Ordering number:677D

PNP/NPN Epitaxial Planar Silicon Transistors

2SB816/2SD1046

For LF Power Amplifier, 50W Output Large Power Switching Applications

Features

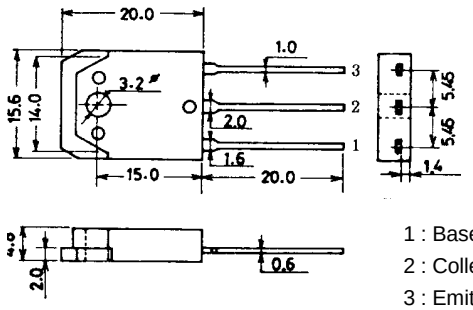
- Capable of being mounted easily because of one-point fixing type plastic molded package (Inter-changeable with TO-3).
- Wide ASO because of built-in ballast resistance.
- Goode dependence of f_T on current and good HF characteristic.

Package Dimensions

unit:mm

2022A

[2SB816/2SD1046]



1 : Base
2 : Collector
3 : Emitter

SANYO : TO-3PB

( ) : 2SB816

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)150	V
Collector-to-Emitter Voltage	V_{CEO}		(–)120	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)8	A
Collector Current (Pulse)	I_{CP}		(–)12	A
Collector Dissipation	P_C	Tc=25˚C	80	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=(–)5A	20			
Gain-Bandwidth Product	f_T	V_{CE}=(–)5V, I_C=(–)1A		15		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		(220)		pF
				160		pF

* : The 2SB816/2SD1046 are classified by 1A h_{FE} as follows :

60	D	120	100	E	200

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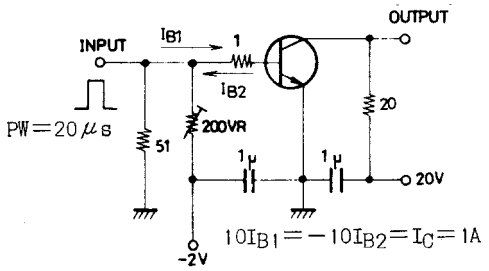
■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges,or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

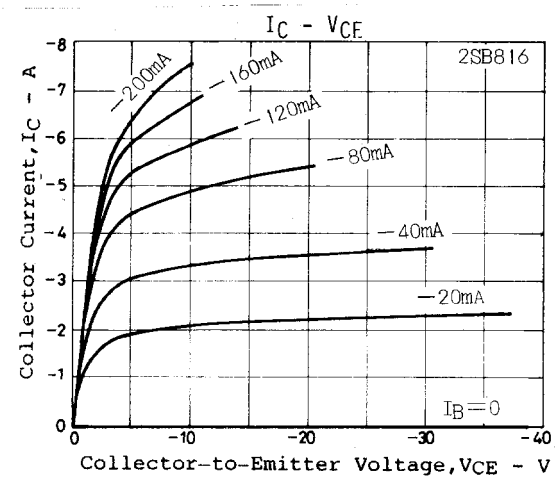
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

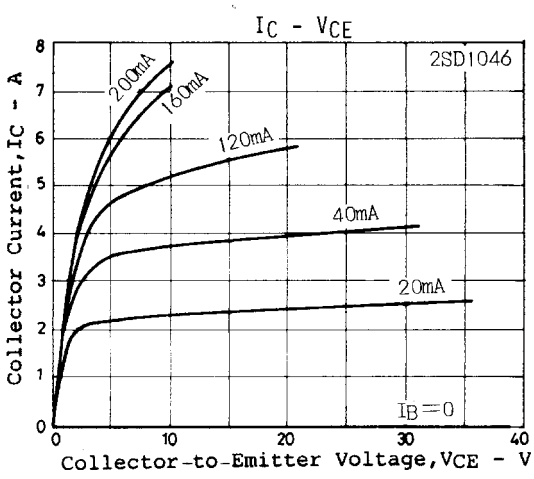
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Base-to-Emitter Voltage	V_{BE}	V_{CE}=(–)5V, I_C=(–)1A			1.5	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)5A, I_B=(–)0.5A		1.0	2.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)5mA, I_E=0	(–)150			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)5mA, R_{BE}=∞	(–)120			V
		I_C=(–)50mA, R_{BE}=∞	(–)120			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.		(0.22)		µs
				0.22		µs
Fall Time	t_f	See specified test circuit.		(0.37)		µs
				1.02		µs
Storage Time	t_{stg}	See specified test circuit.		(0.93)		µs
				6.66		µs

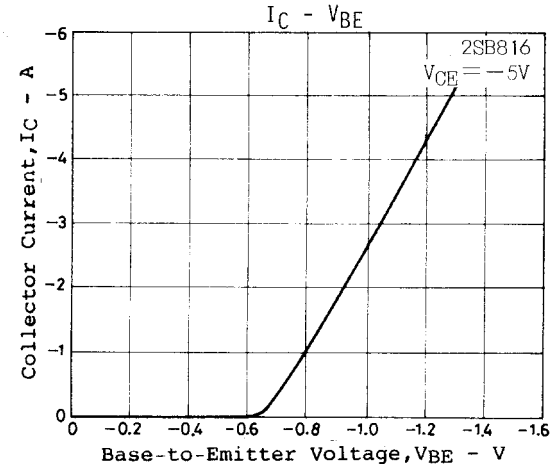
Swicthing Time Test Circuit

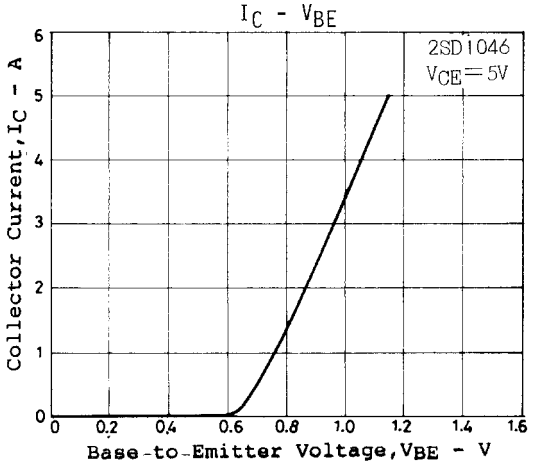


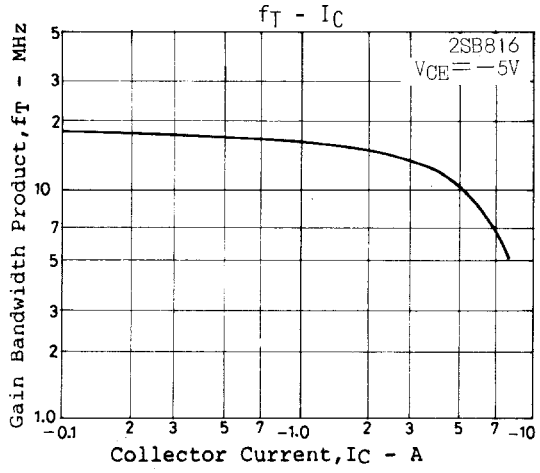
Unit (resistance : Ω, capacitance : F)

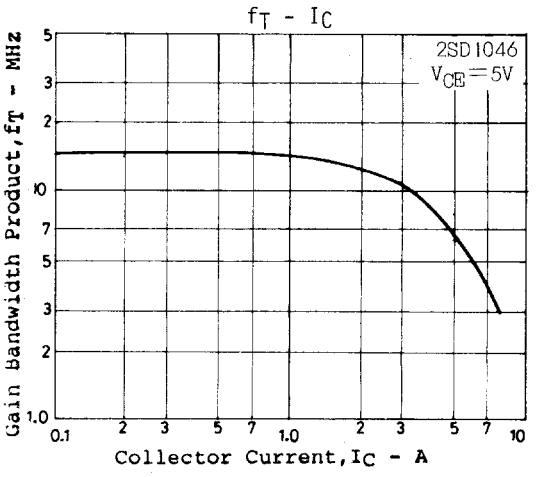


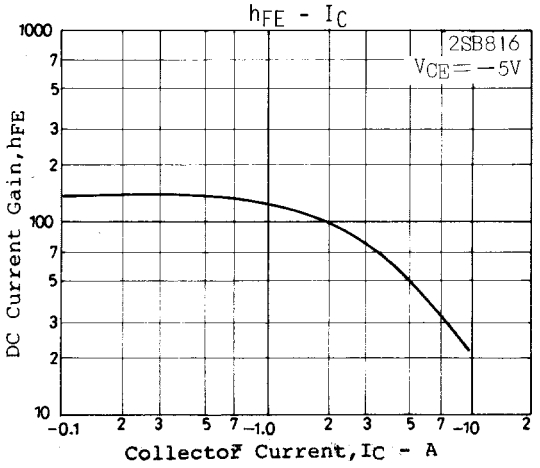


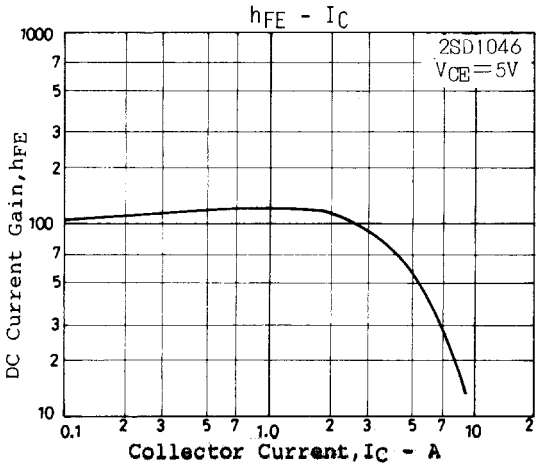


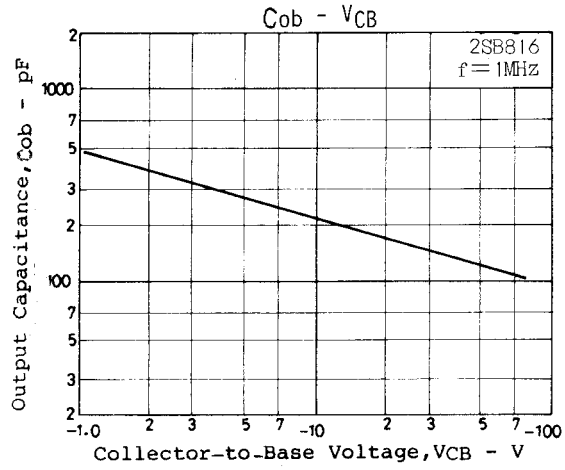


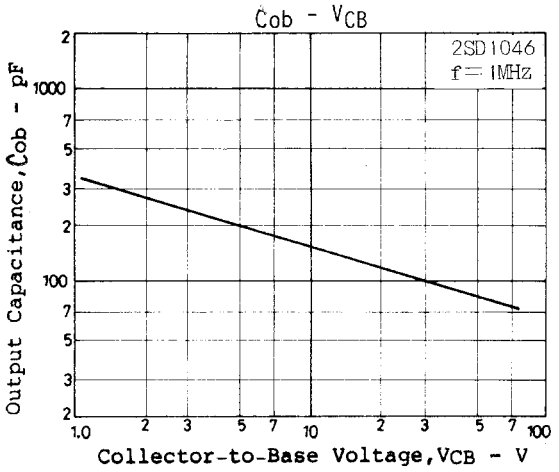

fT - IC
2SB816
VCE=−5V
Gain Bandwidth Product,fT - MHz
Collector Current,IC - A

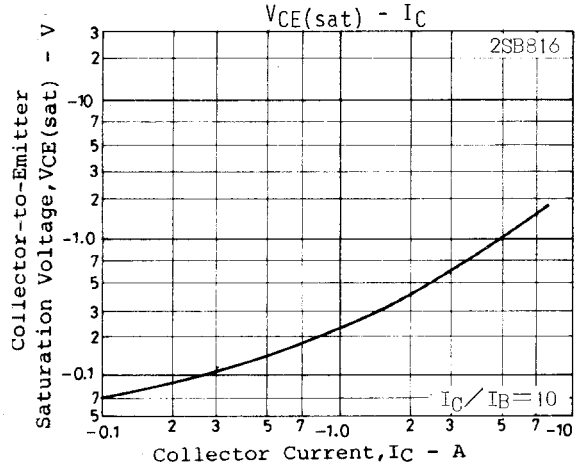

fT - IC
2SD1046
VCE=5V
Gain Bandwidth Product,fT - MHz
Collector Current,IC - A

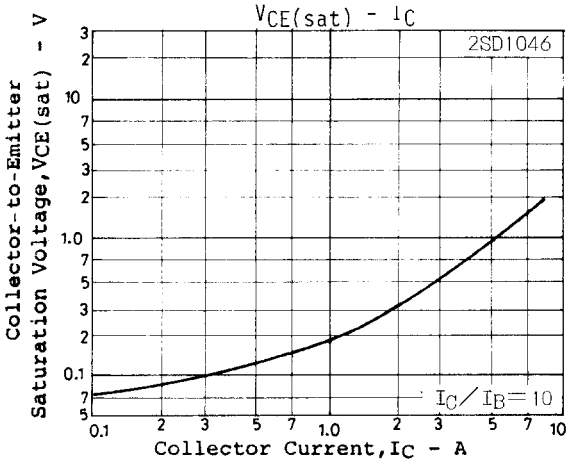

hFE - IC
2SB816
VCE=−5V
DC Current Gain,hFE
Collector Current,IC - A

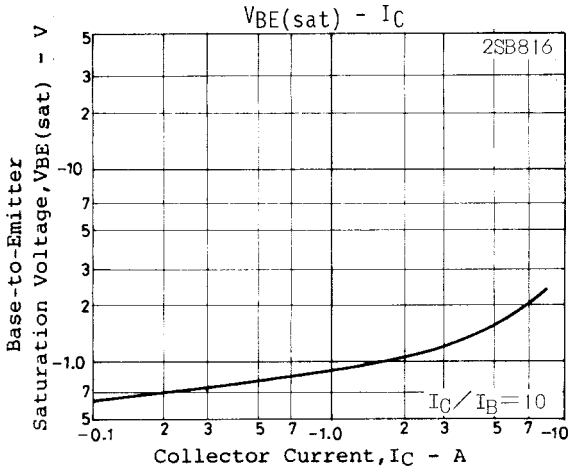

hFE - IC
2SD1046
VCE=5V
DC Current Gain,hFE
Collector Current,IC - A

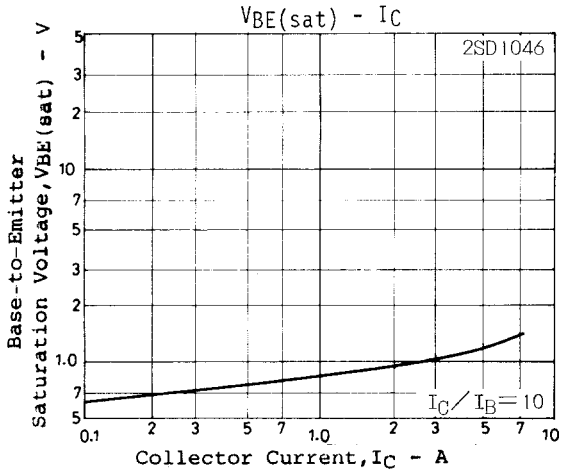

Cob - VCB
2SB816
f=1MHz
Output Capacitance,Cob - pF
Collector-to-Base Voltage,VCB - V

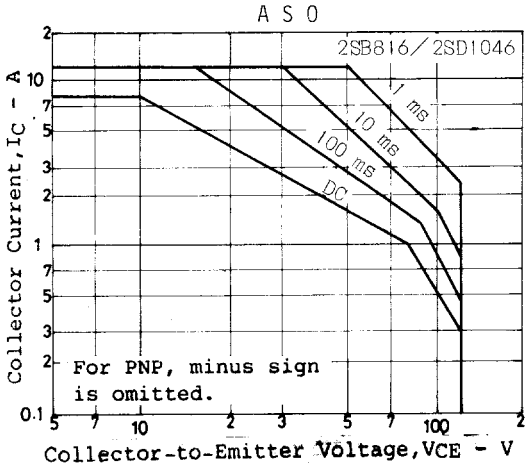

Cob - VCB
2SD1046
f=1MHz
Output Capacitance,Cob - pF
Collector-to-Base Voltage,VCB - V


VCE(sat) - IC
2SB816
IC/IB=10
Collector-to-Emitter Saturation Voltage,VCE(sat) - V
Collector Current,IC - A


VCE(sat) - IC
2SD1046
IC/IB=10
Collector-to-Emitter Saturation Voltage,VCE(sat) - V
Collector Current,IC - A







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