Ordering number:680F

PNP Epitaxial Planar Silicon Transistors
NPN Triple Diffused Planar Silicon Transistors

2SB817/2SD1047

140V/12A AF 60W Output Applications

Features

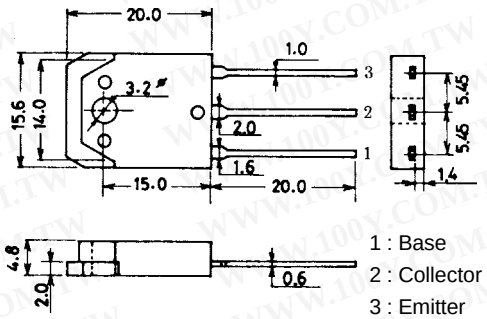
- Capable of being mounted easily because of one-point fixing type plastic molded package (Inter-changeable with TO-3).
- Wide ASO because of on-chip ballast resistance.
- Good depenedence of f_T on current and excellent high frequency responce.

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

[2SB817/2SD1047]



SANYO : TO-3PB

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)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	Tc=25˚C	100	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–40 to +150	˚C

Electrical Characteristics at Ta = 25˚C

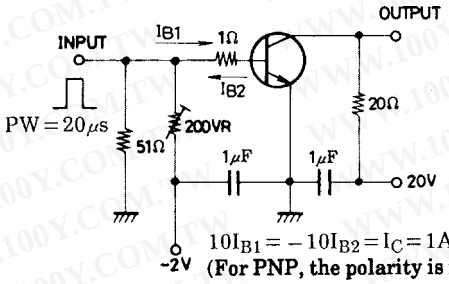
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)80V, I_E=0			(–)0.1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)0.1	mA
DC Current Gain	$h_{FE}1$	V_{CE}=(–)5V, I_C=(–)1A	60*		200*	
	$h_{FE}2$	V_{CE}=(–)5V, I_C=(–)6A	20			
Gain-Bandwidth Product	f_T	V_{CE}=(–)5V, I_C=(–)1A		15		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		(300)		pF
				210		pF

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

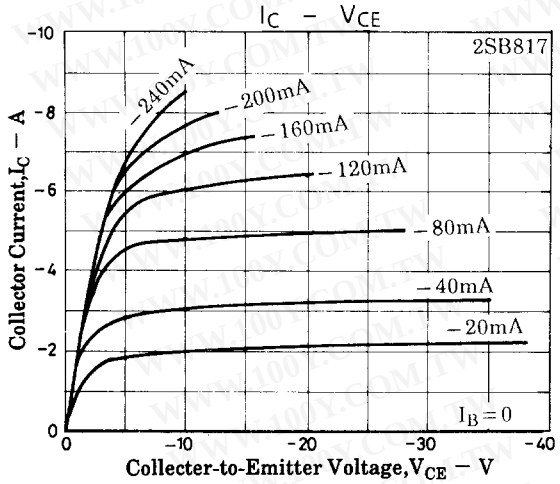
60	D	120	100	E	200

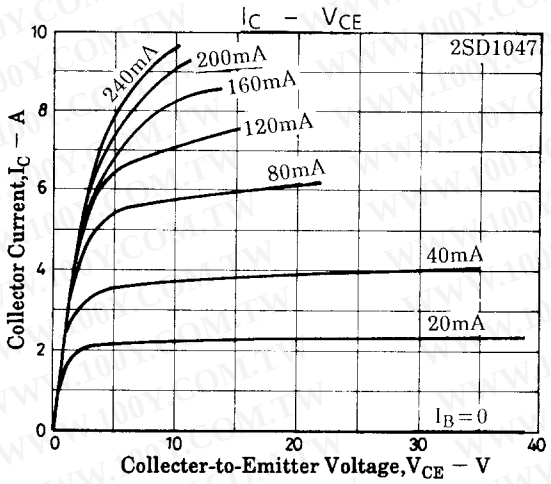
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Base-to-Emitter Voltage	V_{BE}	V_{CE}=(–)5V, I_C=(–)1A			1.5	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)5A, I_B=(–)0.5A		0.6	2.5	V
				(1.1)		V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)5mA, I_E=0	(–)160			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)5mA, R_{BE}=∞	(–)140			V
		I_C=(–)50mA, R_{BE}=∞	(–)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

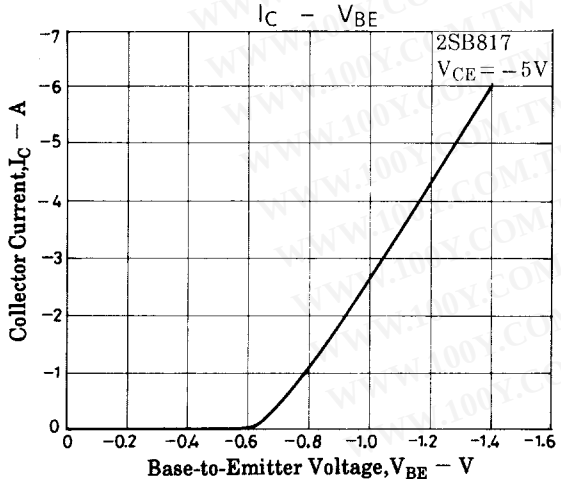
Switching Time Test Circuit

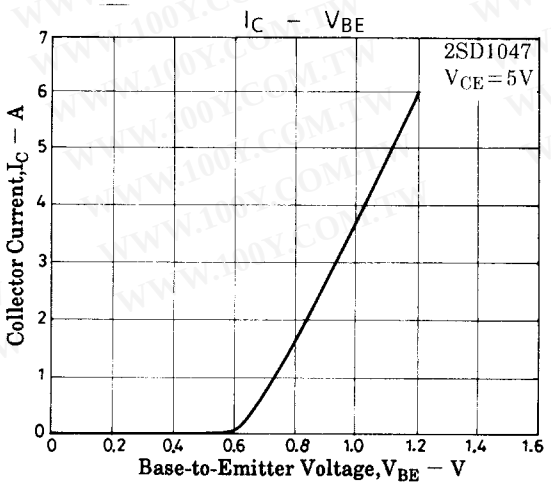


$10I_{B1} = -10I_{B2} = I_C = 1A$
(For PNP, the polarity is reversed.)

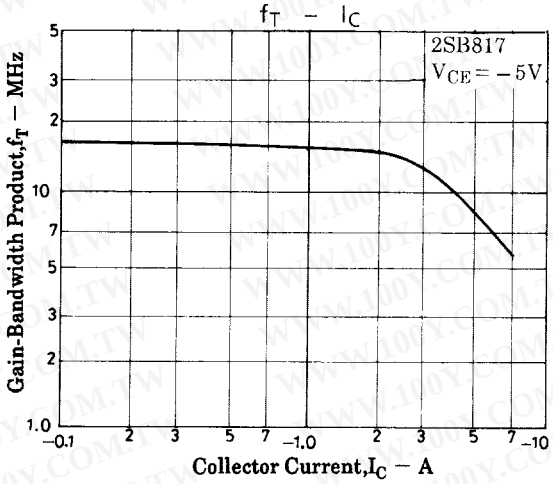


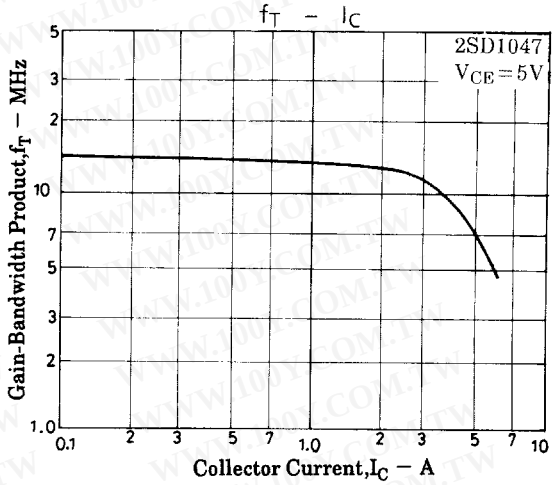




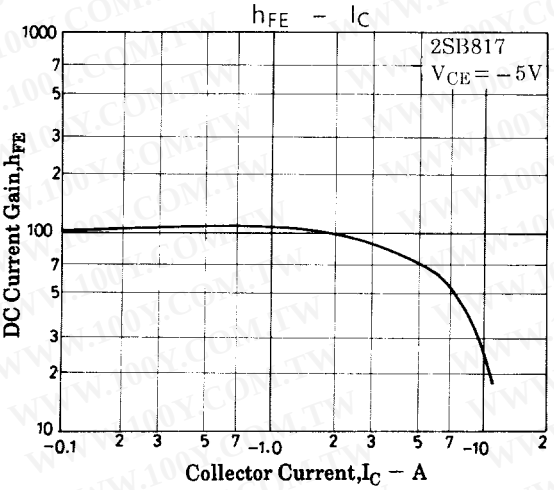


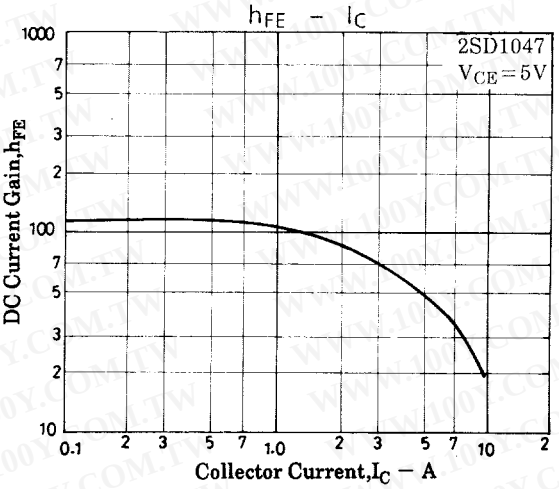
f_T – I_C



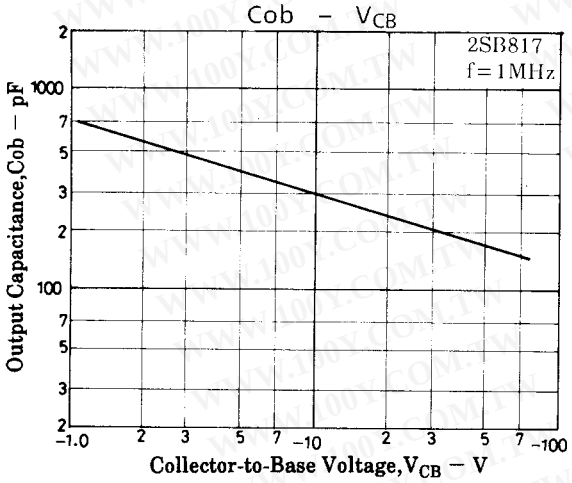


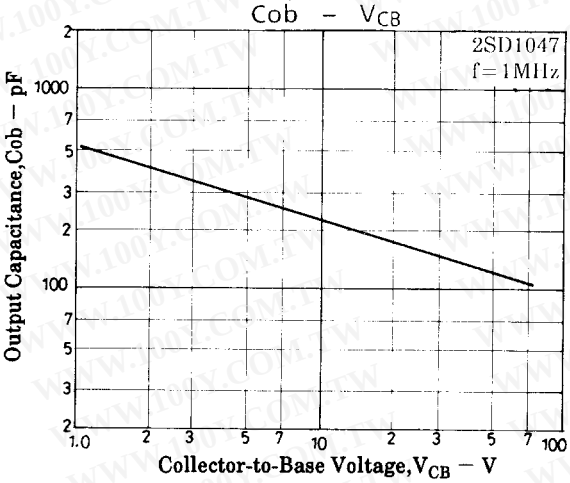
h_{FE} – I_C





Cob – V_{CB}





$V_{CE(sat)}$ – I_C