

	No.2048A	<h2 style="margin: 0;">2SB1168/2SD1725</h2> <p style="margin: 0;">PNP/NPN Epitaxial Planar Silicon Transistors</p> <p style="margin: 0;">100V/4A Switching Applications</p>
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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

(): 2SB1168

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Collector-to-Base Voltage	V_{CB0}	(-)120	V
Collector-to-Emitter Voltage	V_{CEO}	(-)100	V
Emitter-to-Base Voltage	V_{EBO}	(-)6	V
Collector Current	I_C	(-)4	A
Collector Current (Pulse)	I_{CP}	(-)8	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_{CB0}	$V_{CB}=(-)100\text{V}, I_E=0$			(-)1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4\text{V}, I_C=0$			(-)1	μA
DC Current Gain	$h_{FE}(1)$	$V_{CE}=(-)5\text{V}, I_C=(-)0.5\text{A}$	70*		400*	
	$h_{FE}(2)$	$V_{CE}=(-)5\text{V}, I_C=(-)3\text{A}$	40			
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10\text{V}, I_C=(-)0.5\text{A}$		180		MHz
				(130)		MHz
Output Capacitance	c_{ob}	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		40		pF
				(65)		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)2\text{A}, I_B=(-)0.2\text{A}$		150	400	mV
				(-200)	(-500)	mV

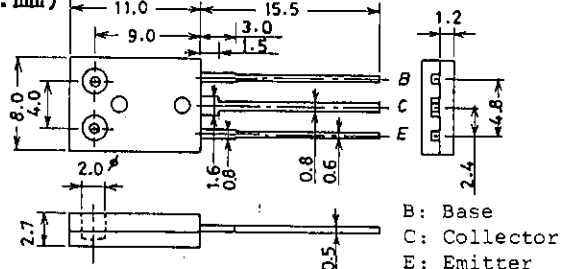
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*: The 2SB1168/2SD1725 are classified by 0.5A h_{FE} as follows:

70	Q	140	100	R	200	140	S	280	200	T	400
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Package Dimensions 2043A

(unit:mm)

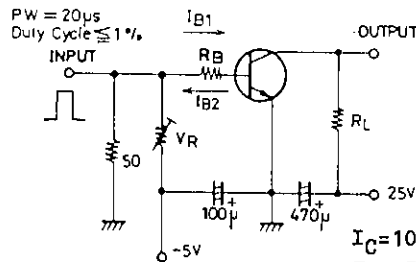


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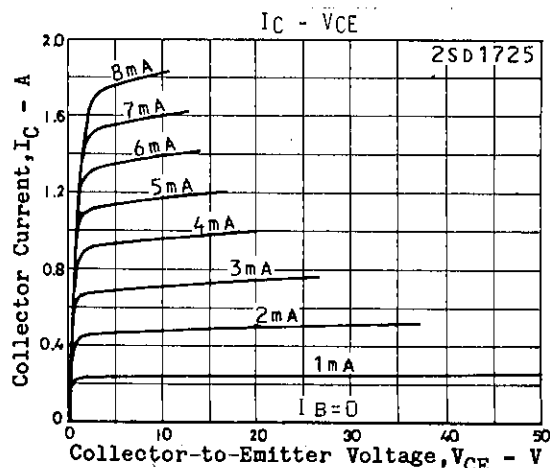
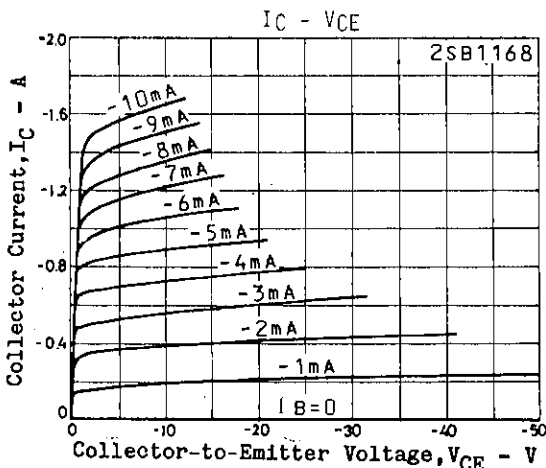
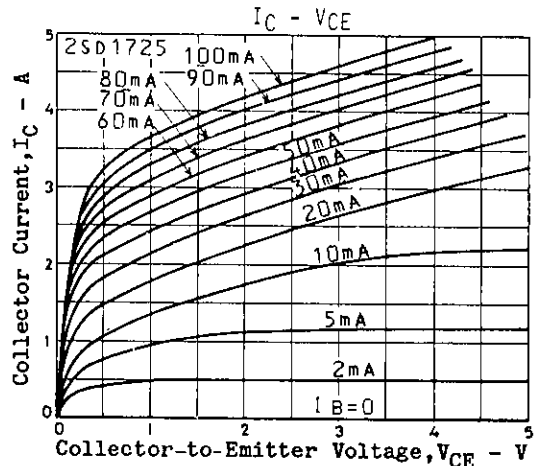
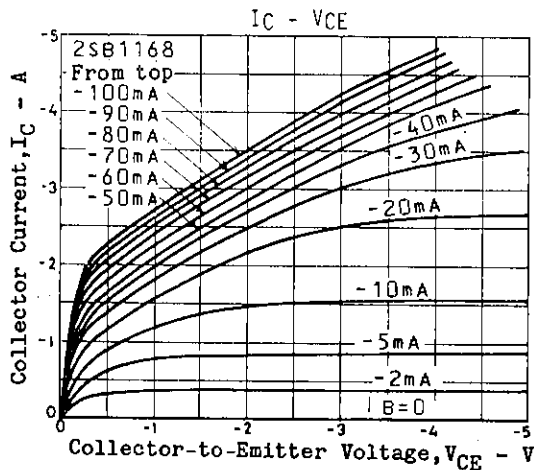
			min	typ	max	unit
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2A, I_B=(-)0.2A$		(-)0.9	(-)1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-)120			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)100			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-)6			V
Turn-on Time	t_{on}	See specified Test Circuit.		100		ns
Storage Time	t_{stg}	"		(100)		ns
				900		ns
Fall Time	t_f	"		(800)		ns
				50		ns
				(50)		ns

Switching Time Test Circuit

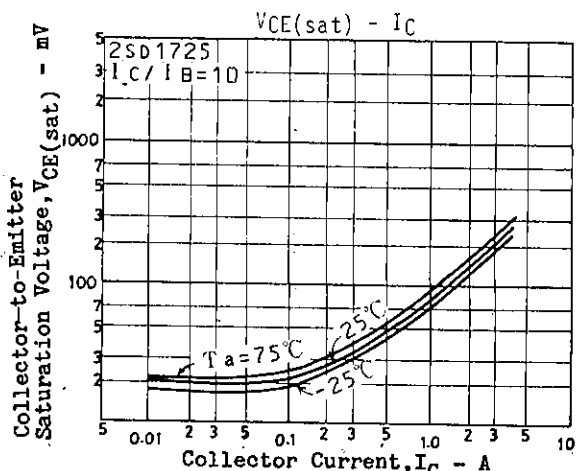
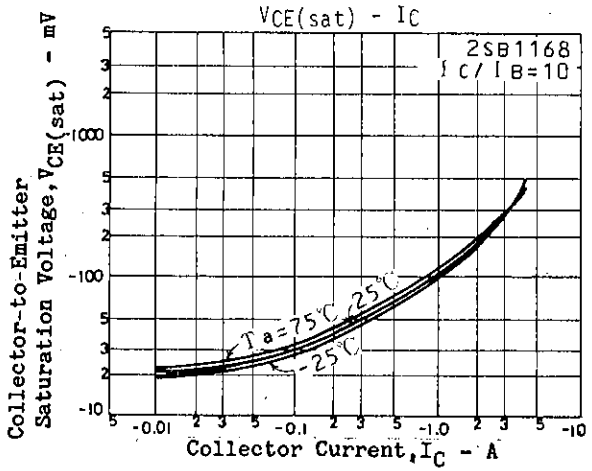
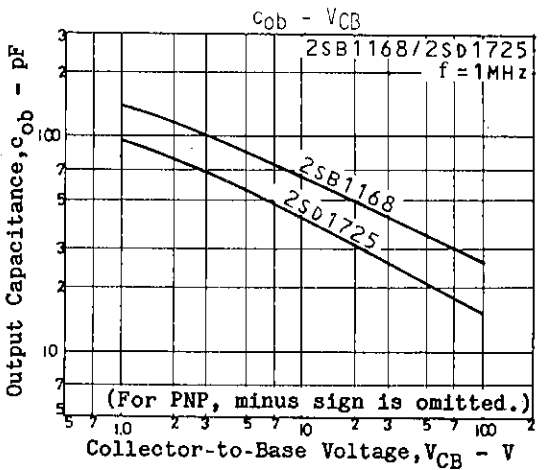
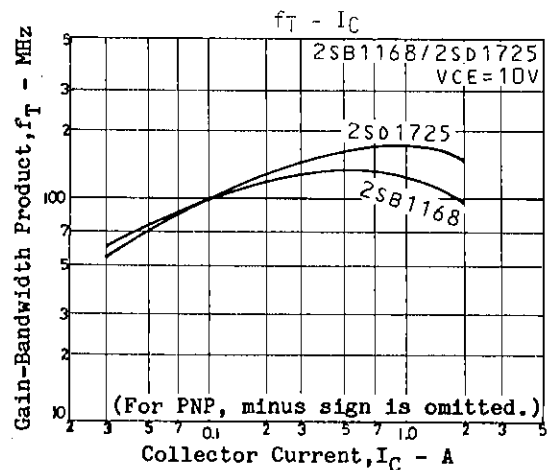
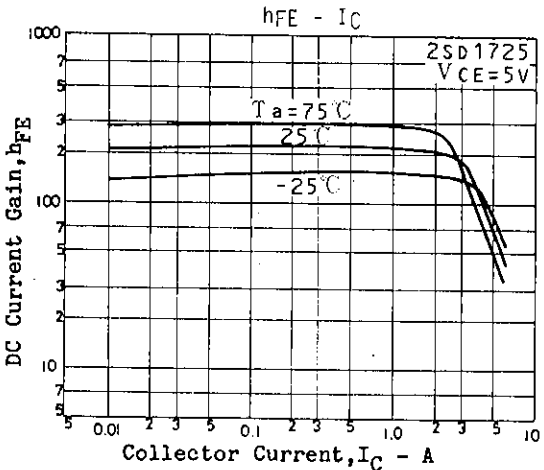
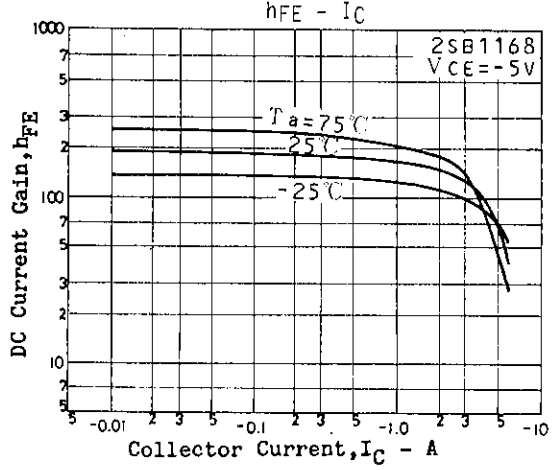
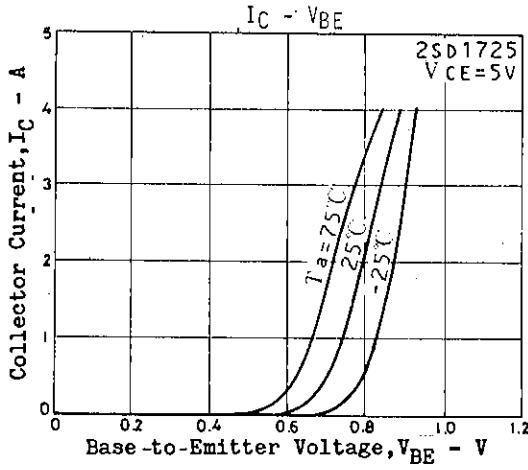
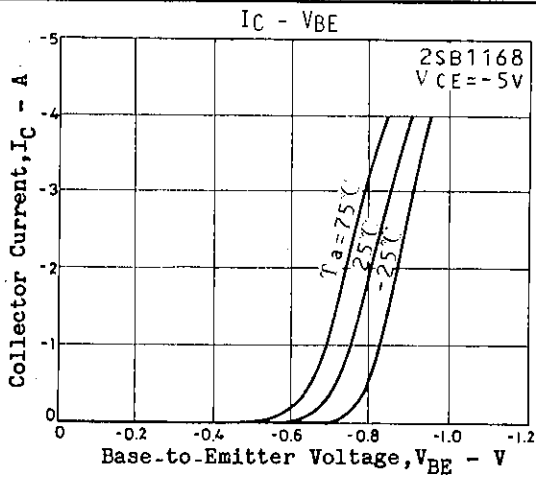


Unit (Resistance : Ω , Capacitance : F)

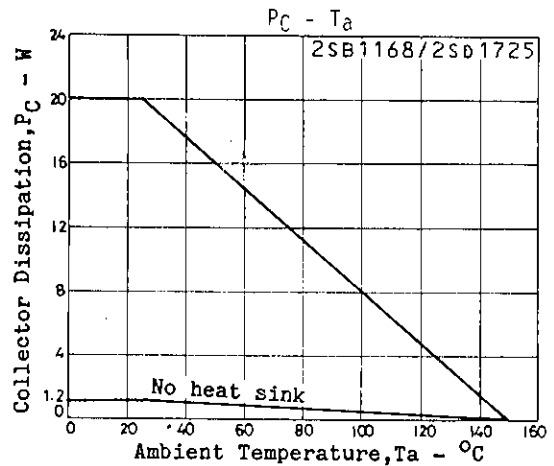
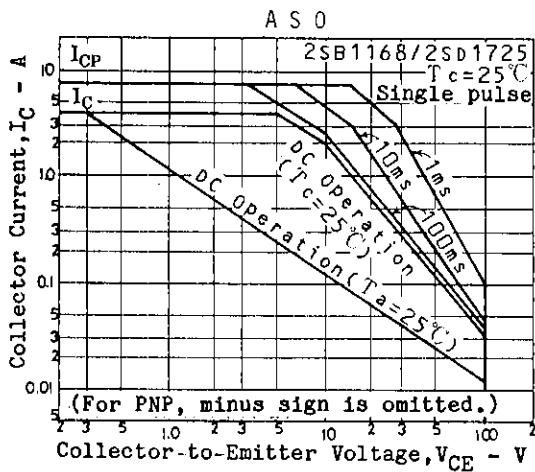
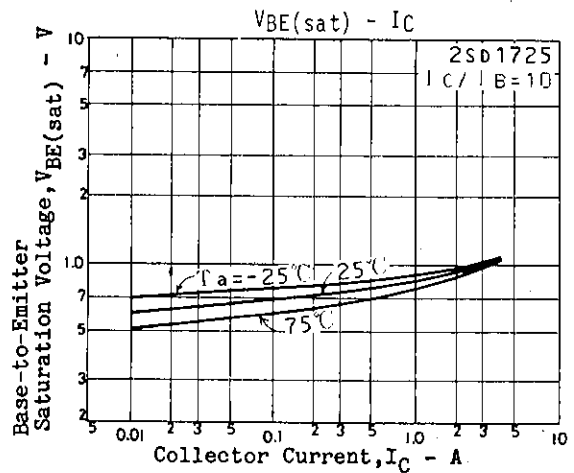
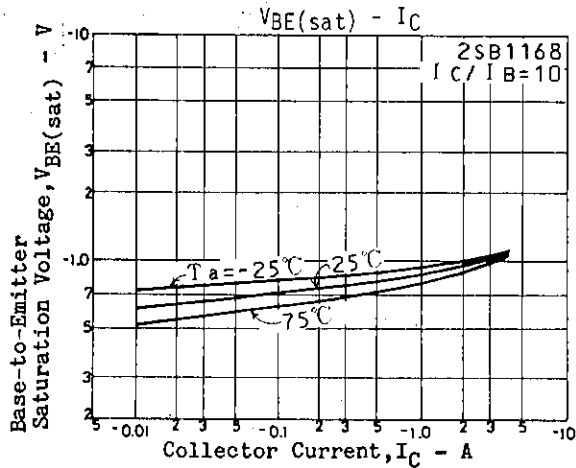
$I_C = 10I_{B1} = -10I_{B2} = 2A$
For PNP, the polarity is reversed.



2SB1168/2SD1725



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