Ordering number:346G

PNP/NPN Epitaxial Planar Silicon Transistor

2SB631,631K/2SD600,600K

100V/120V, 1A Low-Frequency Power Amplifier Applications

Features

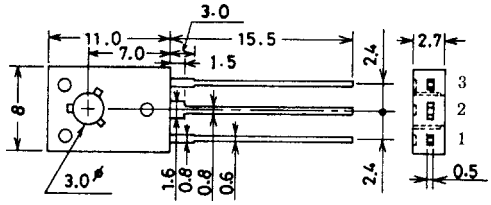
- High breakdown voltage V_{CEO} 100/120V, High current 1A.
- Low saturation voltage, excellent h_{FE} linearity.

Package Dimensions

unit:mm

2009B

[2SB631, 631K/2SD600, 600K]



1 : Emitter
2 : Collector
3 : Base

JEDEC : TO-126

( ) : 2SB631, 631K

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	2SB631, D600	2SB631K, D600K	Unit
Collector-to-Base Voltage	V_{CBO}		(–)100	(–)120	V
Collector-to-Emitter Voltage	V_{CEO}		(–)100	(–)120	V
Emitter-to-Base Voltage	V_{EBO}		(–)5		V
Collector Current	I_C		(–)1		A
Collector Current (Pulse)	I_{CP}		(–)2		A
Collector Dissipation	P_C		1		W
		Tc=25˚C	8		W
Junction Temperature	Tj		150		˚C
Storage Temperature	Tstg		–55 to +150		˚C

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions		Ratings min	Ratings typ	Ratings max	Unit
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	B631, D600	(–)100			V
			B631K, D600K	(–)120			V
Collector-to-Emitter Brakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	B631, D600	(–)100			V
			B631K, D600K	(–)120			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0		(–)5			V
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)50V, I_E=0				(–)1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0				(–)1	μA

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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.

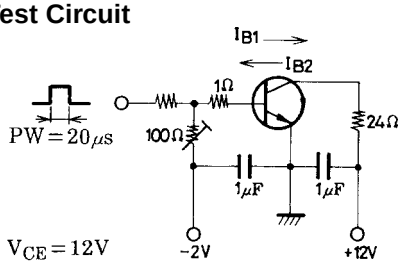
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	$h_{FE}1$	V_{CE}=(–)5V, I_C=(–)50mA	60*		320*	
	$h_{FE}2$	V_{CE}=(–)5V, I_C=(–)500mA	20			
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)50mA		(110)		MHz
				130		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		(30)20		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)500mA, I_B=(–)50mA		(–)0.15	(–)0.4	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)500mA, I_B=(–)50mA		(–)0.85	(–)1.2	V
Fall Time	t_f	See specified Test Circuit		(80)		ns
				100		ns
Turn-OFF Time	t_{off}	See specified Test Circuit		(100)		ns
				500		ns
Storage Time	t_{stg}	See specified Test Circuit		(600)		ns
				700		ns

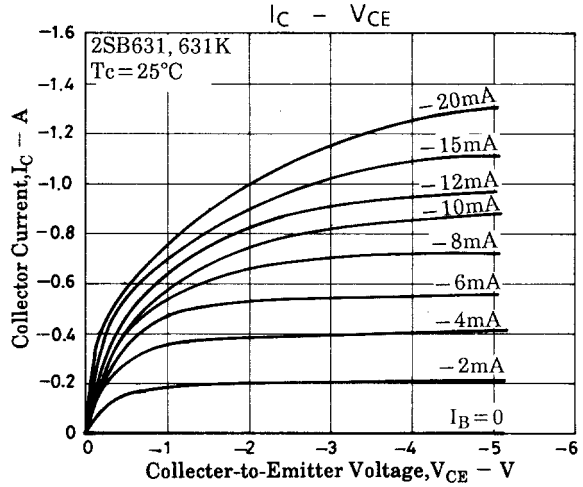
* : The 2SB631/2SD600 are classified by 50mA h_{FE} as follows :

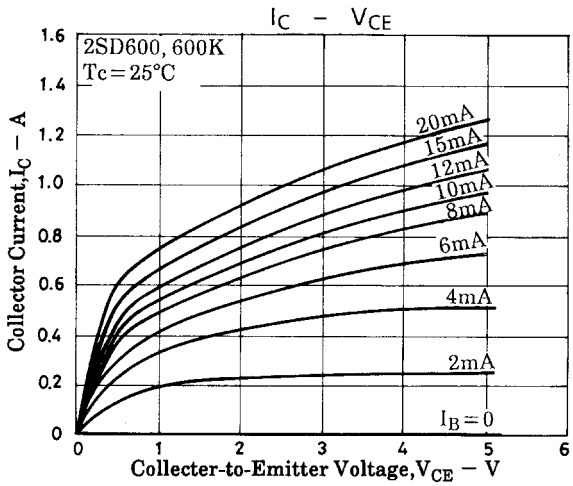
60 D 120	100 E 200	160 F 320

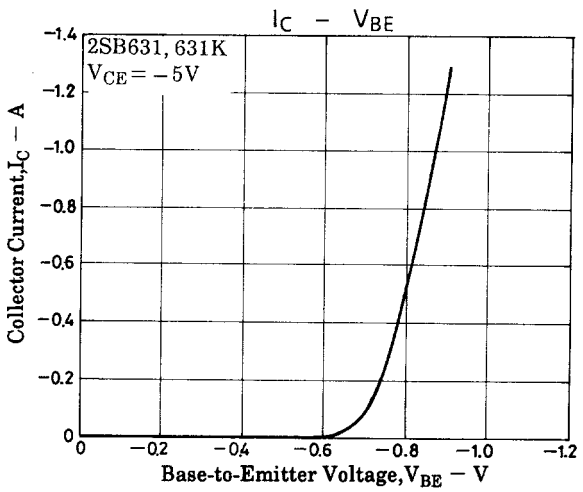
Switching Time Test Circuit

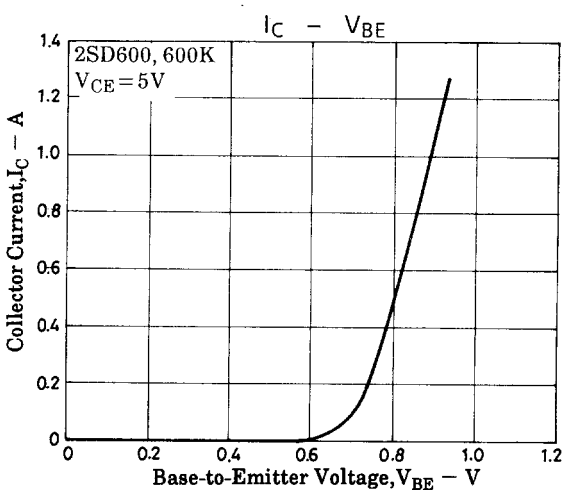


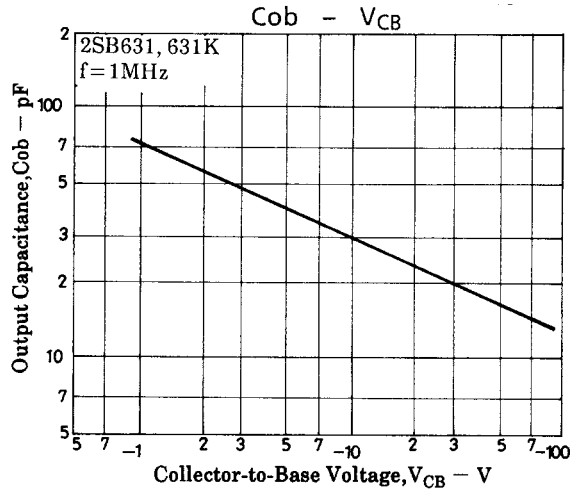
(For PNP, the polarity is reversed.)

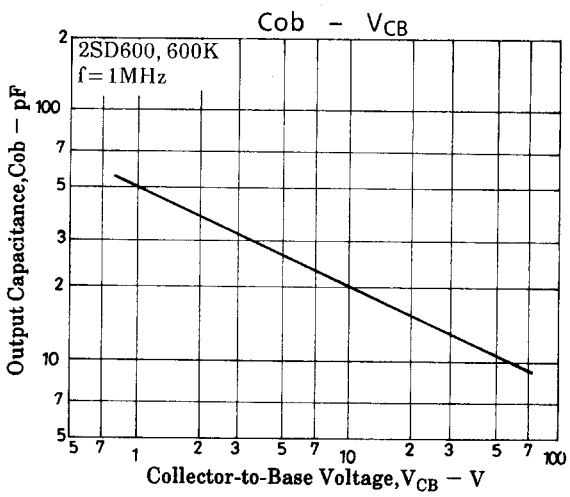


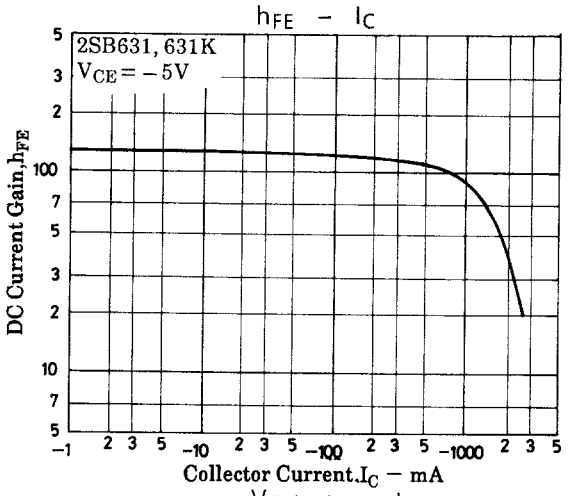


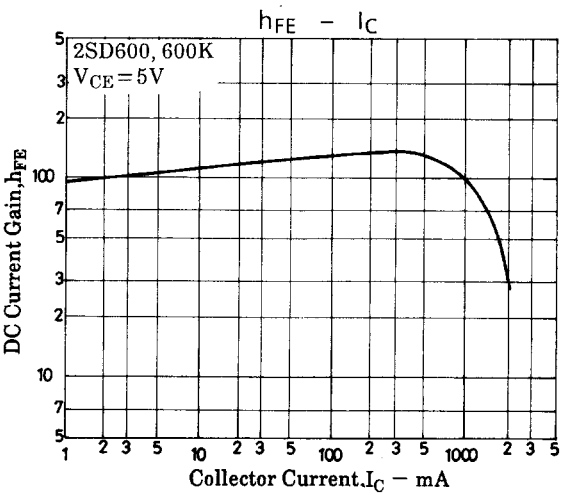


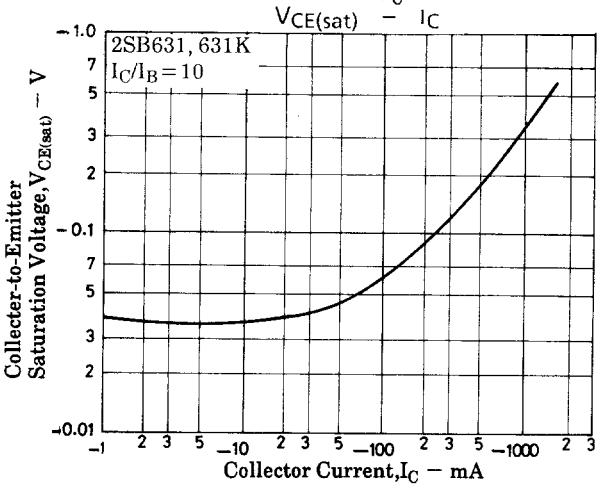


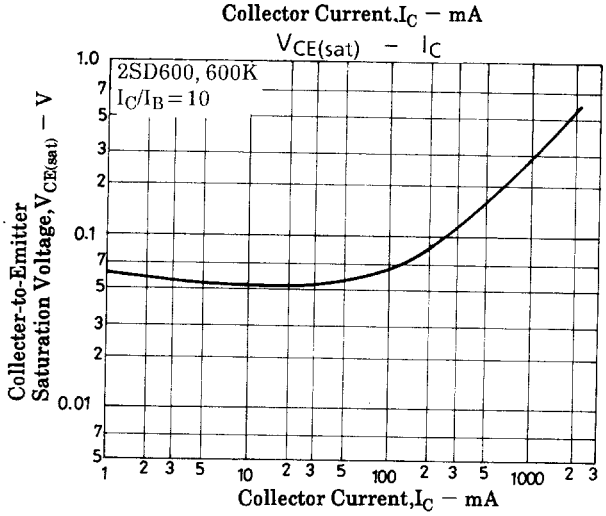

Cob – VCB
2SB631, 631K
f=1MHz
Output Capacitance,Cob – pF
Collector-to-Base Voltage,VCB – V

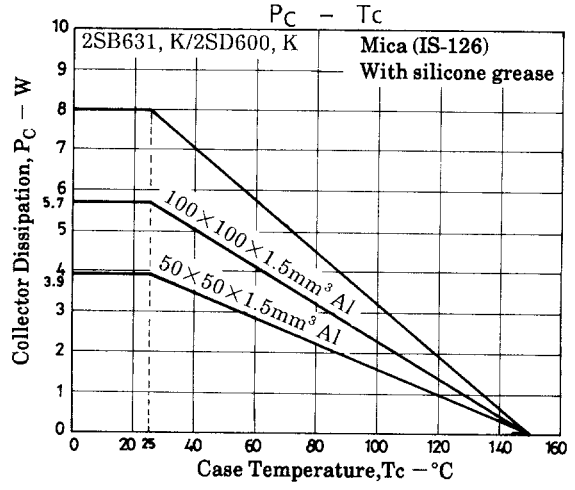

Cob – VCB
2SD600, 600K
f=1MHz
Output Capacitance,Cob – pF
Collector-to-Base Voltage,VCB – V

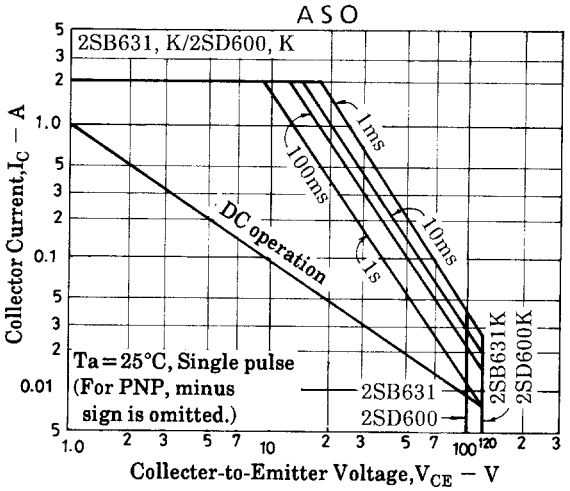

hFE – IC
2SB631, 631K
VCE=–5V
DC Current Gain,hFE
Collector Current,IC – mA

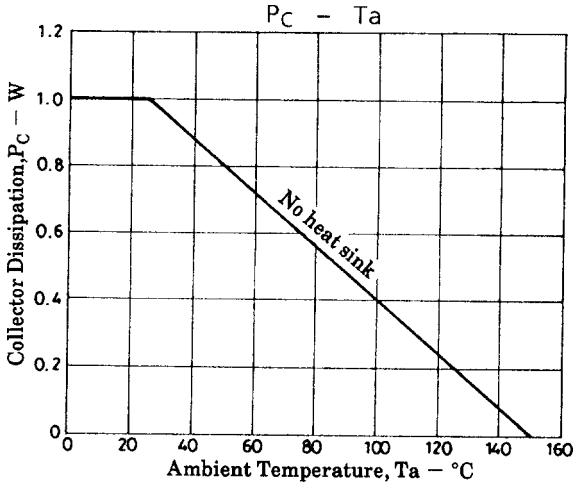

hFE – IC
2SD600, 600K
VCE=5V
DC Current Gain,hFE
Collector Current,IC – mA


VCE(sat) – IC
2SB631, 631K
IC/IB=10
Collecter-to-Emitter Saturation Voltage,VCE(sat) – V
Collector Current,IC – mA


VCE(sat) – IC
2SD600, 600K
IC/IB=10
Collecter-to-Emitter Saturation Voltage,VCE(sat) – V
Collector Current,IC – mA


PC – TC
2SB631, K/2SD600, K
Mica (IS-126)
With silicone grease
100×100×1.5mm³ Al
50×50×1.5mm³ Al
Collector Dissipation, PC – W
Case Temperature,Tc – °C


ASO
2SB631, K/2SD600, K
1ms
10ms
100ms
1s
DC operation
Ta=25°C, Single pulse
(For PNP, minus sign is omitted.)
2SB631
2SD600
2SB631K
2SD600K
Collector Current,IC – A
Collecter-to-Emitter Voltage,VCE – V



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