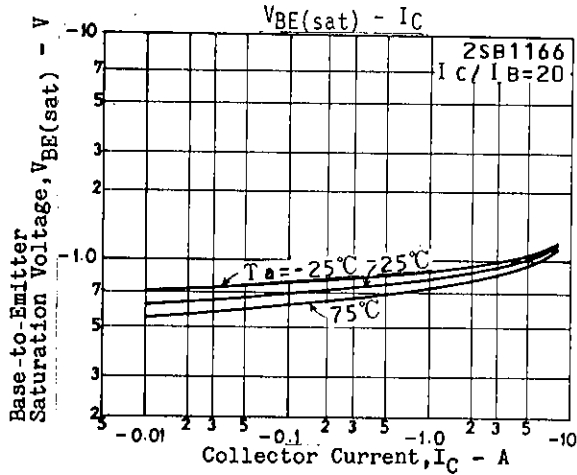
For PNP, the polarity is reversed.



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