Ordering number: EN3879

SANYO

No.3879

2SA1827/2SC4731

PNP/NPN Epitaxial Planar Silicon Transistors

100V/4A 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.

( ) : 2SA1827

Absolute Maximum Ratings at Ta = 25°C

			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
Base Current	I_B	(−)0.8	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

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB} = (−)100V, 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} = (−)5V, I_C = (−)500mA	100*		400*	
	$h_{FE}(2)$	V_{CE} = (−)5V, I_C = (−)3A	40			
Gain-Bandwidth Product	f_T	V_{CE} = (−)10V, I_C = (−)500mA	(130)180			MHz
Output Capacitance	C_{ob}	V_{CB} = (−)10V, f = 1MHz	(65)40			pF

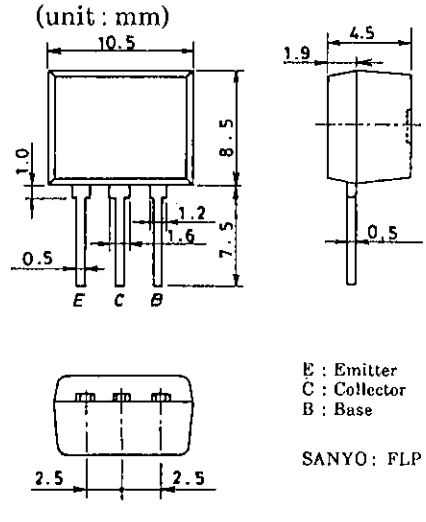
Continued on next page.

* : The 2SA1827/2SC4731 are classified by 500mA h_{FE} as follows

100 R 200	140 S 280	200 T 400

Package Dimensions 2084

(unit : mm)



E : Emitter
C : Collector
B : Base

SANYO : FLP

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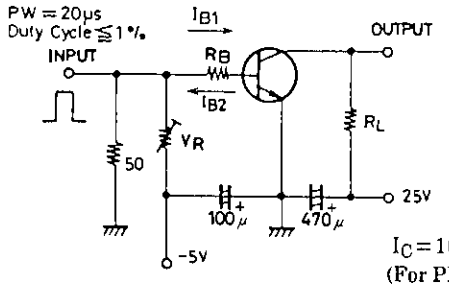
TOKYO OFFICE Tokyo Bldg.,1-10,1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

Continued from preceding page.

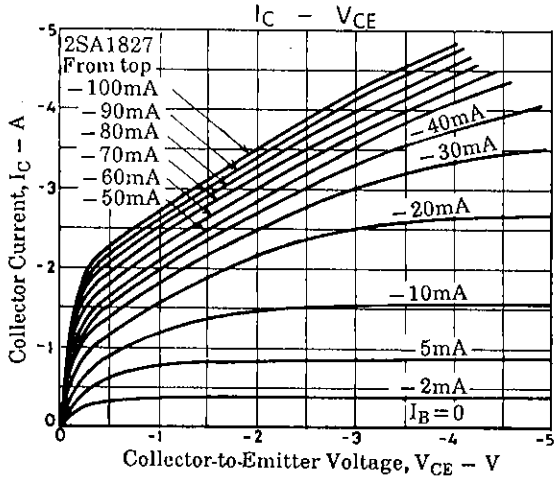
			min	typ	max	unit
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)2A, I_B=(-)0.2A$		(-200)	(-500)	mV
				150	400	mV
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2A, I_B=(-)0.2A$		$(-)0.9$	$(-)1.2$	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	$(-)120$			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	$(-)100$			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}	〃		(800)900		ns
Fall Time	t_f	〃		50		ns

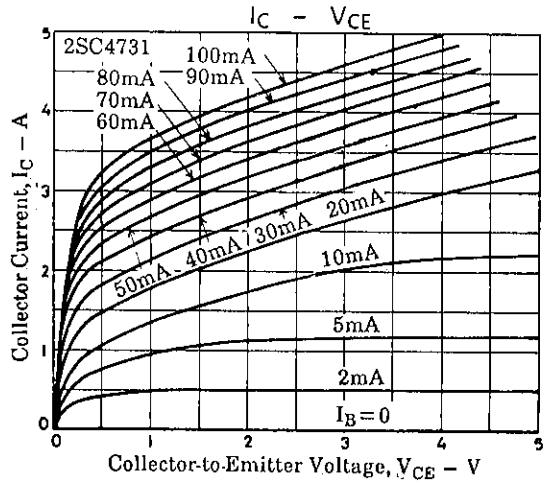
Switching Time Test Circuit

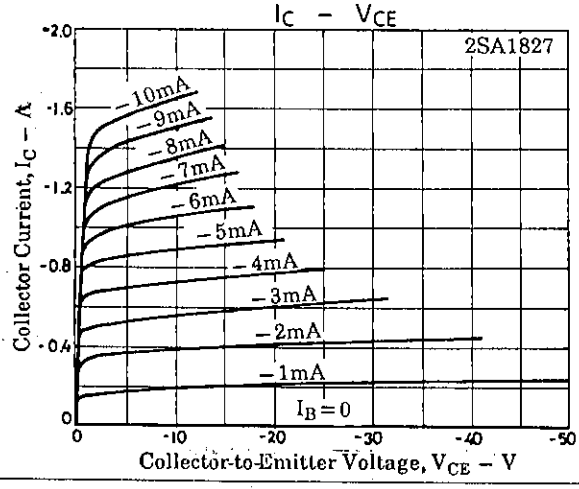


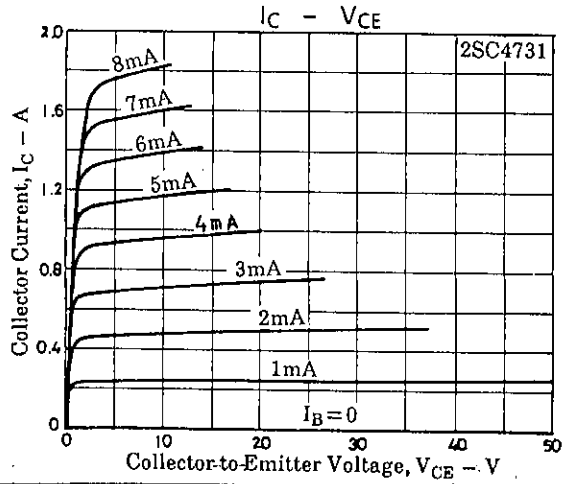
$I_C=10I_B1=-10I_B2=2A$
(For PNP, the polarity is reversed).

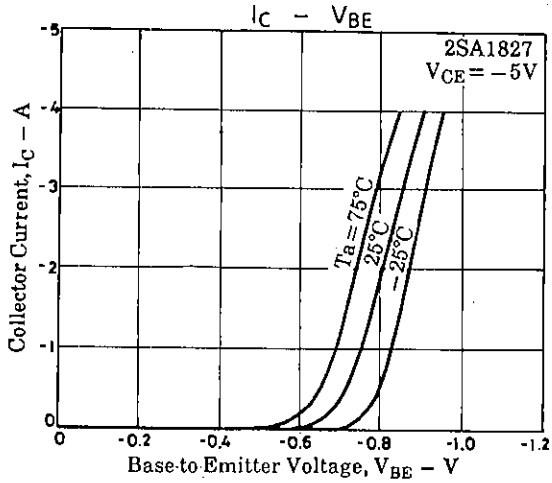
Unit (resistance: Ω, capacitance: F)

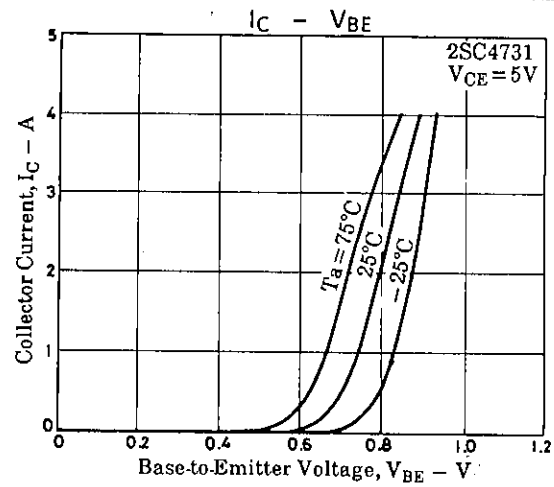


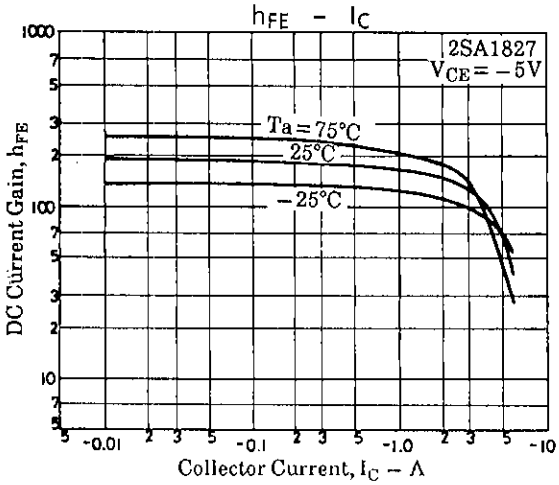


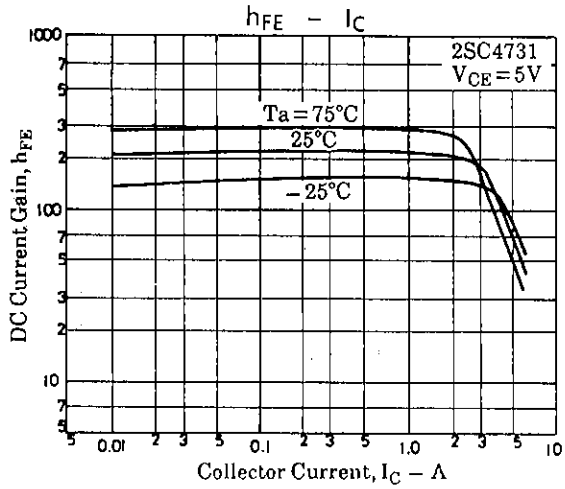


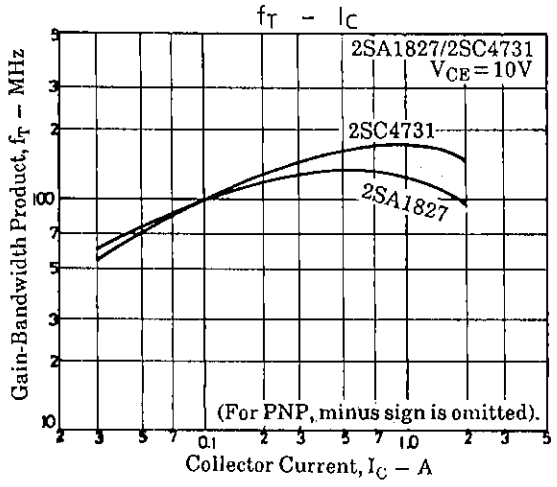


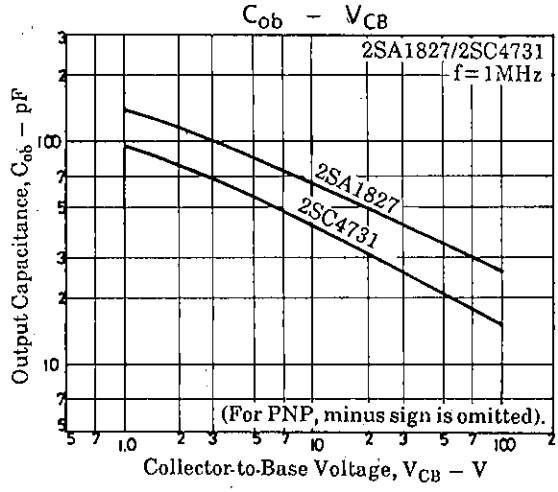

I_C – V_{BE}
2SA1827
V_{CE} = –5V
Ta = 75°C
25°C
– 25°C
Collector Current, I_C – A
Base-to-Emitter Voltage, V_{BE} – V

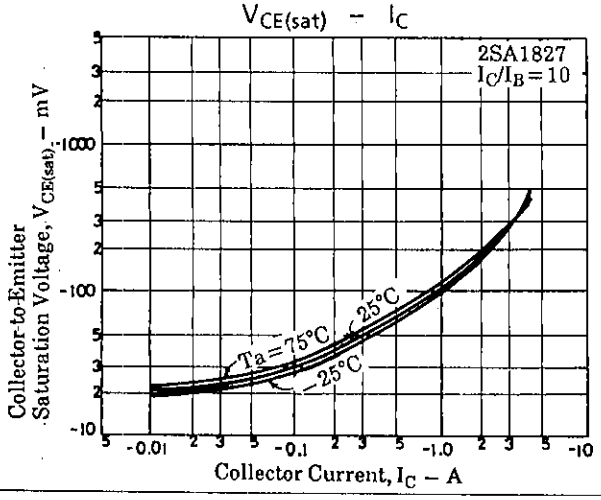

I_C – V_{BE}
2SC4731
V_{CE} = 5V
Ta = 75°C
25°C
– 25°C
Collector Current, I_C – A
Base-to-Emitter Voltage, V_{BE} – V

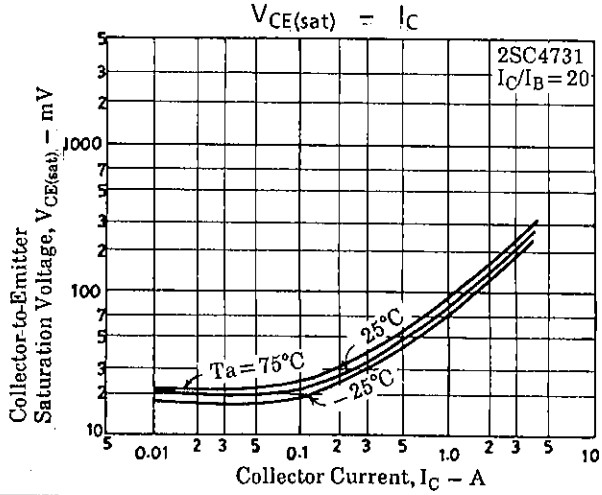

h_{FE} – I_C
2SA1827
V_{CE} = –5V
Ta = 75°C
25°C
– 25°C
DC Current Gain, h_{FE}
Collector Current, I_C – A


h_{FE} – I_C
2SC4731
V_{CE} = 5V
Ta = 75°C
25°C
– 25°C
DC Current Gain, h_{FE}
Collector Current, I_C – A


f_T – I_C
2SA1827/2SC4731
V_{CE} = 10V
2SC4731
2SA1827
(For PNP, minus sign is omitted.)
Gain-Bandwidth Product, f_T – MHz
Collector Current, I_C – A


C_{ob} – V_{CB}
2SA1827/2SC4731
f = 1MHz
2SA1827
2SC4731
(For PNP, minus sign is omitted.)
Output Capacitance, C_{ob} – pF
Collector-to-Base Voltage, V_{CB} – V


$V_{CE(sat)}$ – I_C
2SA1827
I_C/I_B = 10
Ta = 75°C
25°C
– 25°C
Collector-to-Emitter Saturation Voltage, $V_{CE(sat)}$ – mV
Collector Current, I_C – A


$V_{CE(sat)}$ – I_C
2SC4731
I_C/I_B = 20
Ta = 75°C
25°C
– 25°C
Collector-to-Emitter Saturation Voltage, $V_{CE(sat)}$ – mV
Collector Current, I_C – A