



2SA1827/2SC4731

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

Specifications

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

Parameter	Symbol	Conditions	Ratings	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
Base Current	I_B		(-)0.8	A
Collector Dissipation	P_C		1.5	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_{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_{FE1}	$V_{CE} = (-)5\text{V}, I_C = (-)500\text{mA}$	100*		400*	
	h_{FE2}	$V_{CE} = (-)5\text{V}, I_C = (-)3\text{A}$	40			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)10\text{V}, I_C = (-)500\text{mA}$		(130)		MHz
				180		MHz

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

100	R	200	140	S	280	200	T	400
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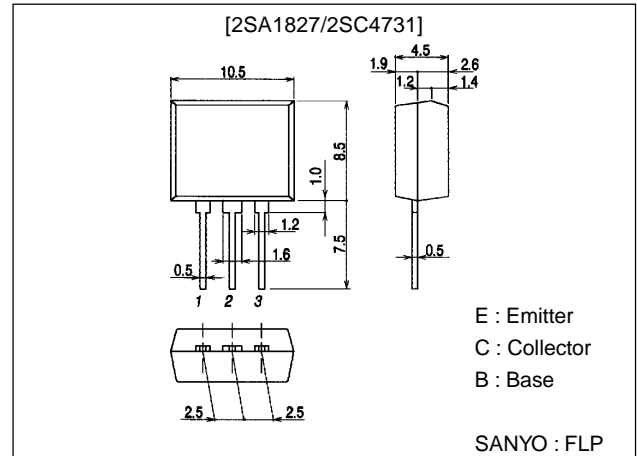
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Package Dimensions

unit:mm

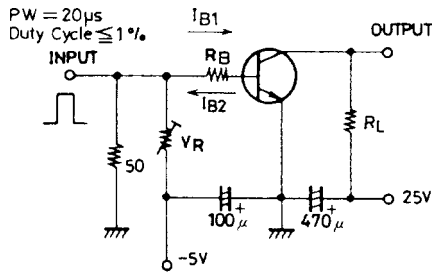
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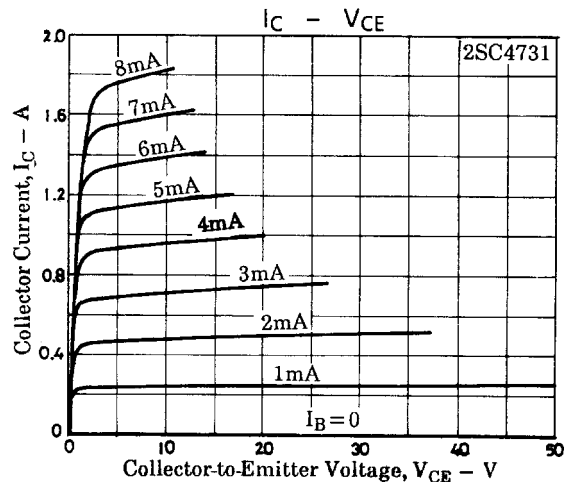
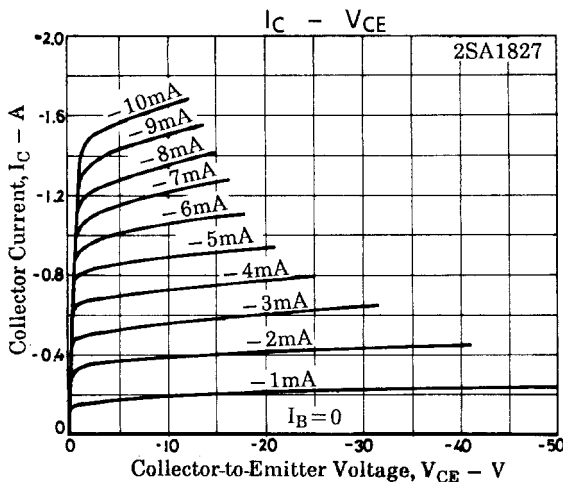
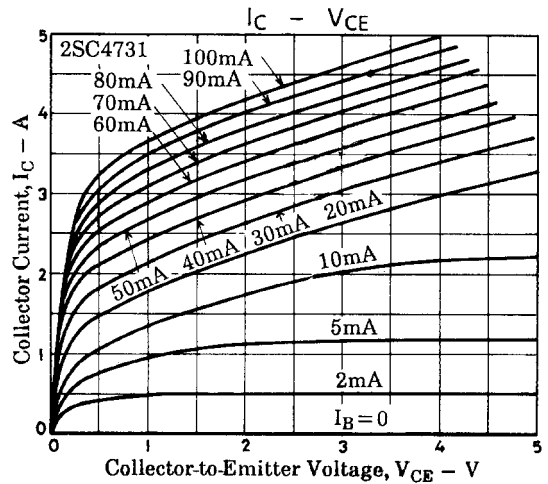
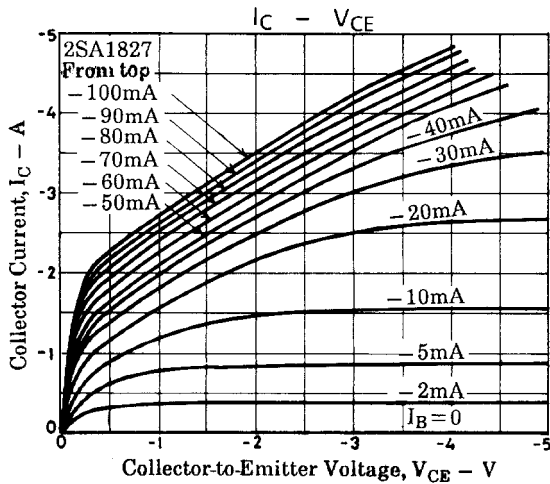
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		(65)40		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)2A, I_B=(-)0.2A$		(-200)	(-500)	mV
				150	400	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)2A, I_B=(-)0.2A$		(-)0.9	(-)1.2	mV
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
Storage Time	t_{stg}	See specified Test Circuit		(800)		ns
				900		ns
Fall Time	t_f	See specified Test Circuit		50		ns

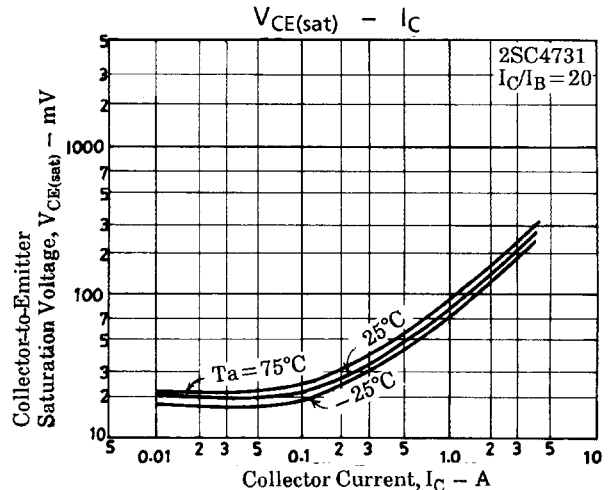
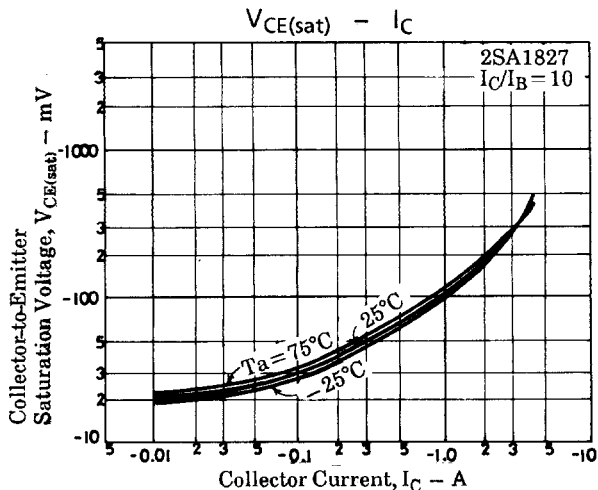
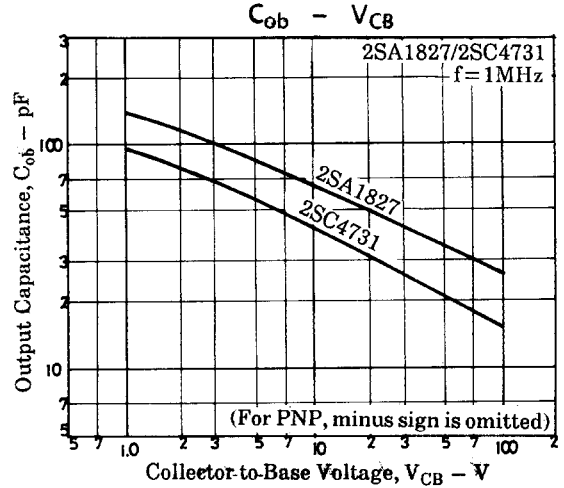
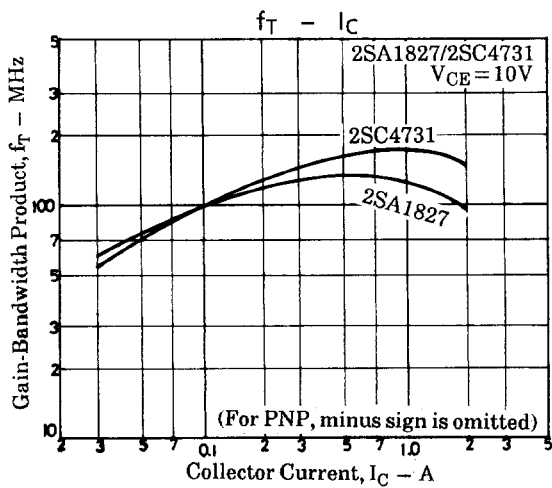
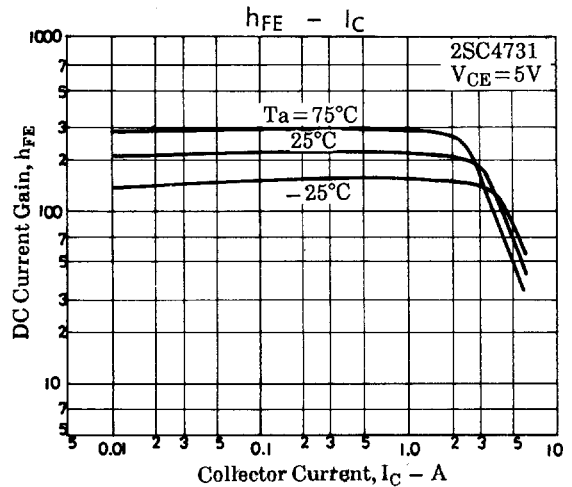
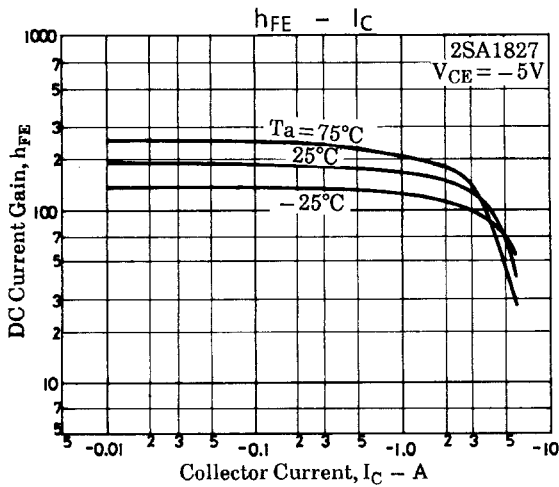
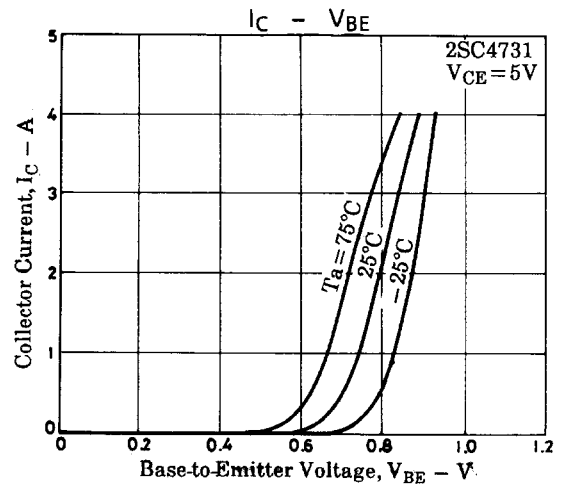
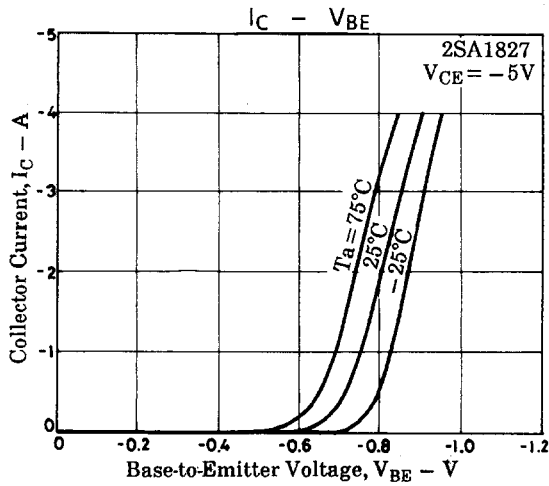
Switching Time Test Circuit



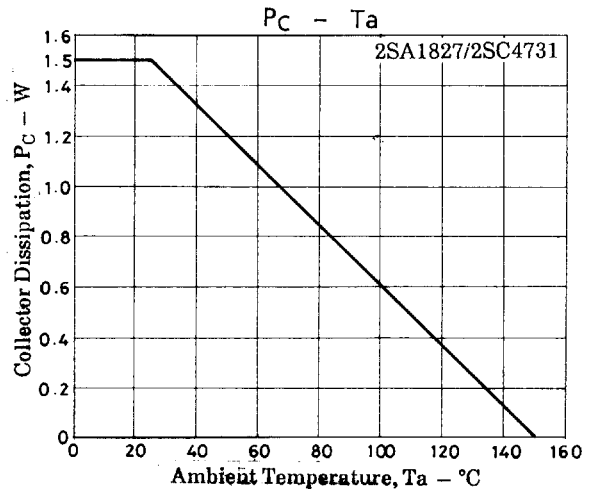
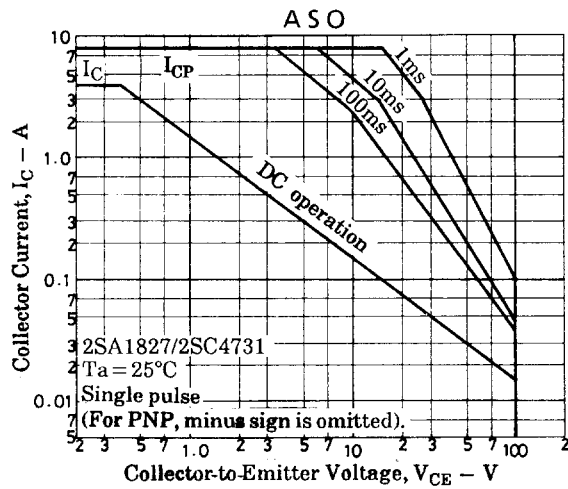
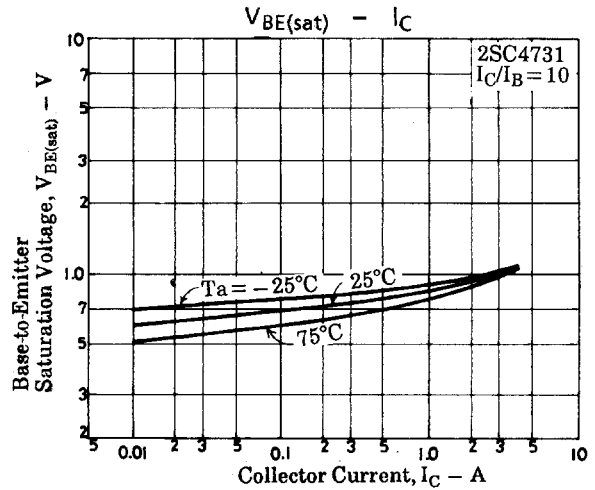
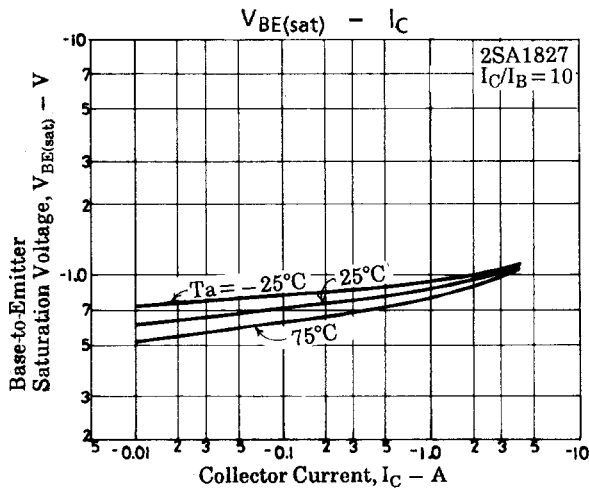
$I_C = 10I_{B1} = -10I_{B2} = 2A$
 (For PNP, the polarity is reversed).
 Unit (resistance : Ω , capacitance : F)



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