



2SB817/2SD1047

140V/12A AF 60W Output Applications

Features

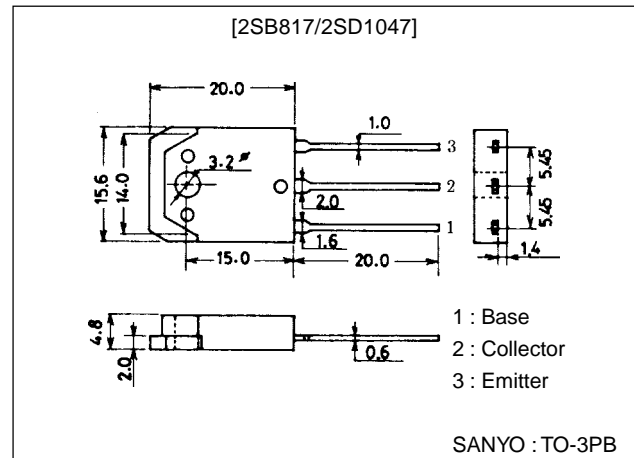
- Capable of being mounted easily because of one-point fixing type plastic molded package (Interchangeable with TO-3).
- Wide ASO because of on-chip ballast resistance.
- Good dependence of f_T on current and excellent high frequency response.

The descriptions in parentheses are for the 2SB817 only : other descriptions than those in parentheses are common to the 2SB817 and 2SD1047.

Package Dimensions

unit:mm

2022A



Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-160)	V
Collector-to-Emitter Voltage	V_{CEO}		(-140)	V
Emitter-to-Base Voltage	V_{EBO}		(-6)	V
Collector Current	I_C		(-12)	A
Collector Current (Pulse)	I_{CP}		(-15)	A
Collector Dissipation	P_C	$T_c=25^\circ\text{C}$	100	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-40 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}	$V_{CB} = (-)80\text{V}, I_E = 0$			(-0.1)	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4\text{V}, I_C = 0$			(-0.1)	mA
DC Current Gain	h_{FE1}	$V_{CE} = (-)5\text{V}, I_C = (-)1\text{A}$	60*		200*	
	h_{FE2}	$V_{CE} = (-)5\text{V}, I_C = (-)6\text{A}$	20			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)5\text{V}, I_C = (-)1\text{A}$		15		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)10\text{V}, f = 1\text{MHz}$		(300)		pF
				210		pF

* : The 2SB817/2SD1047 are classified by 1A h_{FE} as follows :

60	D	120	100	E	200
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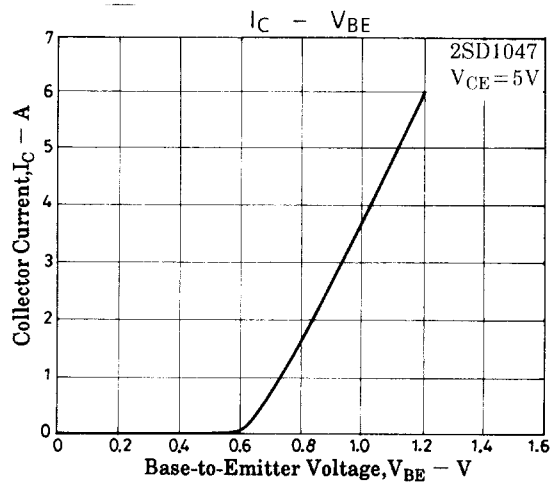
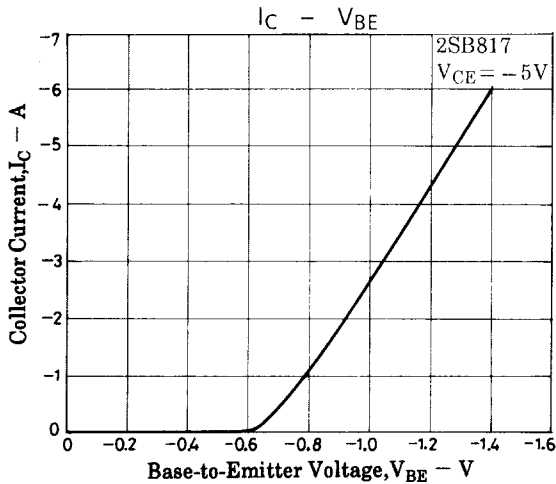
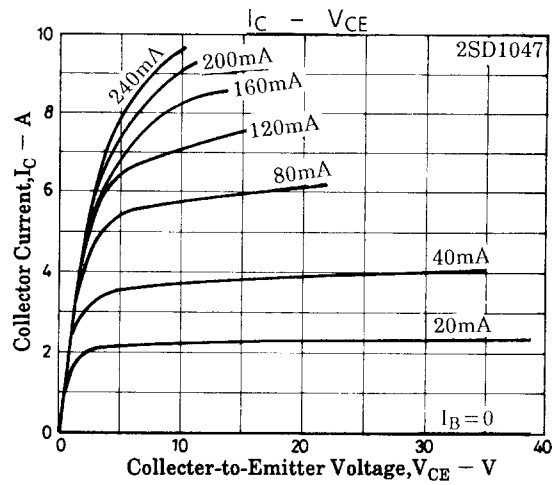
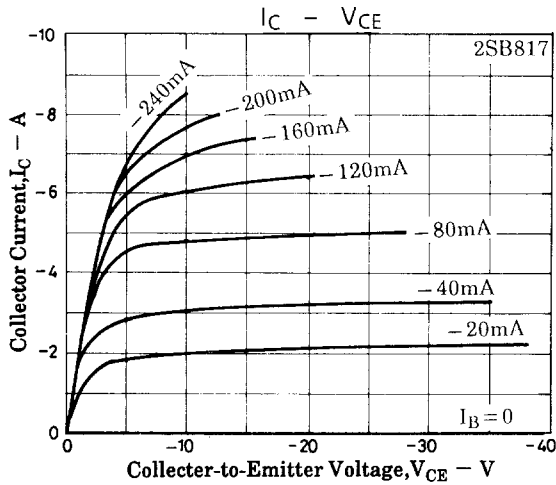
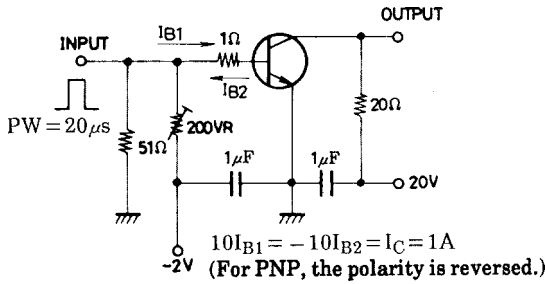
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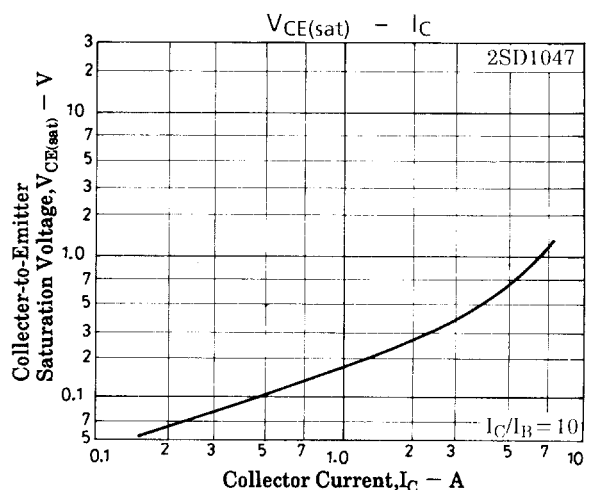
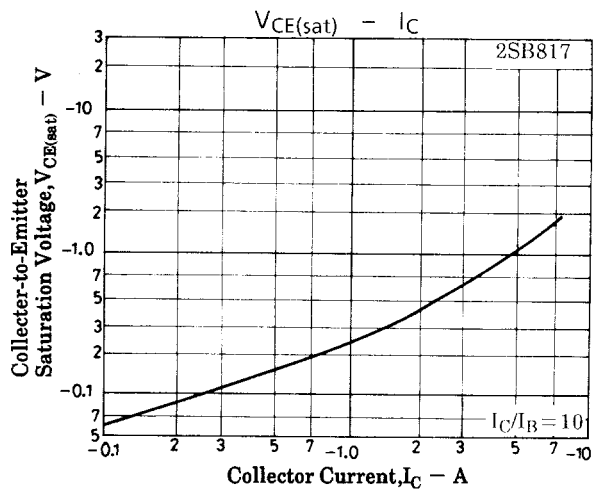
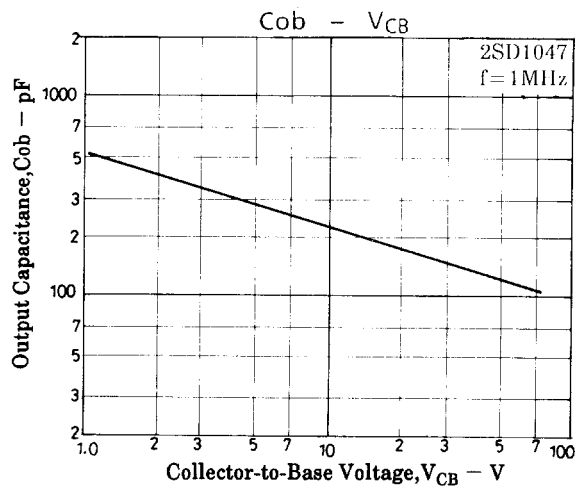
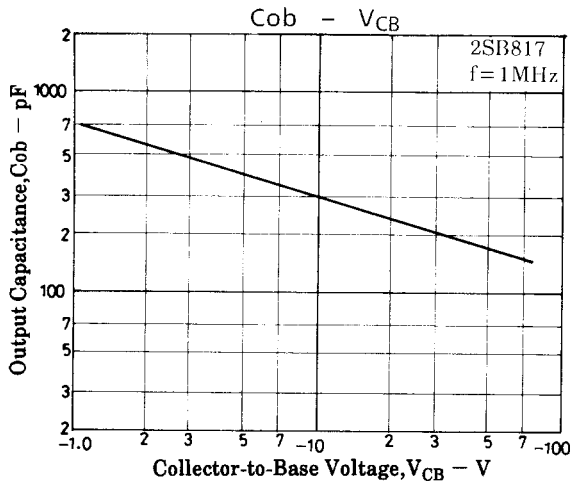
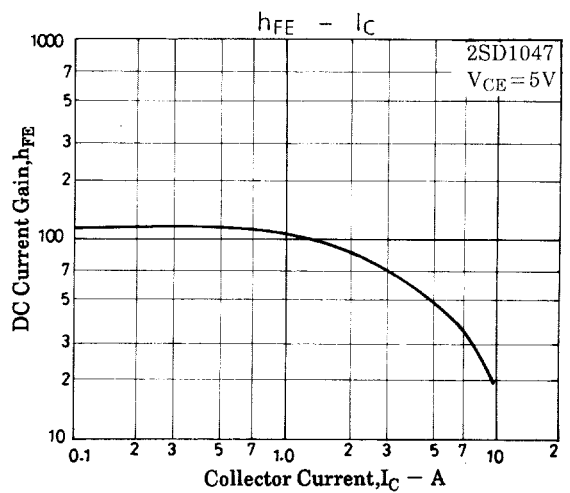
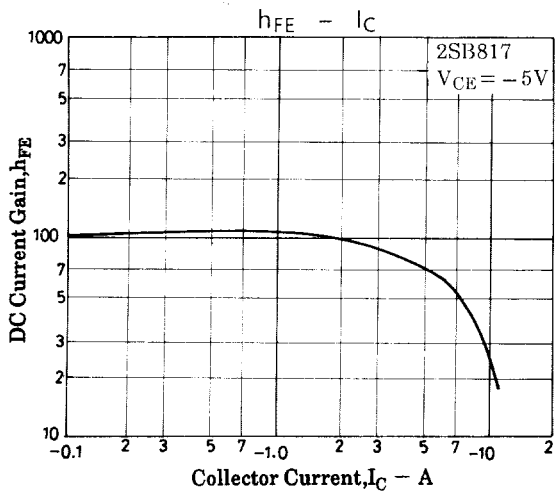
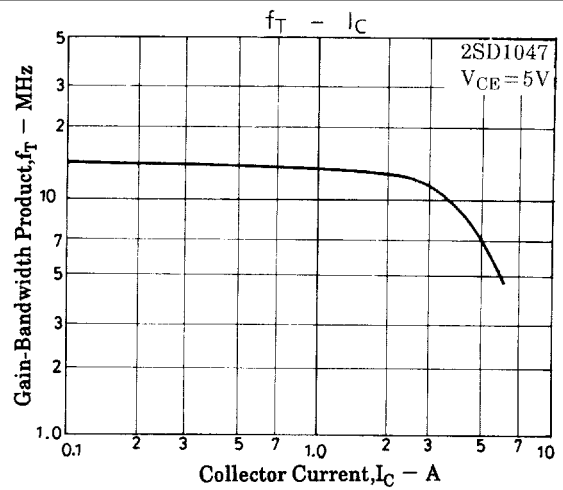
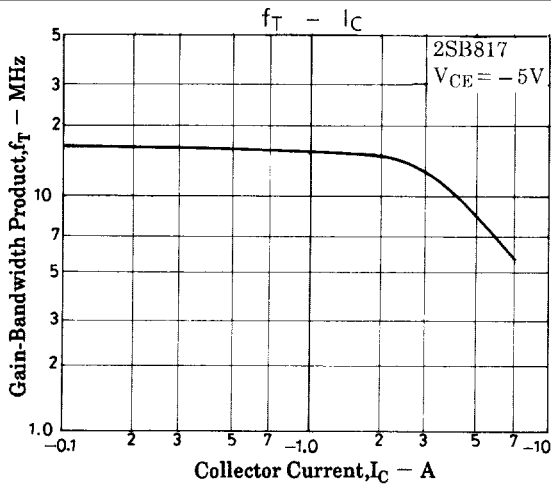
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Base-to-Emitter Voltage	V_{BE}	$V_{CE}=(-)5V, I_C=(-)1A$			1.5	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)5A, I_B=(-)0.5A$		0.6	2.5	V
				(1.1)		V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)5mA, I_E=0$	(-)160			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)5mA, R_{BE}=\infty$	(-)140			V
		$I_C=(-)50mA, R_{BE}=\infty$	(-)140			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)5mA, I_C=0$	(-)6			V
Turn-ON Time	t_{on}	See specified Test Circuit		(0.25)		μs
				0.26		μs
Fall Time	t_f	See specified Test Circuit		(0.53)		μs
				0.68		μs
Storage Time	t_{stg}	See specified Test Circuit		(1.61)		μs
				6.88		μs

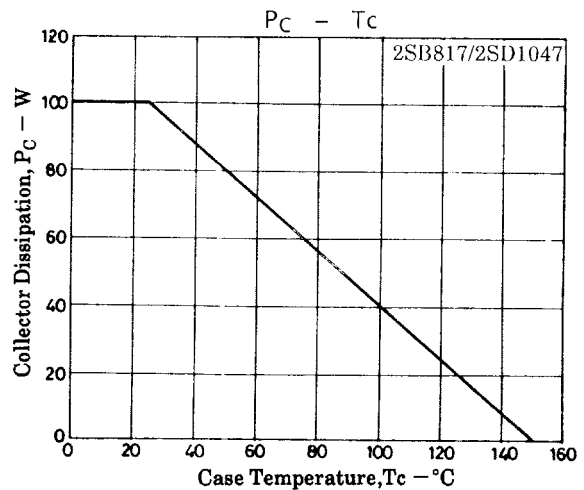
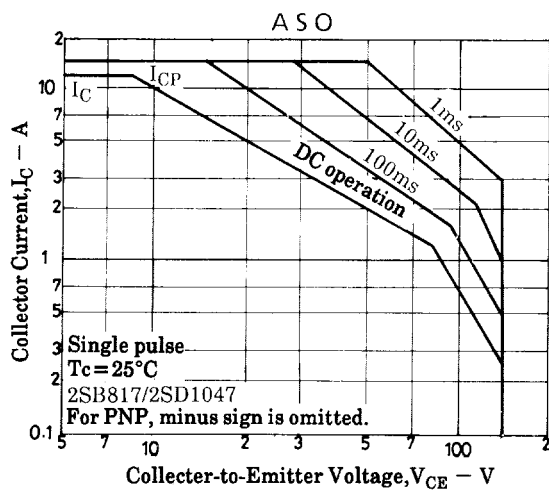
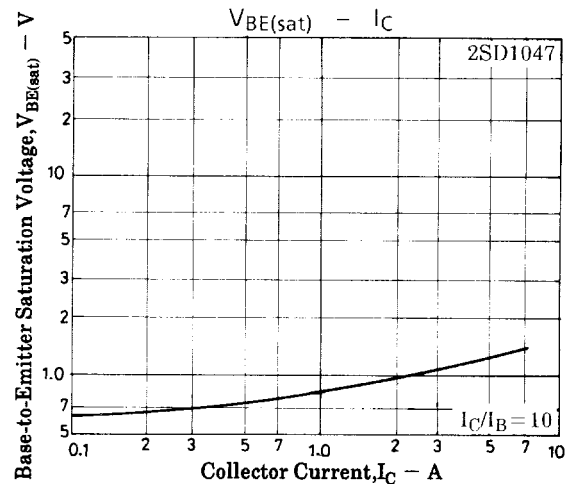
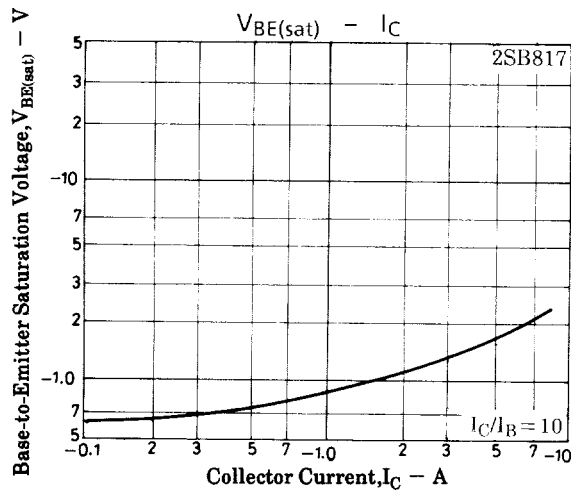
Switching Time Test Circuit



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