



2SB816/2SD1046

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

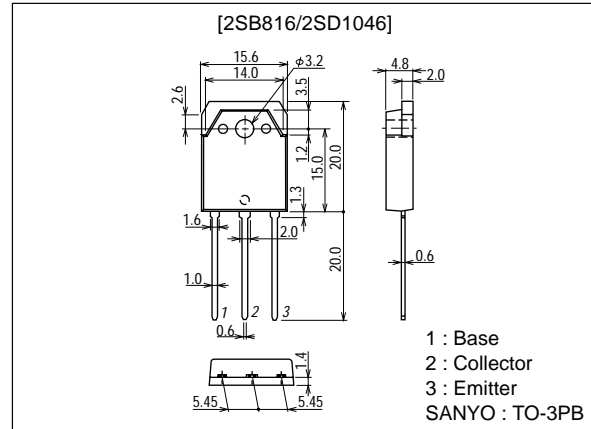
Features

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

Package Dimensions

unit:mm

2022A



(): 2SB816

Specifications

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

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	$T_c=25^\circ\text{C}$	80	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}	$V_{CE} = (-)5\text{V}, I_C = (-)5\text{A}$	20			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)5\text{V}, I_C = (-)1\text{A}$		15		MHz
Output Capacitance	C_{ob}	$V_{CB} = (-)10\text{V}, f = 1\text{MHz}$		(220)		pF
				160		pF

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

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Rank	D	E
h_{FE}	60 to 120	100 to 200

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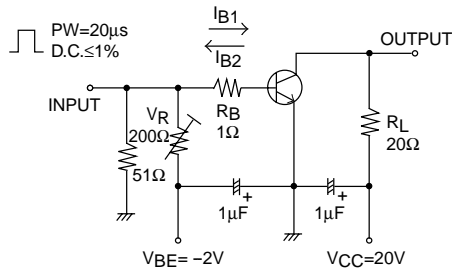
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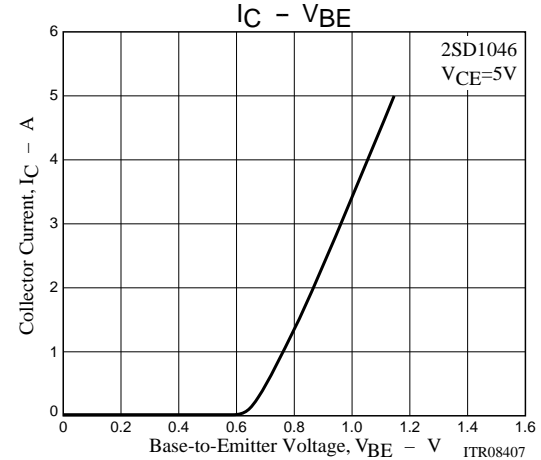
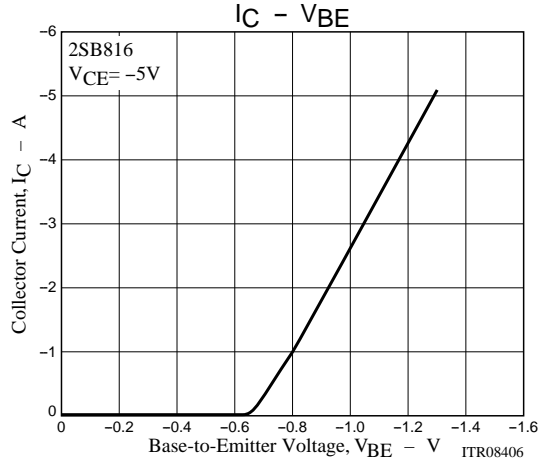
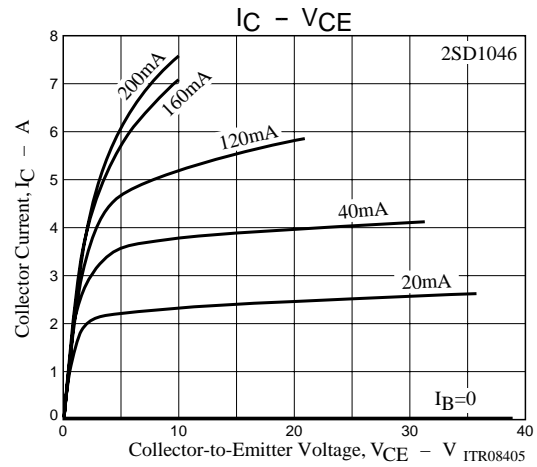
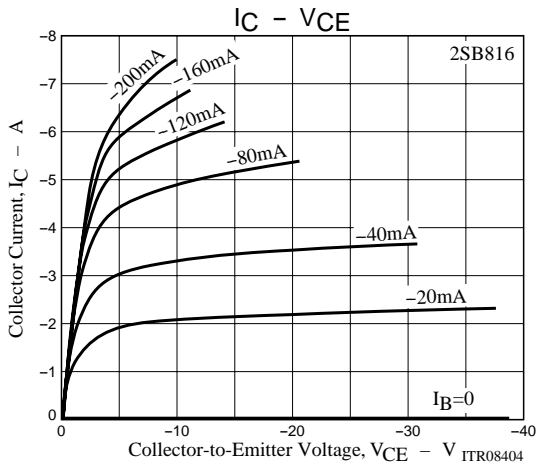
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Base-to-Emitter Voltage	V_{BE}	$V_{CE}=(-)5V, I_C=(-)1A$			1.5	V
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)5A, I_B=(-)0.5A$		1.0	2.0	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)5mA, I_E=0$	(-150)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)5mA, R_{BE}=\infty$	(-120)			V
		$I_C=(-)50mA, R_{BE}=\infty$	(-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

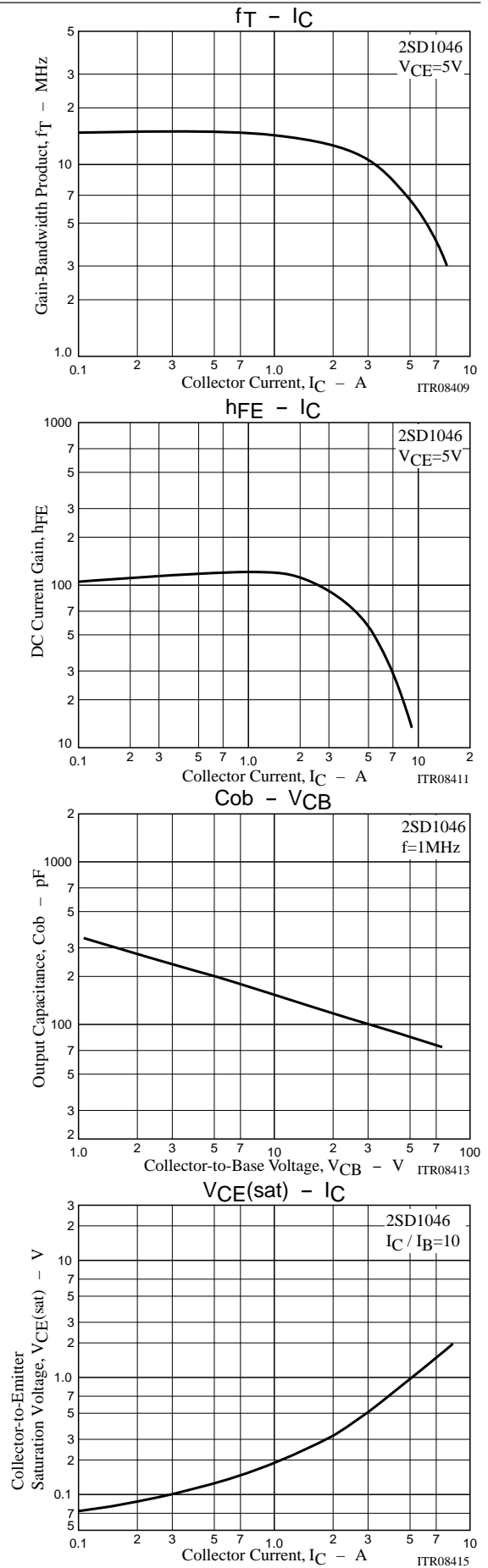
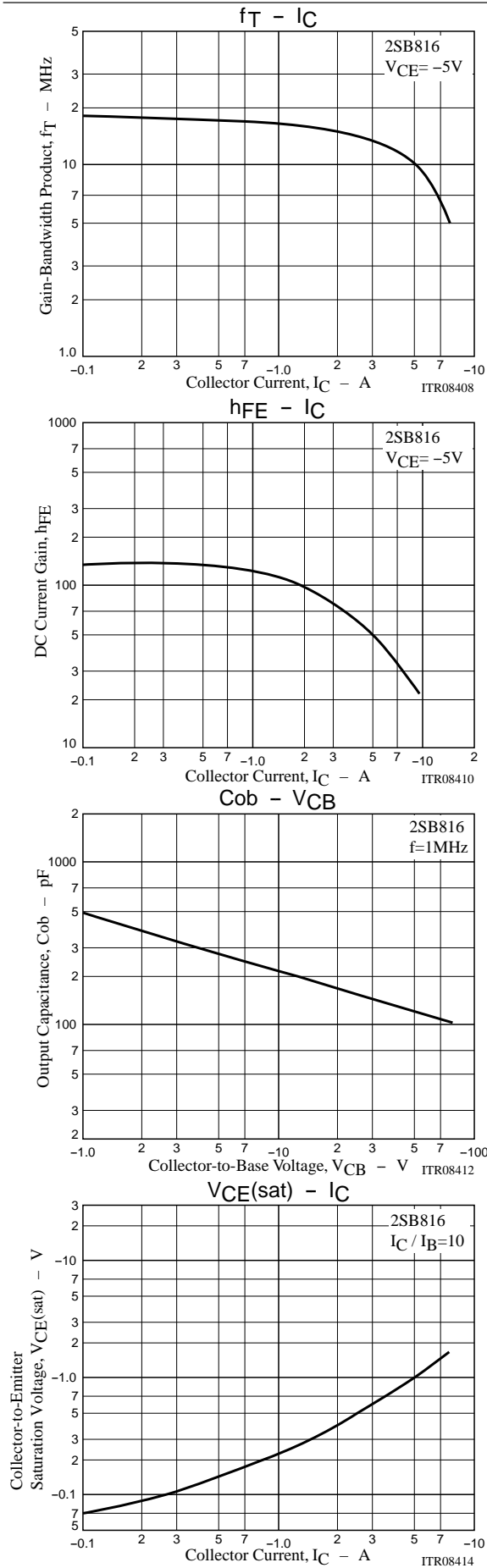
Switching Time Test Circuit



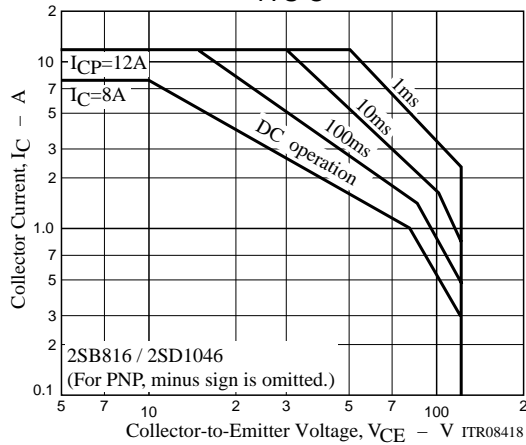
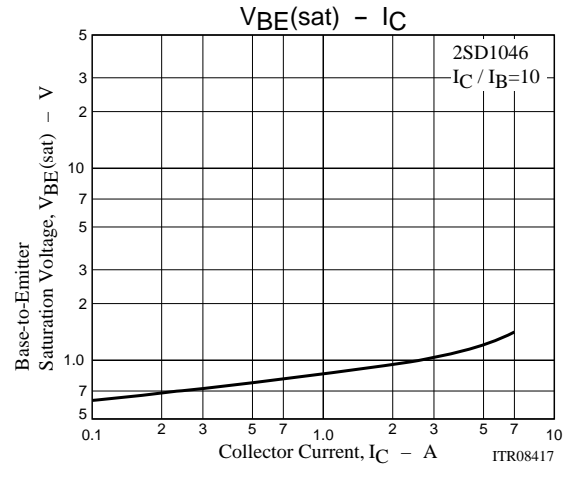
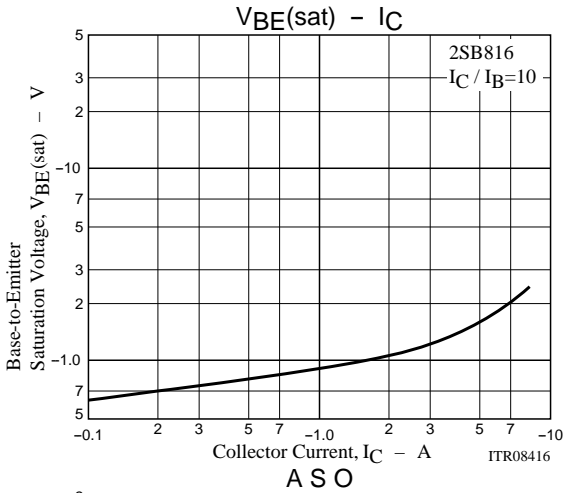
$I_C = 10I_{B1} = -10I_{B2} = 1A$
(For PNP, the polarity is reversed.)



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