

2SB1168/2SD1725**SANYO****Large Current Switching Applications****Features**

- Relay drivers, high-speed inverters, converters.

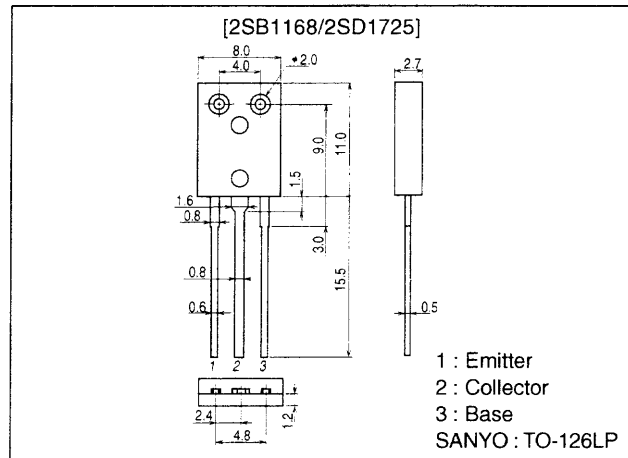
Features

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

Package Dimensions

unit:mm

2043B

**Specifications**

() : 2SB1168

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

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

Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)100\text{V}, I_E=0$			(-)1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4\text{V}, I_C=0$			(-)1	μA
DC Current Gain	h_{FE1}	$V_{CE}=(-)5\text{V}, I_C=(-)0.5\text{A}$	70*		400*	
	h_{FE2}	$V_{CE}=(-)5\text{V}, I_C=(-)3\text{A}$	40			
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10\text{V}, I_C=(-)0.5\text{A}$		(130)		MHz
				180		MHz

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

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Rank	Q	R	S	T
h_{FE}	70 to 140	100 to 200	140 to 280	200 to 400

■ Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.

■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

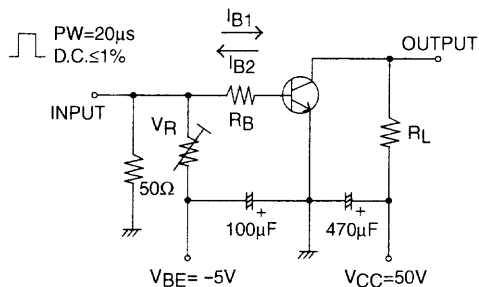
SANYO Electric Co.,Ltd. Semiconductor Company

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

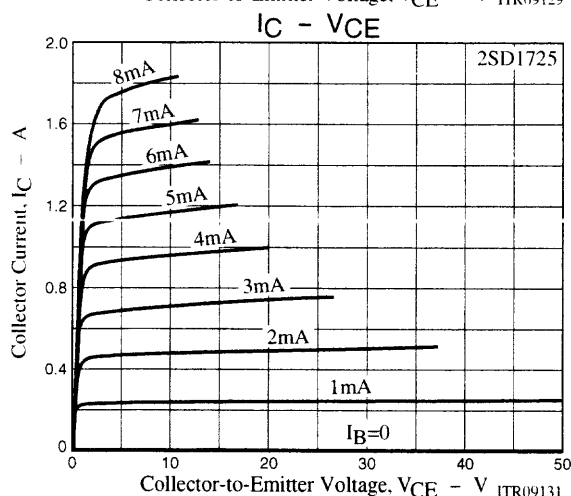
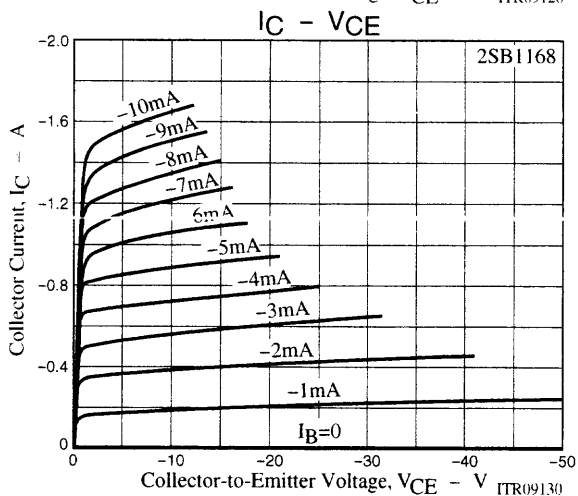
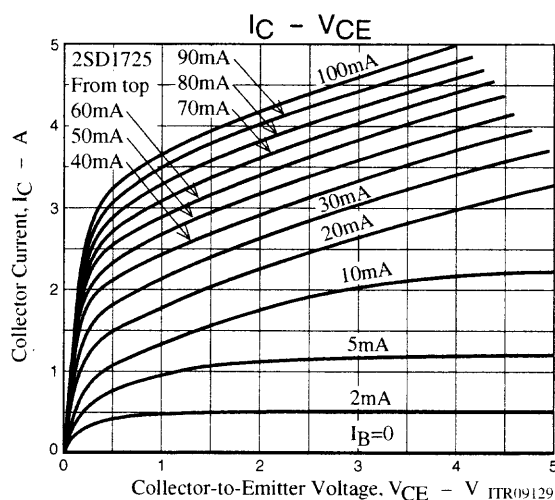
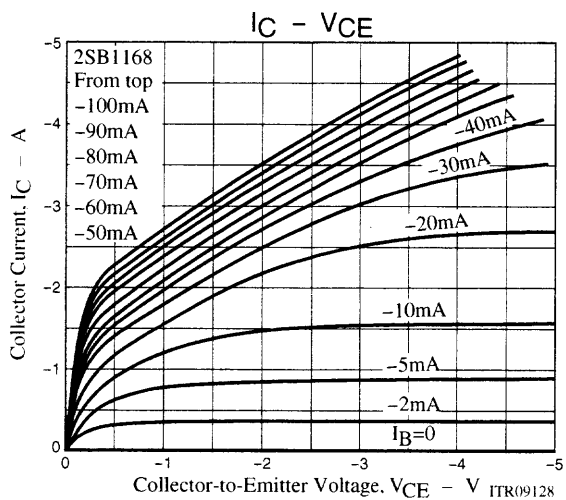
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Parameter	Symbol	Conditions	Ratings			Unit	
			min	typ	max		
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		40(65)		pF	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)2A, I_B=(-)0.2A$		(-200)	(-500)	mV	
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2A, I_B=(-)0.2A$		(-0.9)	(-1.2)	V	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-120)			V	
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-100)			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		(100)		ns	
					100		ns
Storage Time	t_{stg}				900		ns
					(800)		ns
Fall Time	t_f				50(50)		ns

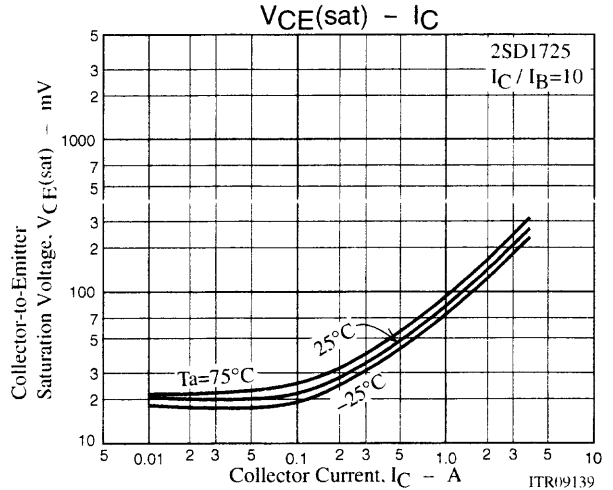
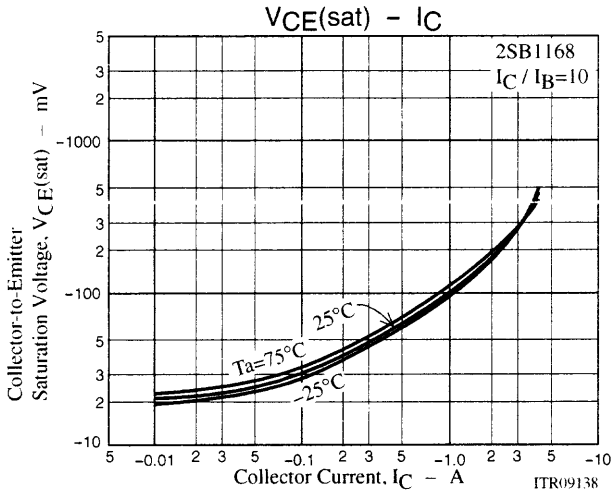
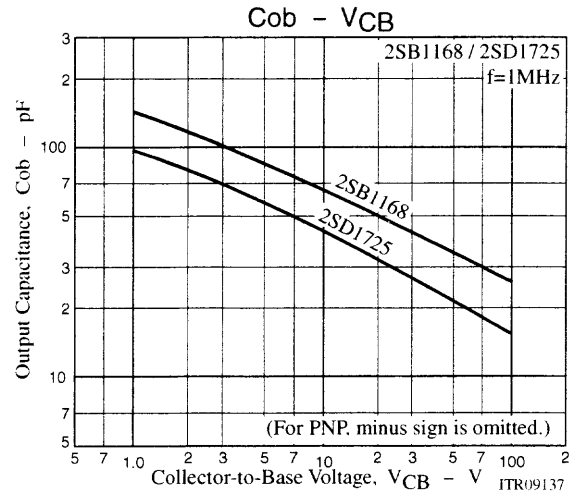
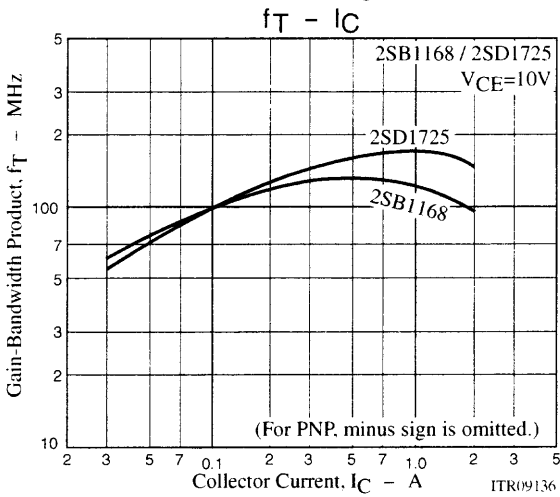
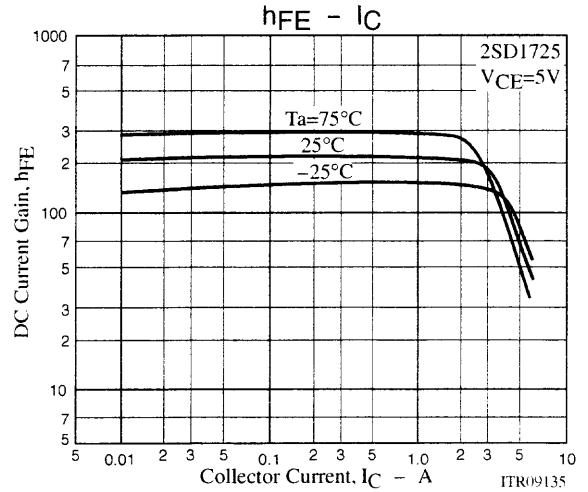
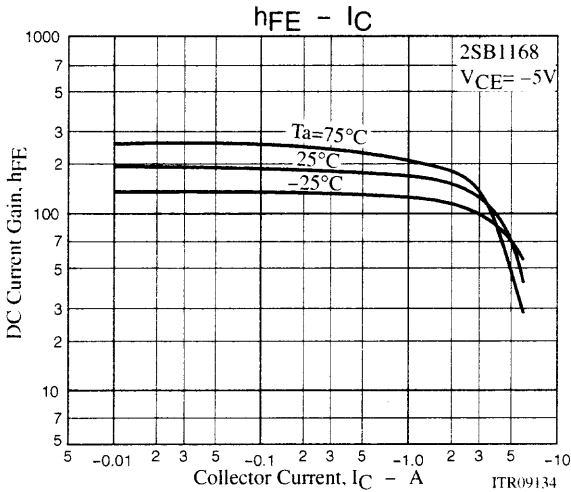
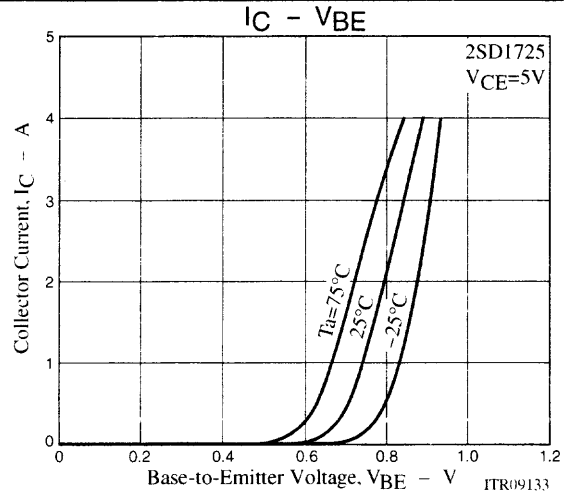
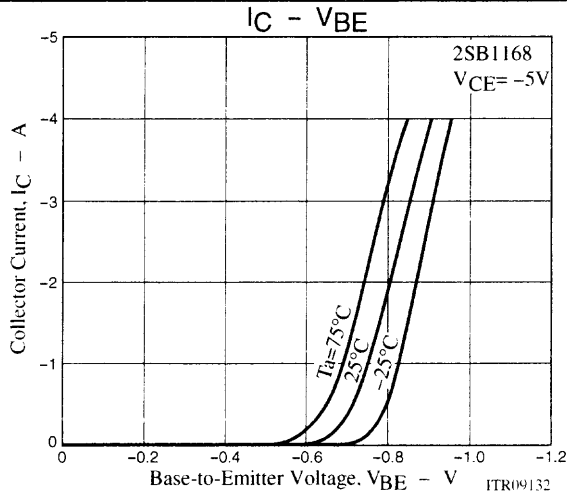
Switching Time Test Circuit



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



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