Ordering number:EN3365

PNP/NPN Epitaxial Planar Silicon Transistors

2SB1471/2SD2223

Driver Applications

Applications

· Motor drivers, printer hammer drivers, relay drivers, voltage regulator control.

Features

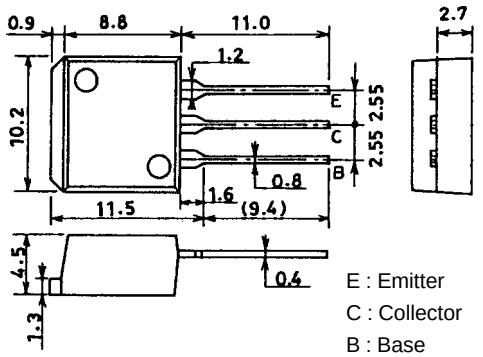
· Suitable for sets whose height is restricted.
· High DC current gain.
· Large current capacity and wide ASO.

Package Dimensions

unit:mm

2049B

[2SB1471/2SD2223]



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

( ) : 2SB1471

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)70	V
Collector-to-Emitter Voltage	V_{CEO}		(–)60	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)4	A
Collector Current (Pulse)	I_{CP}		(–)6	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

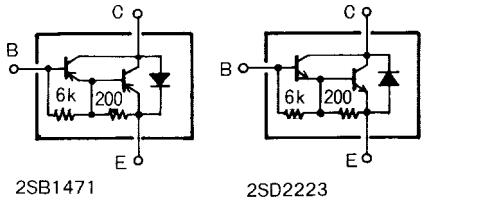
Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)40V, I_E=0			(–)0.1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)5V, I_C=0			(–)3.0	mA
DC Current Gain	h_{FE}	V_{CE}=(–)2V, I_C=(–)2A	2000	5000		
Gain-Bandwidth Product	f_T	V_{CE}=(–)5V, I_C=(–)2A		20		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)2A, I_B=(–)4mA		0.9	(–)1.5	V
				(–1.0)		V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)2A, I_B=(–)4mA			(–)2.0	V

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=(–)5mA, I_E=0	(–)70			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)50mA, R_{BE}=∞	(–)60			V
Turn-ON Time	t_{on}	See specified test circuit.		(0.5)		μs
				0.6		μs
Storage Time	t_{stg}	See specified test circuit.		(1.4)		μs
				2.7		μs
Fall Time	t_f	See specified test circuit.		(1.2)		μs
				1.6		μs

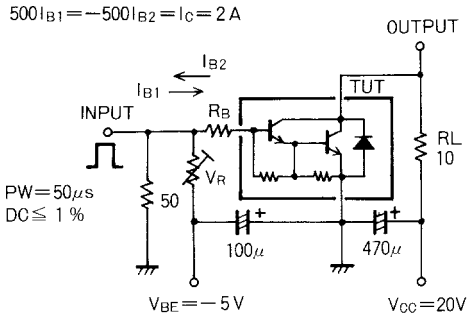
Electrical Connection



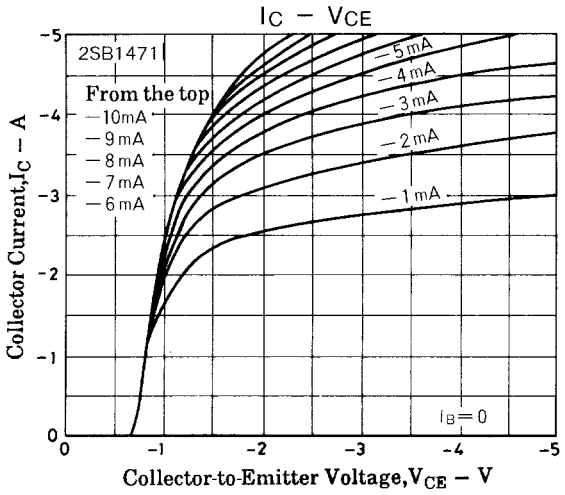
Unit (resistance: Ω)

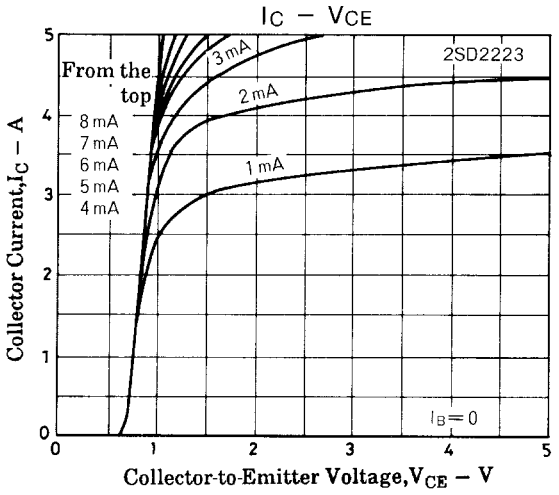
Switching Time Test Circuit

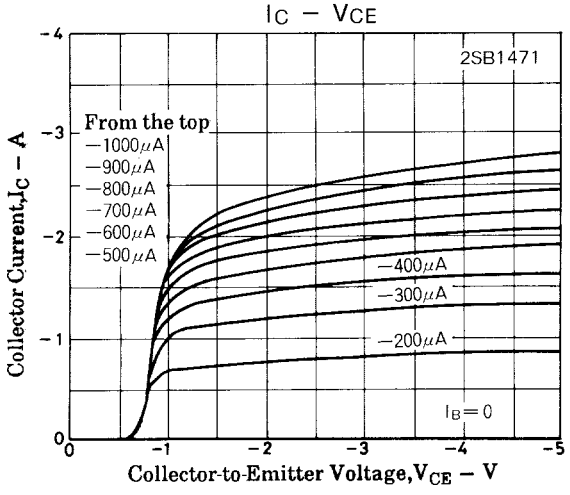
(For PNP, the polarity is reversed.)

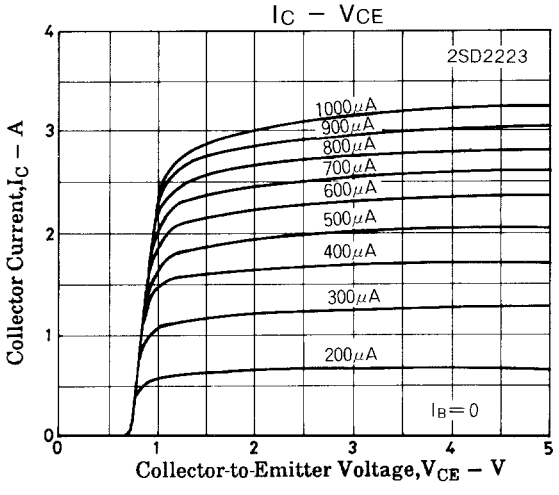


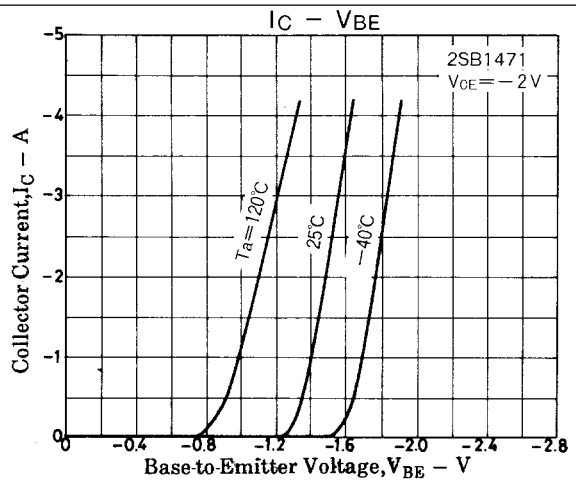
Unit (resistance: Ω, capacitance: F)

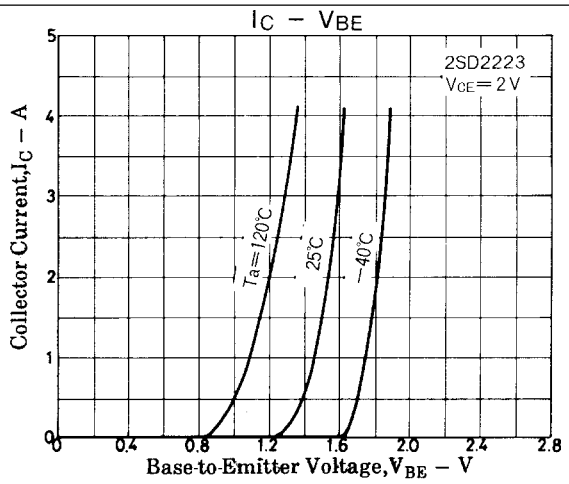


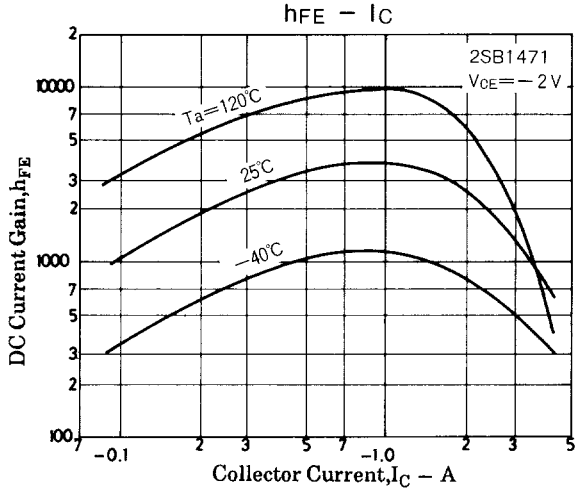


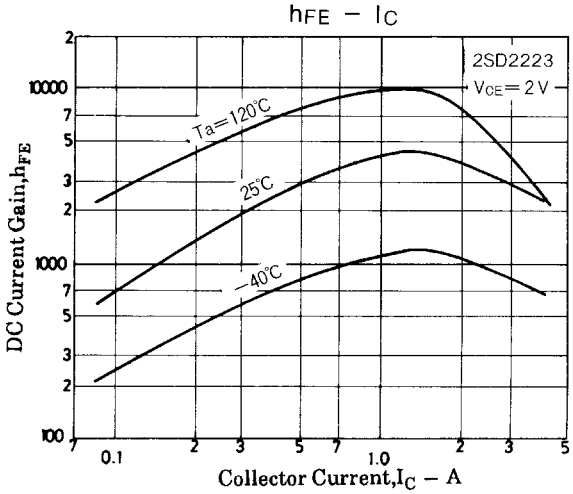


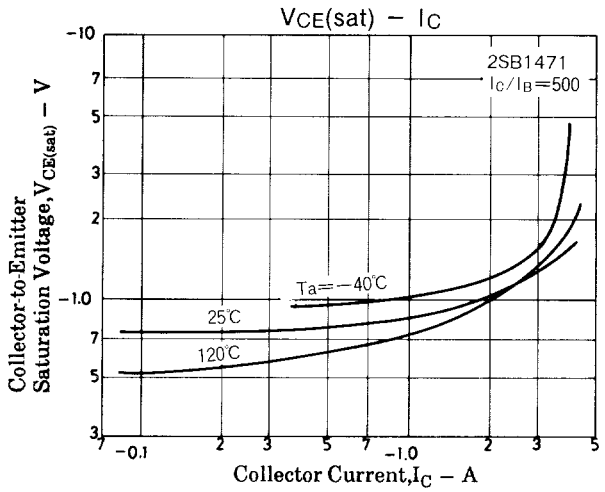


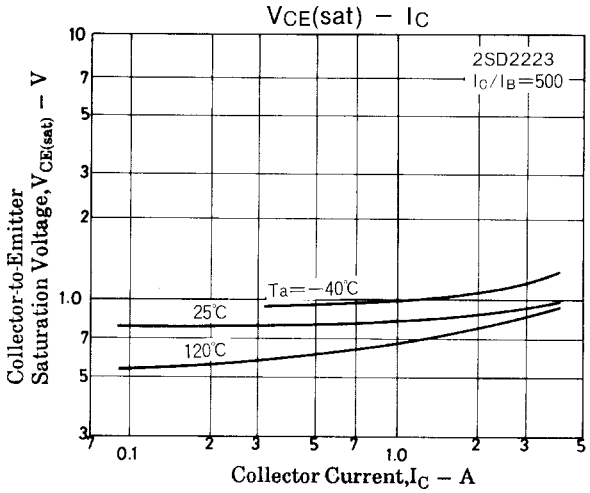

IC – VBE
2SB1471
VCE=–2V
Ta=120°C
25°C
–40°C
Collector Current,IC – A
Base-to-Emitter Voltage,VBE – V

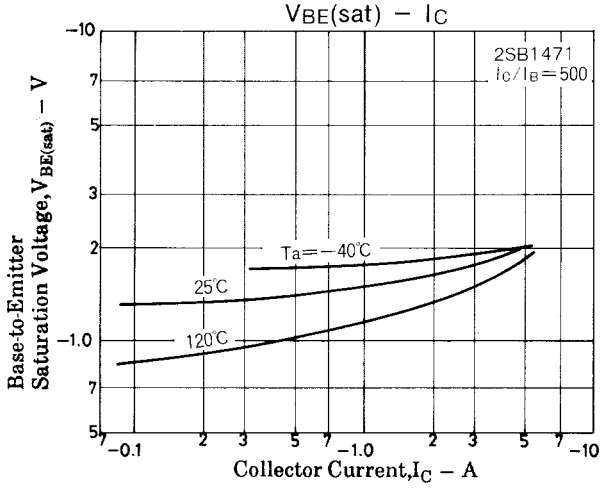

IC – VBE
2SD2223
VCE=2V
Ta=120°C
25°C
–40°C
Collector Current,IC – A
Base-to-Emitter Voltage,VBE – V

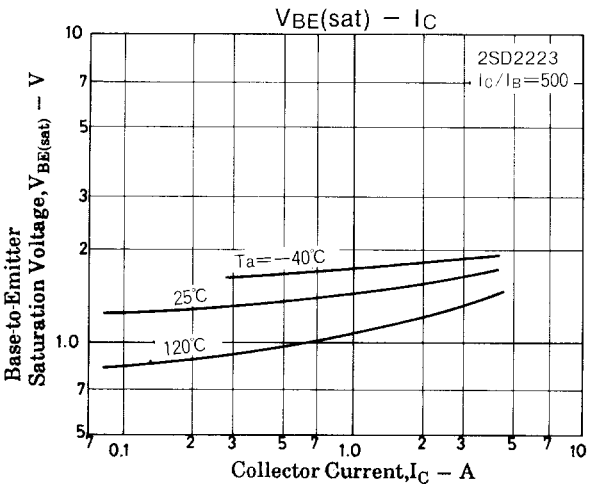

hFE – IC
2SB1471
VCE=–2V
Ta=120°C
25°C
–40°C
DC Current Gain,hFE
Collector Current,IC – A


hFE – IC
2SD2223
VCE=2V
Ta=120°C
25°C
–40°C
DC Current Gain,hFE
Collector Current,IC – A


VCE(sat) – IC
2SB1471
IC/IB=500
Ta=–40°C
25°C
120°C
Collector-to-Emitter Saturation Voltage,VCE(sat) – V
Collector Current,IC – A


VCE(sat) – IC
2SD2223
IC/IB=500
Ta=–40°C
25°C
120°C
Collector-to-Emitter Saturation Voltage,VCE(sat) – V
Collector Current,IC – A


VBE(sat) – IC
2SB1471
IC/IB=500
Ta=–40°C
25°C
120°C
Base-to-Emitter Saturation Voltage,VBE(sat) – V
Collector Current,IC – A


VBE(sat) – IC
2SD2223
IC/IB=500
Ta=–40°C
25°C
120°C
Base-to-Emitter Saturation Voltage,VBE(sat) – V
Collector Current,IC – A