Ordering number:EN3877

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1825/2SC4729

50V/8A Switching Applications

Applications

· Relay drivers, high-speed inverters, converters, and other general high-current switching applications.

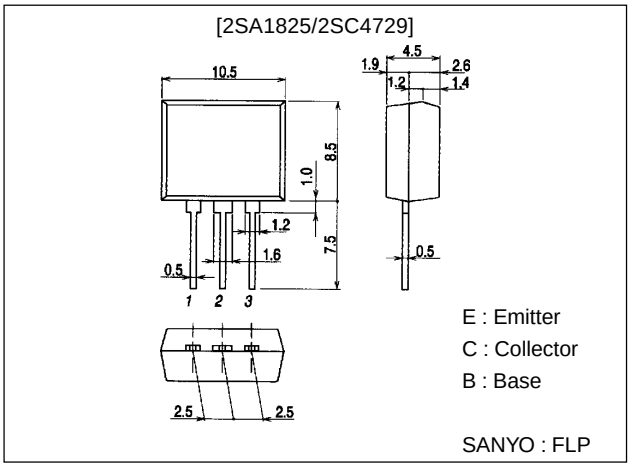
Features

· Low collector-to-emitter saturation voltage.
· High Gain-Bandwidth Product.
· Excellent linearity of DC Current Gain.
· Fast switching speed.

Package Dimensions

unit:mm

2084



( ) : 2SA1825

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)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
Base Current	I_B		(–)2	A
Collector Dissipation	P_C		1.5	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)40V, I_E=0			(–)1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(–)2V, I_C=(–)0.5A	100*		400*	
	$h_{FE}2$	V_{CE}=(–)2V, I_C=(–)6A	35			
Gain-Bandwidth Product	f_T	V_{CE}=(–)5V, I_C=(–)1A		(130)		MHz
				180		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		(95)65		pF

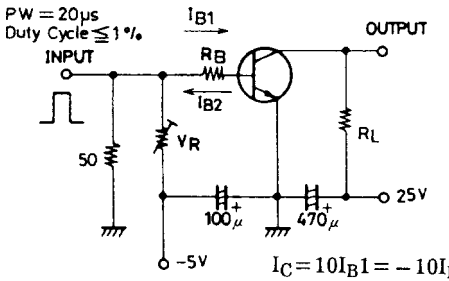
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)4A, I_B=(–)0.2A		(–250)	(–500)	mV
				200	400	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)4mA, I_B=(–)0.2A		(–)0.95	(–)1.3	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)6			V
Turn-ON Time	t_{on}	See specified Test Circuit		50		ns
Storage Time	t_{stg}	See specified Test CIrcuit		(450)		ns
				500		ns
Fall Time	t_f	See specified Test Circuit		20		ns

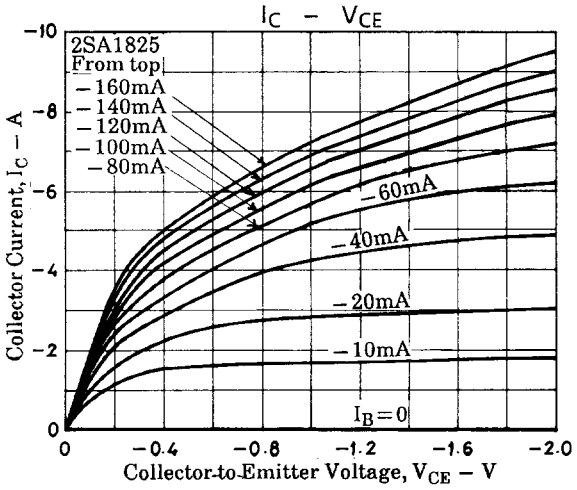
* ; 2SA1825/2SC4729 are classified by 500mA h_{FE} as follows :

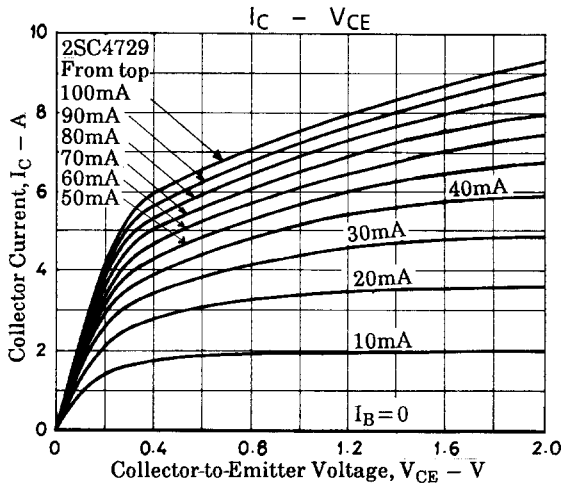
100 R 200	140 S 280	200 T 400

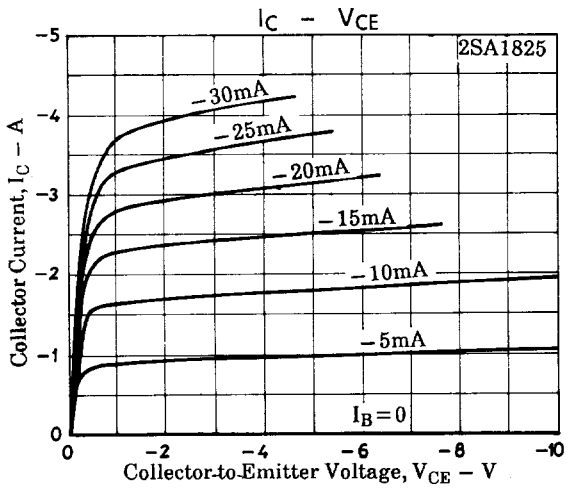
Switching Time Test Circuit

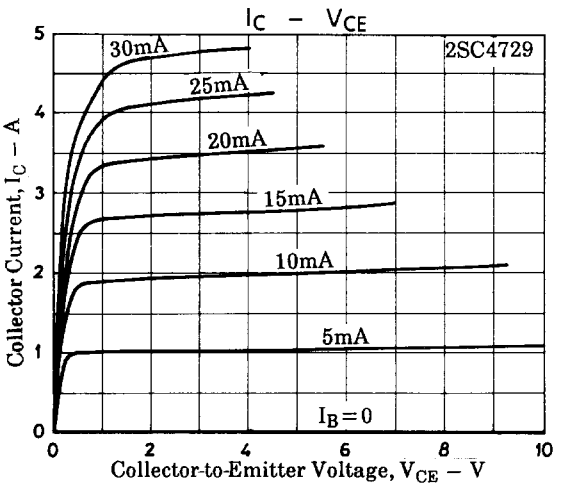


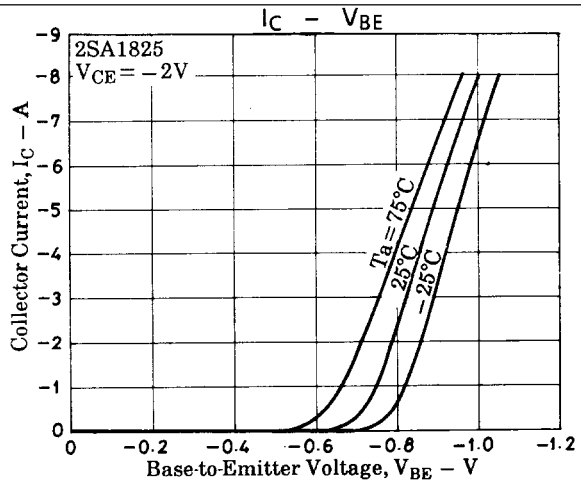
$I_C = 10I_B1 = -10I_B2 = 4A$
(For PNP, the polarity is reversed).
Unit (resistance : Ω, capacitance : F)

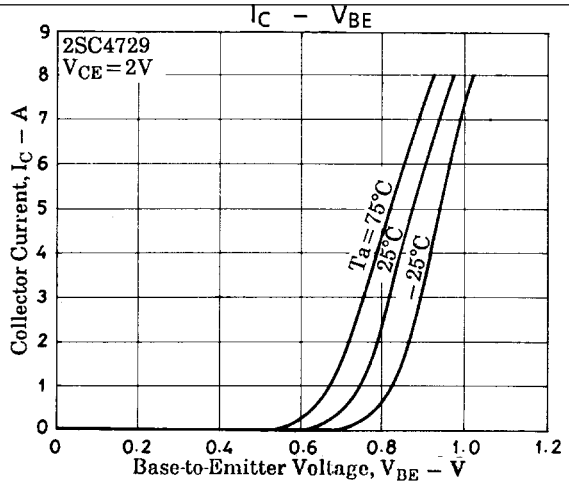


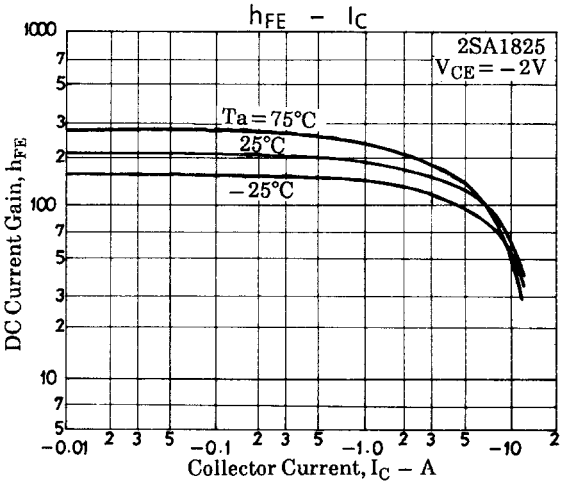


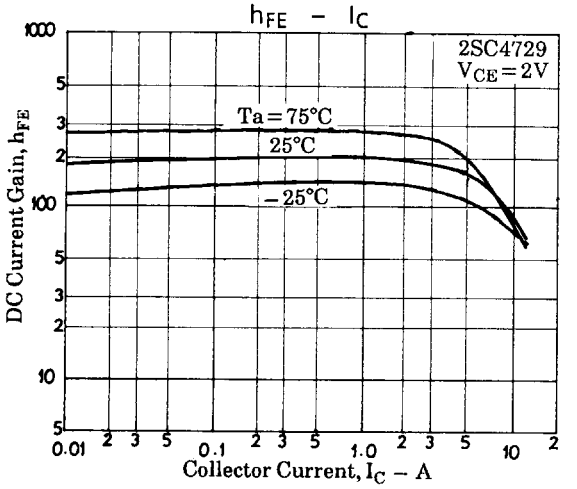


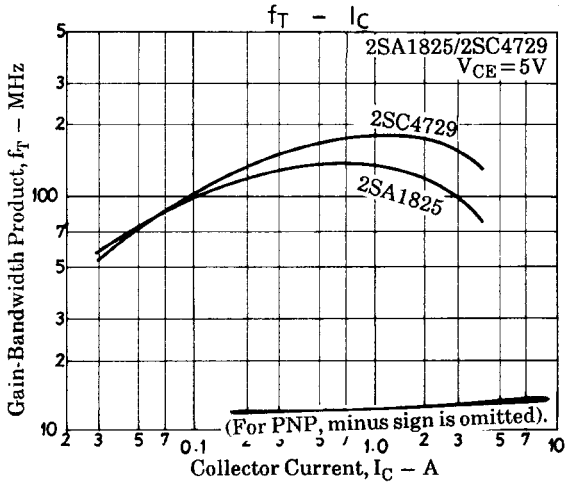


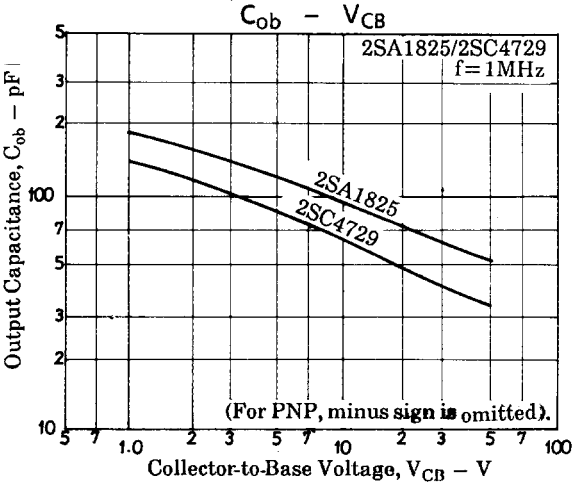

IC – VBE
2SA1825
VCE = –2V
Ta = 75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V

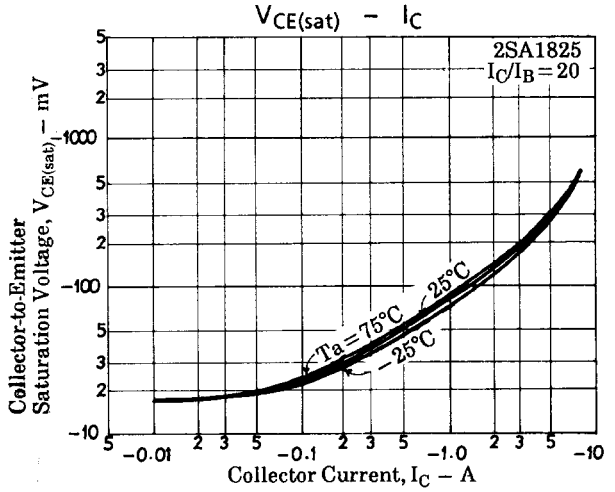

IC – VBE
2SC4729
VCE = 2V
Ta = 75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V

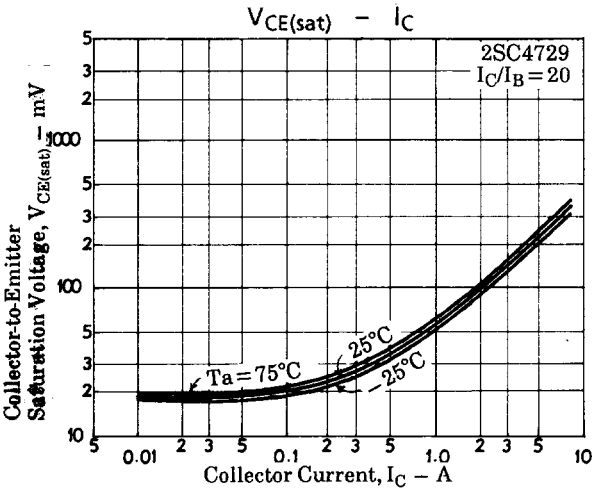

hFE – IC
2SA1825
VCE = –2V
Ta = 75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A


hFE – IC
2SC4729
VCE = 2V
Ta = 75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A


fT – IC
2SA1825/2SC4729
VCE = 5V
2SC4729
2SA1825
(For PNP, minus sign is omitted).
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A


Cob – VCB
2SA1825/2SC4729
f = 1MHz
2SA1825
2SC4729
(For PNP, minus sign is omitted).
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V


VCE(sat) – IC
2SA1825
IC/IB = 20
Ta = 75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A


VCE(sat) – IC
2SC4729
IC/IB = 20
Ta = 75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A