

SANYO	No.2048A	2SB1168/2SD1725
		PNP/NPN Epitaxial Planar Silicon Transistors
		100V/4A 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

(): 2SB1168

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

			unit
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
		20	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

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

			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

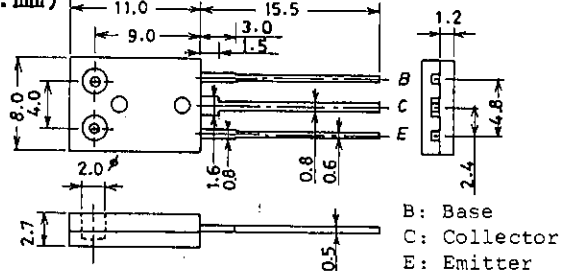
Continued on next page.

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

70	Q	140	100	R	200	140	S	280	200	T	400
----	---	-----	-----	---	-----	-----	---	-----	-----	---	-----

Package Dimensions 2043A

(unit:mm)



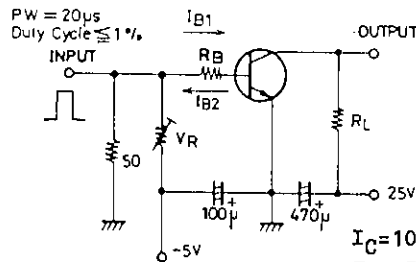
B: Base
C: Collector
E: Emitter

SANYO: T0126LP

Continued from preceding page.

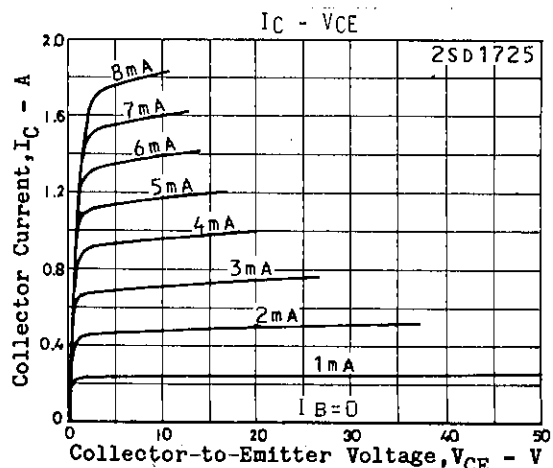
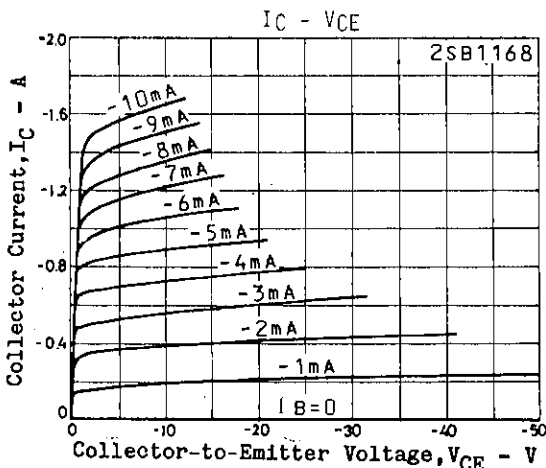
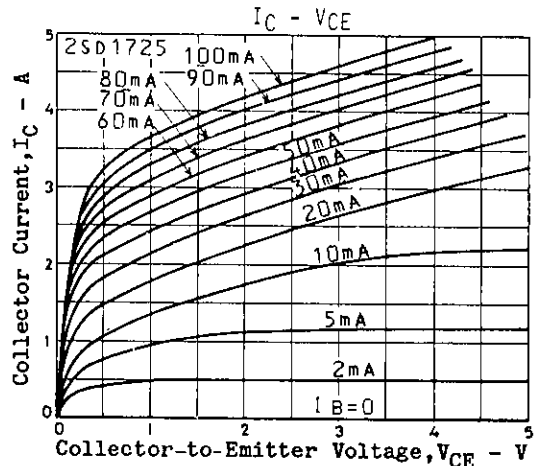
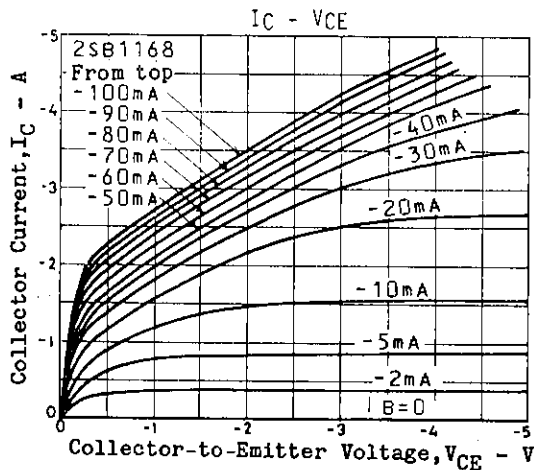
			min	typ	max	unit
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2A, I_B=(-)0.2A$		(-)0.9	(-)1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$		(-)120		V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$		(-)100		V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$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

Switching Time Test Circuit

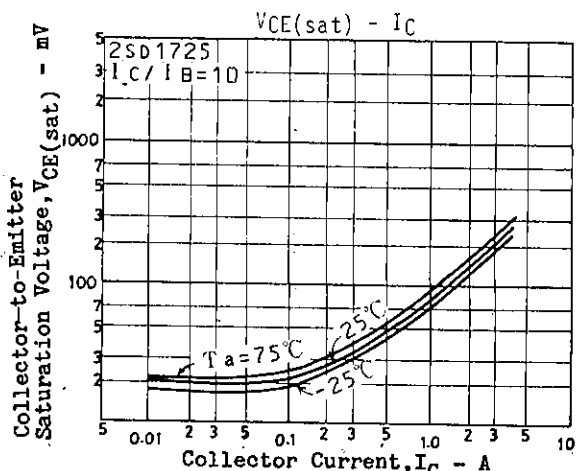
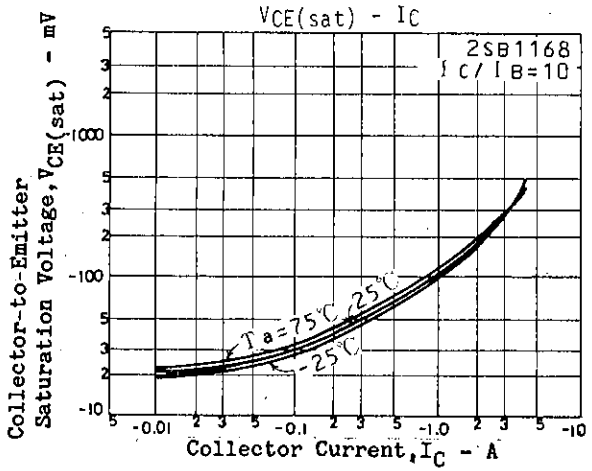
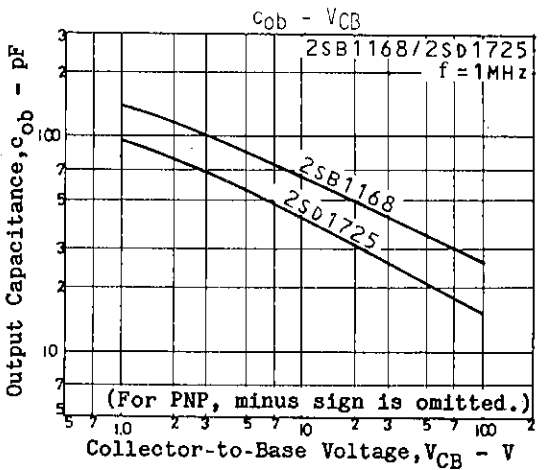
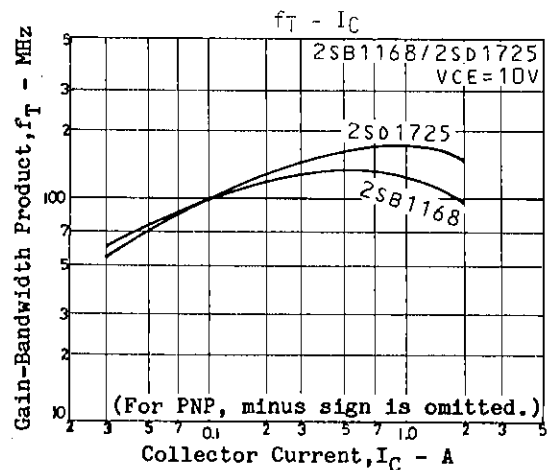
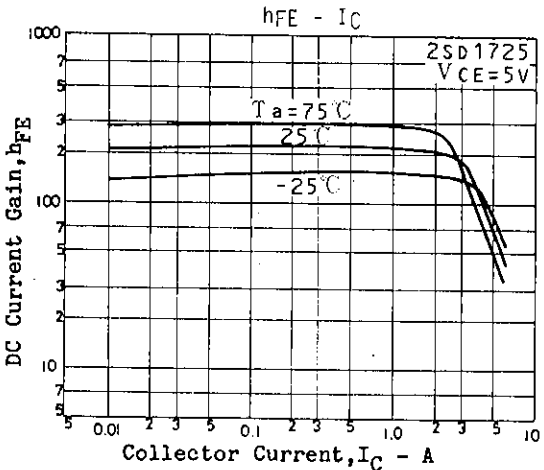
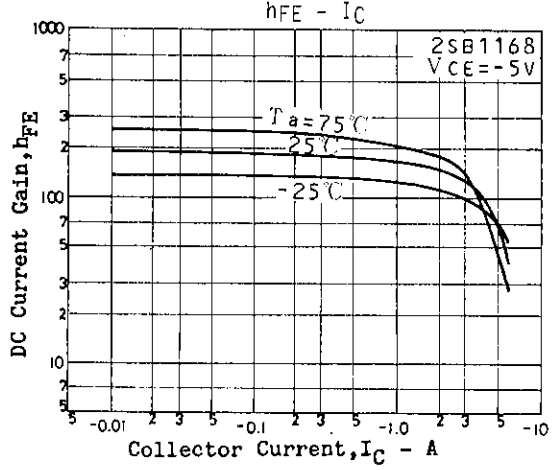
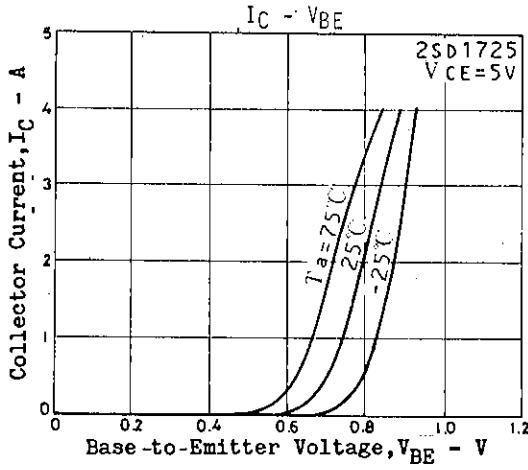
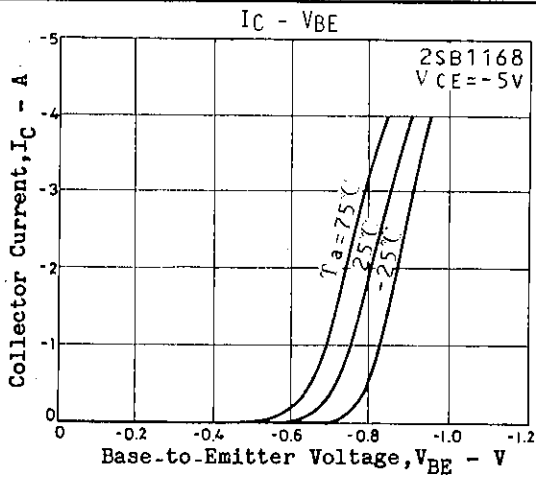


Unit (Resistance : Ω, Capacitance : F)

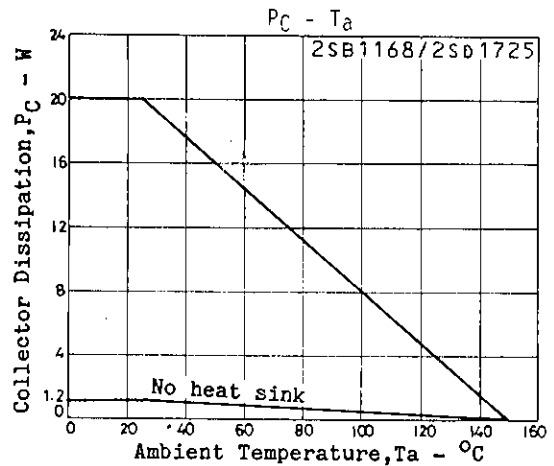
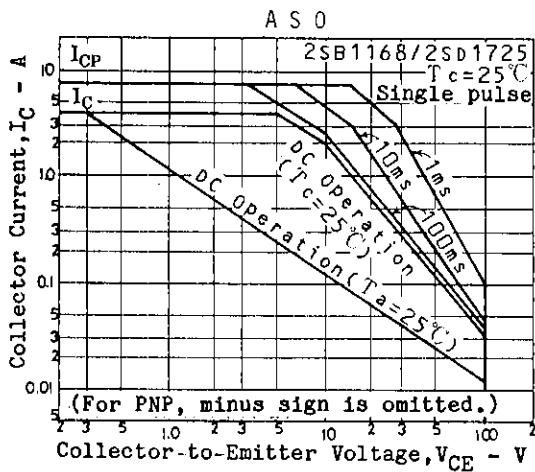
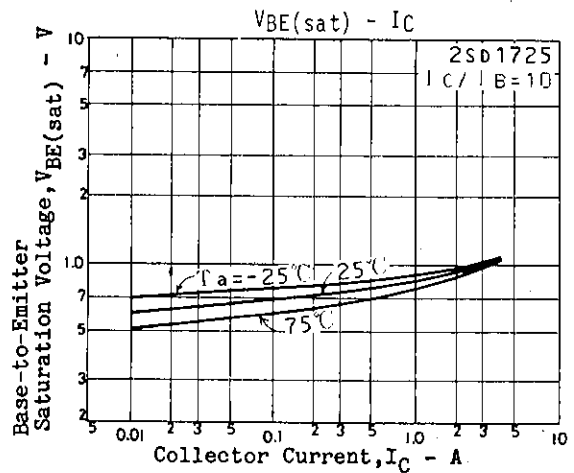
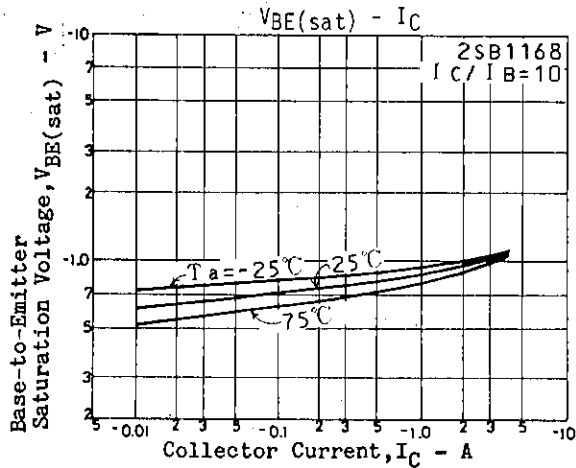
$I_C=10I_{B1}=-10I_{B2}=2A$
For PNP, the polarity is reversed.



2SB1168/2SD1725



2SB1168/2SD1725



- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
 - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use;
 - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.