Ordering number:EN2266A

PNP/NPN Epitaxial Planar Type Silicon Transistors

2SB1270/2SD1906

High-Current Switching Applications

Applications

· Suitable for relay drivers, high-speed inverters, converters, and other general high-current switching applications.

Features

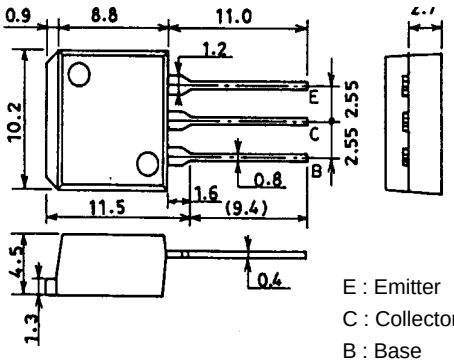
· Suitable for sets whose height is restricted.
· Low collector to emitter saturation voltage.
· Large current capacity.

Package Dimensions

unit:mm

2049B

[2SB1270/2SD1906]



E : Emitter
C : Collector
B : Base
SANYO : TO-220MF

( ) : 2SB1270

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)90	V
Collector-to-Emitter Voltage	V_{CEO}		(–)80	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)5	A
Collector Current (Pulse)	I_{CP}		(–)9	A
Collector Dissipation	P_C		1.65	W
		Tc=25˚C	30	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 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}=(–)2V, I_C=(–)1A	70*		280*	
	$h_{FE}2$	V_{CE}=(–)2V, I_C=(–)3A	30			
Gain-Bandwidth Product	f_T	V_{CE}=(–)5V, I_C=(–)1A		20		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)3A, I_B=(–)0.3A			0.4	V
					(–0.5)	V

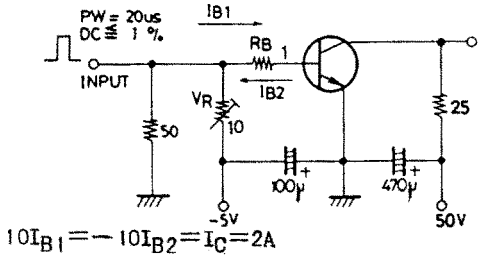
* : The 2SB1270/2SD1906 are classified by 1A h_{FE} as follows :

70	Q	140	100	R	200	140	S	280

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	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)1mA, I_E=0	(–)90			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)80			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)1mA, I_C=0	(–)6			V
Turn-ON Time	t_{on}	See specified test circuit.		(0.2)		µs
				0.1		µs
Storage Time	t_{stg}	See specified test circuit.		(0.7)		µs
				1.2		µs
Fall Time	t_f	See specified test circuit.		(0.2)		µs
				0.4		µs

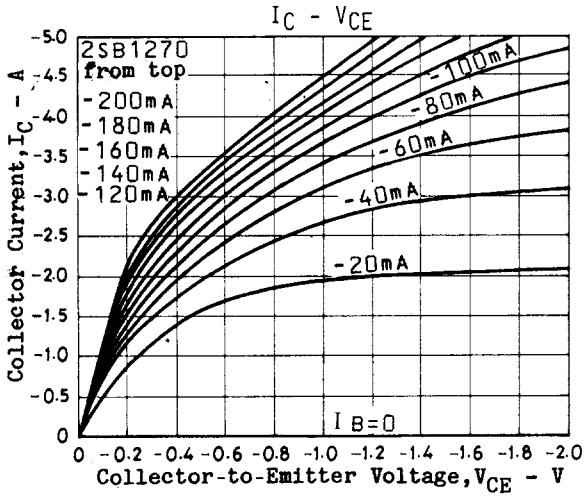
Switching Time Test Circuit

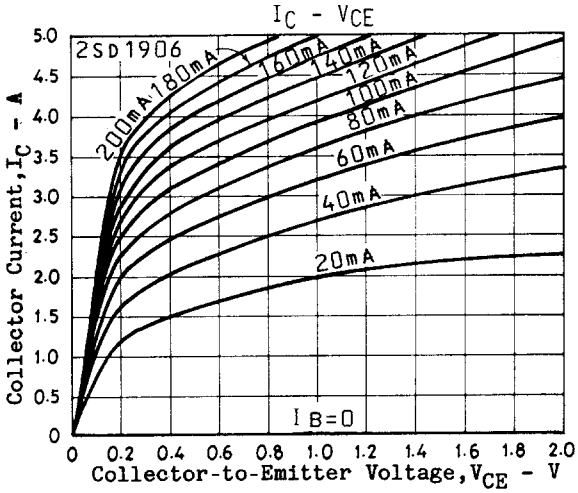


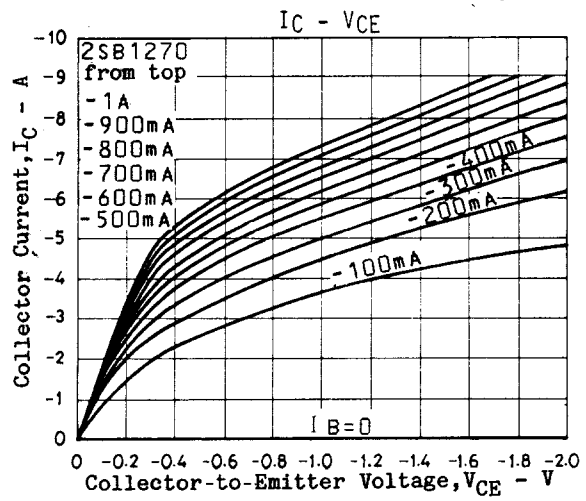
$10I_{B1} = -10I_{B2} = I_C = 2A$

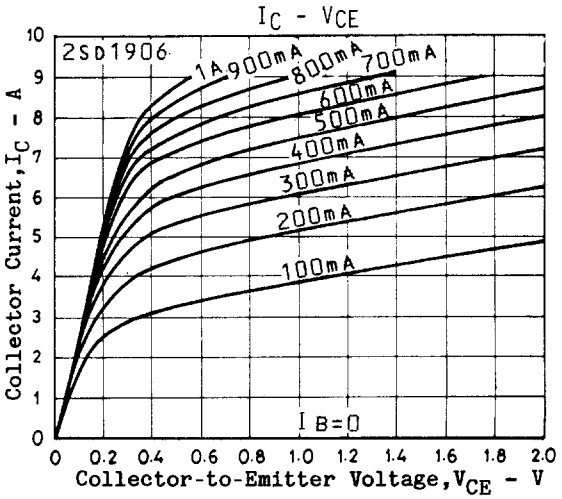
(For PNP, the polarity is reversed.)

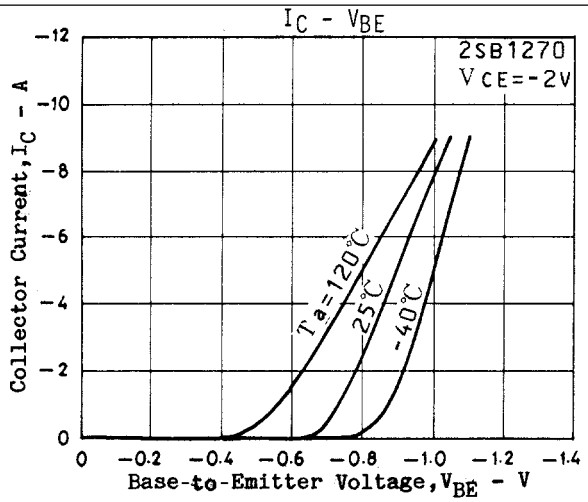
Unit (resistance: Ω, capacitance: F)

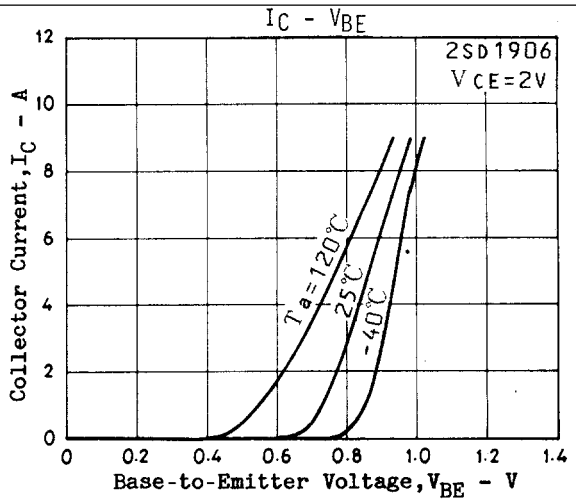


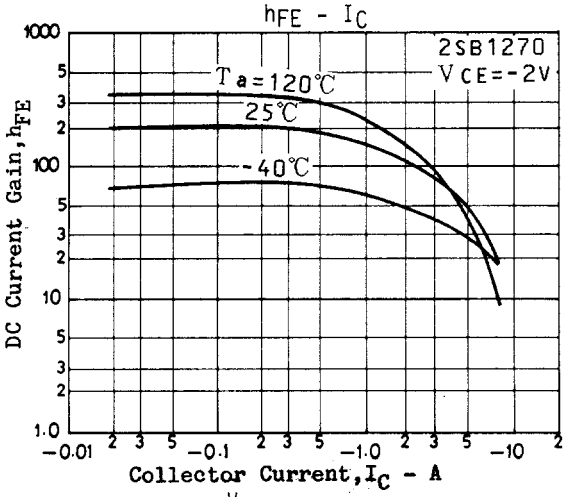


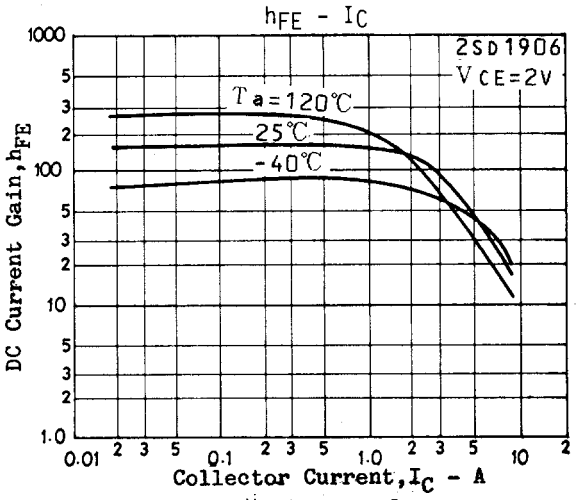


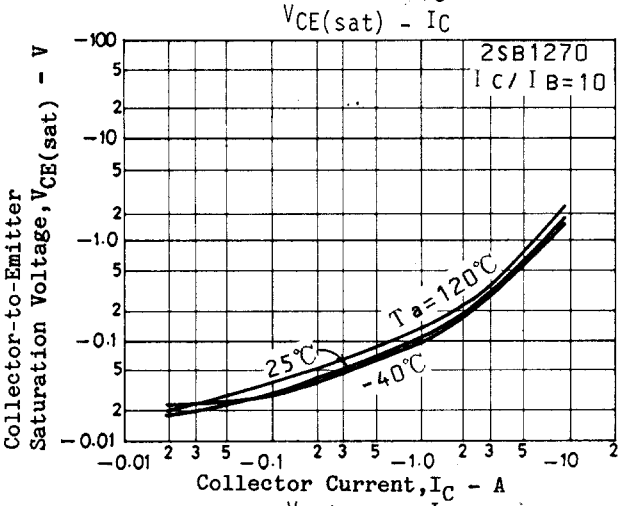


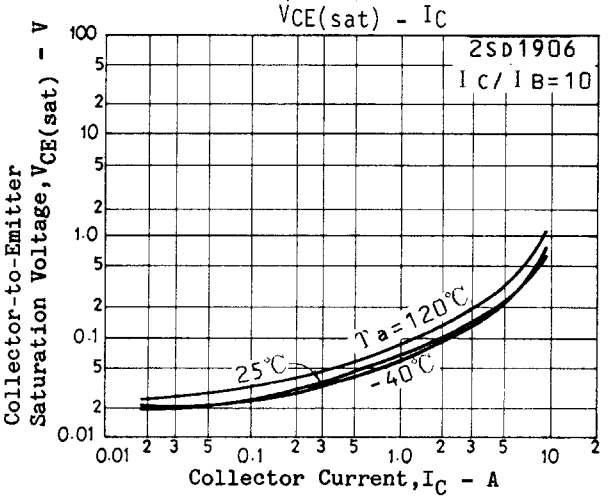

IC - VBE
2SB1270
VCE=-2V
Ta=120℃
25℃
-40℃
Collector Current, IC - A
Base-to-Emitter Voltage, VBE - V

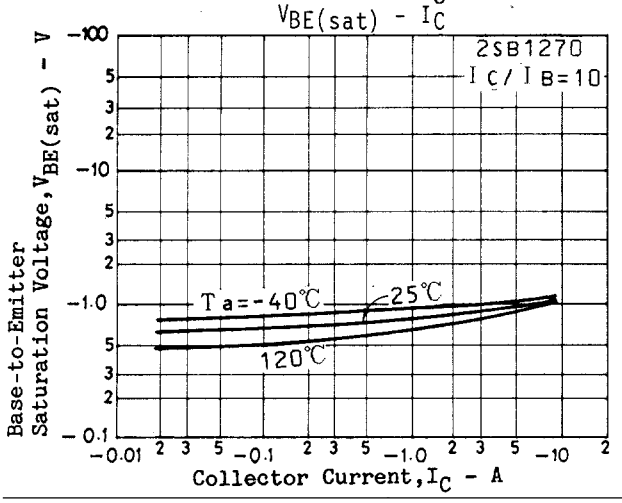

IC - VBE
2SD1906
VCE=2V
Ta=120℃
25℃
-40℃
Collector Current, IC - A
Base-to-Emitter Voltage, VBE - V

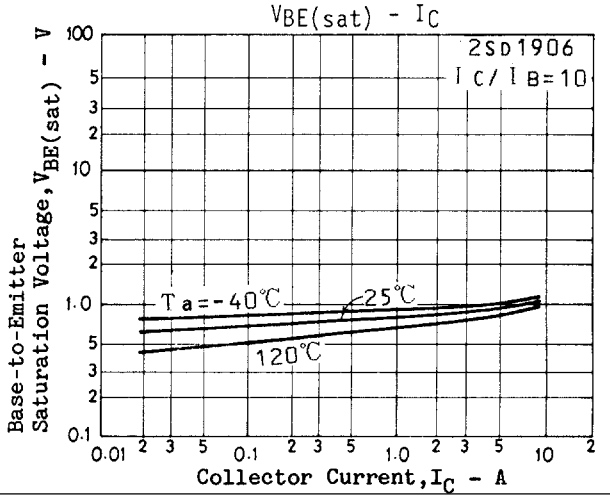

hFE - IC
2SB1270
VCE=-2V
Ta=120℃
25℃
-40℃
DC Current Gain, hFE
Collector Current, IC - A


hFE - IC
2SD1906
VCE=2V
Ta=120℃
25℃
-40℃
DC Current Gain, hFE
Collector Current, IC - A


VCE(sat) - IC
2SB1270
IC/IB=10
Ta=120℃
25℃
-40℃
Collector-to-Emitter Saturation Voltage, VCE(sat) - V
Collector Current, IC - A


VCE(sat) - IC
2SD1906
IC/IB=10
Ta=120℃
25℃
-40℃
Collector-to-Emitter Saturation Voltage, VCE(sat) - V
Collector Current, IC - A


VBE(sat) - IC
2SB1270
IC/IB=10
Ta=-40℃
25℃
120℃
Base-to-Emitter Saturation Voltage, VBE(sat) - V
Collector Current, IC - A


VBE(sat) - IC
2SD1906
IC/IB=10
Ta=-40℃
25℃
120℃
Base-to-Emitter Saturation Voltage, VBE(sat) - V
Collector Current, IC - A