Ordering number: EN 680F

SANYO

No.680F

2SB817/2SD1047

2SB817 : PNP Epitaxial Planar Silicon Transistor
2SD1047 : NPN Triple Diffused Planar Silicon Transistor

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 responce.

The descriptions in parentheses are for the 2SB817 only ; other descriptions than those in parentheses are common to the 2SB 817 and 2SD1047.

Absolute Maximum Ratings at Ta = 25°C

				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

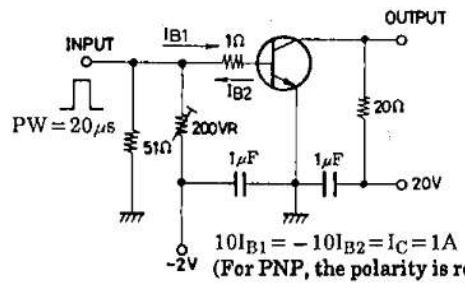
Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
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	Cob	V_{CB} = (−)10V, f = 1MHz		(300)210		pF
Base-to-Emitter Voltage	V_{BE}	V_{CE} = (−)5V, I_C = (−)1A			1.5	V
C-E Saturation Voltage	$V_{CE(sat)}$	I_C = (−)5A, I_B = (−)0.5A		(1.1)0.6	2.5	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C = (−)5mA, I_E = 0	(−)160			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C = (−)5mA, R_{BE} = ∞	(−)140			V
		I_C = (−)50mA, R_{BE} = ∞	(−)140			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E = (−)5mA, I_C = 0	(−)6			V
Turn-ON Time	t_{on}	See specified Test Circuit.		(0.25)0.26		μs
Fall Time	t_f	〃		(0.53)0.68		μs
Storage Time	t_{stg}	〃		(1.61)6.88		μs

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

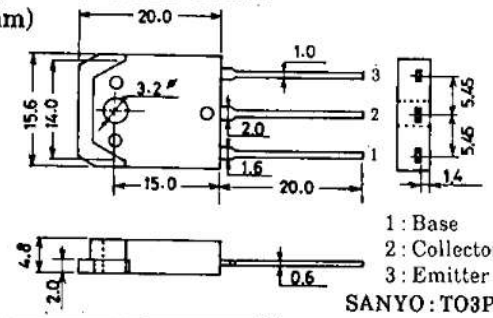
60	D	120	100	E	200

Switching Time Test Circuit



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

Package Dimensions 2022A
(unit : mm)



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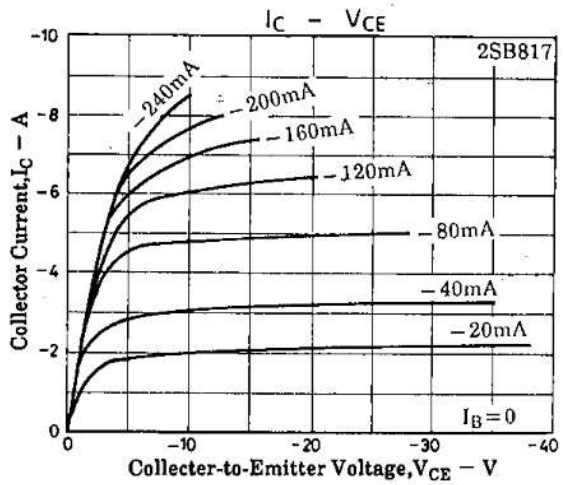
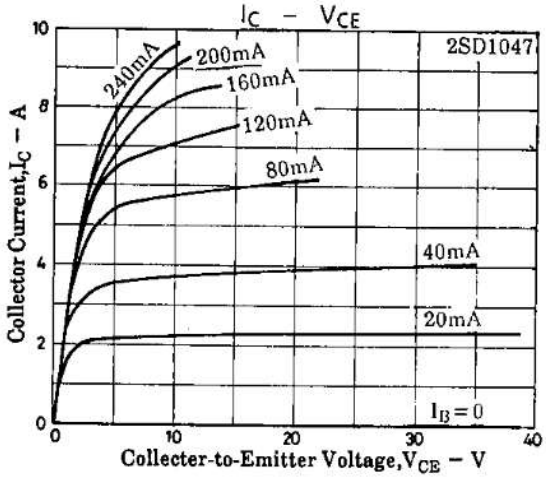
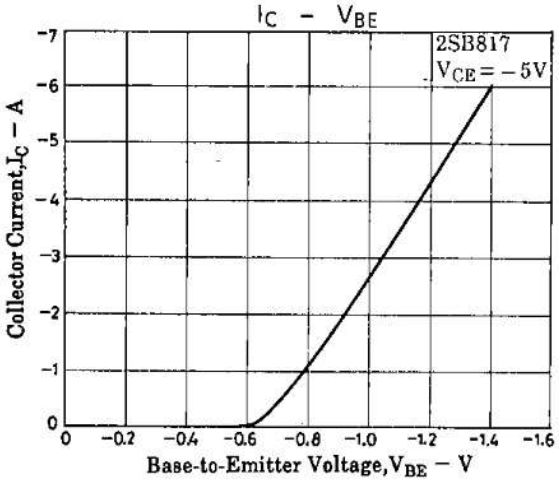
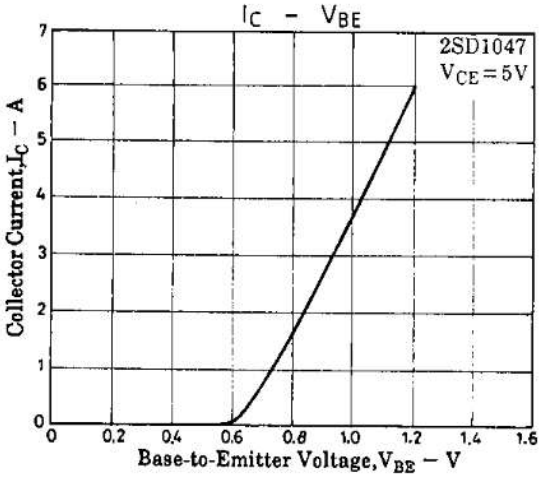
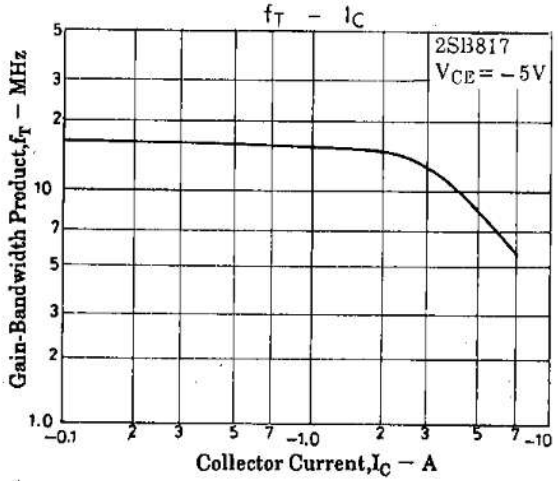
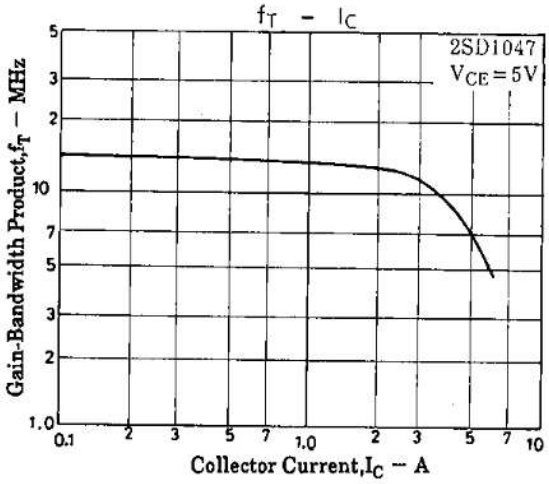

I_C – V_{CE}
2SB817
−240mA
−200mA
−160mA
−120mA
−80mA
−40mA
−20mA
I_B=0
Collector Current,I_C – A
Collecter-to-Emitter Voltage,V_{CE} – V

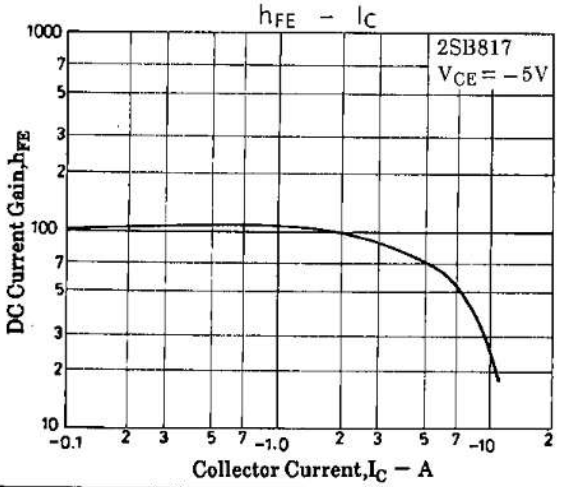

I_C – V_{CE}
2SD1047
240mA
200mA
160mA
120mA
80mA
40mA
20mA
I_B=0
Collector Current,I_C – A
Collecter-to-Emitter Voltage,V_{CE} – V

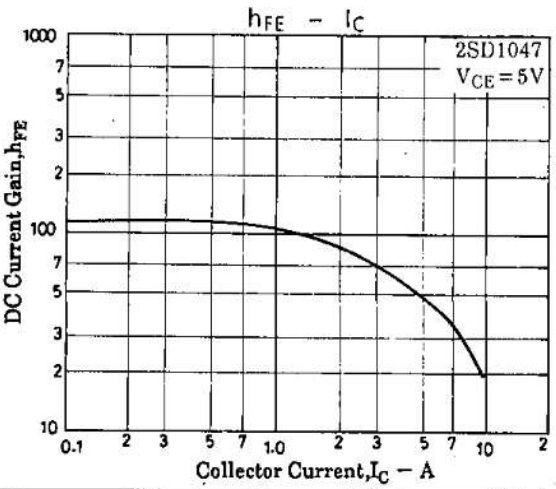

I_C – V_{BE}
2SB817
V_{CE}=−5V
Collector Current,I_C – A
Base-to-Emitter Voltage,V_{BE} – V

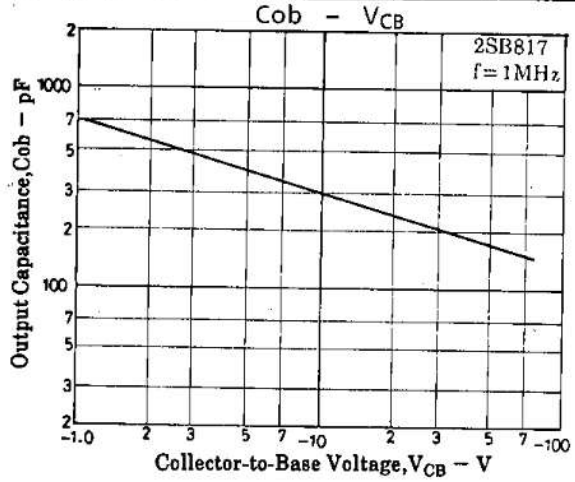

I_C – V_{BE}
2SD1047
V_{CE}=5V
Collector Current,I_C – A
Base-to-Emitter Voltage,V_{BE} – V

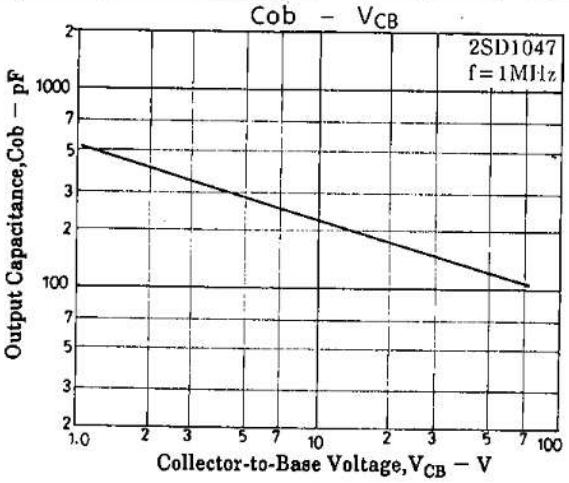

f_T – I_C
2SB817
V_{CE}=−5V
Gain-Bandwidth Product,f_T – MHz
Collector Current,I_C – A

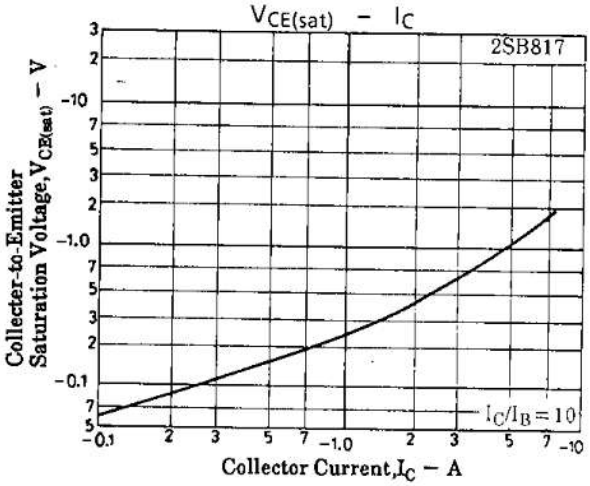

f_T – I_C
2SD1047
V_{CE}=5V
Gain-Bandwidth Product,f_T – MHz
Collector Current,I_C – A

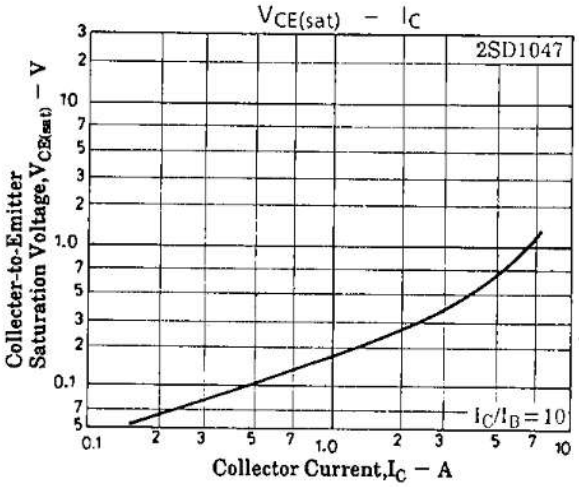

h_{FE} – I_C
2SB817
V_{CE}=−5V
DC Current Gain,h_{FE}
Collector Current,I_C – A

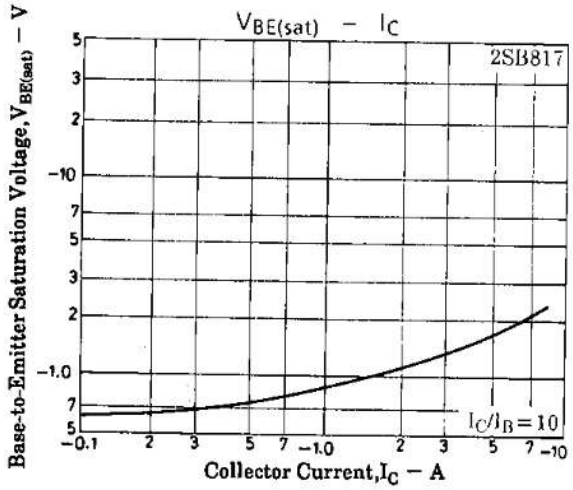

h_{FE} – I_C
2SD1047
V_{CE}=5V
DC Current Gain,h_{FE}
Collector Current,I_C – A

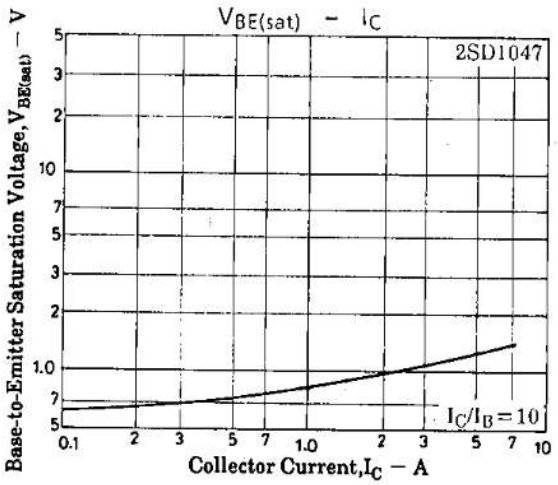

Cob – VCB
2SB817
f=1MHz
Output Capacitance,Cob – pF
Collector-to-Base Voltage,VCB – V

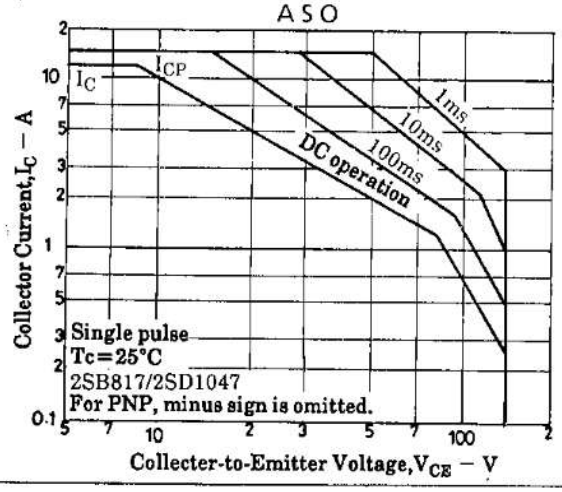

Cob – VCB
2SD1047
f=1MHz
Output Capacitance,Cob – pF
Collector-to-Base Voltage,VCB – V

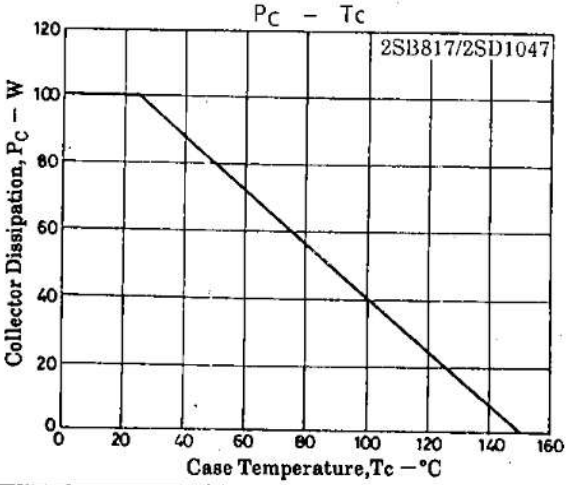

VCE(sat) – IC
2SB817
IC/IB=10
Collecter-to-Emitter Saturation Voltage,VCE(sat) – V
Collector Current,IC – A


VCE(sat) – IC
2SD1047
IC/IB=10
Collecter-to-Emitter Saturation Voltage,VCE(sat) – V
Collector Current,IC – A


VBE(sat) – IC
2SB817
IC/IB=10
Base-to-Emitter Saturation Voltage,VBE(sat) – V
Collector Current,IC – A


VBE(sat) – IC
2SD1047
IC/IB=10
Base-to-Emitter Saturation Voltage,VBE(sat) – V
Collector Current,IC – A


ASO
IC
ICP
1ms
10ms
100ms
DC operation
Single pulse
Tc=25°C
2SB817/2SD1047
For PNP, minus sign is omitted.
Collector Current,IC – A
Collecter-to-Emitter Voltage,VCE – V


PC – Tc
2SB817/2SD1047
Collector Dissipation,PC – W
Case Temperature,Tc – °C