



2SB631,631K/2SD600,600K

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

Features

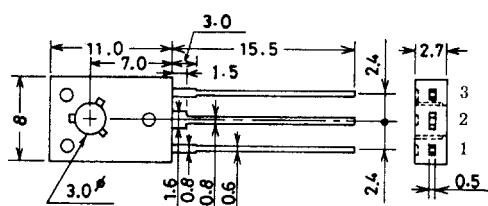
- High breakdown voltage V_{CEO} 100/120V, High current 1A.
- Low saturation voltage, excellent h_{FE} linearity.

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 $T_a = 25^\circ\text{C}$

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
		$T_c=25^\circ\text{C}$		8	W
Junction Temperature	T_j			150	$^\circ\text{C}$
Storage Temperature	T_{stg}			-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a = 25^\circ\text{C}$

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

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91098HA (KT)/72195MO (KOTO)/4017KI/D144MW, TS/E107, 8-2338/9286 No.346-1/4

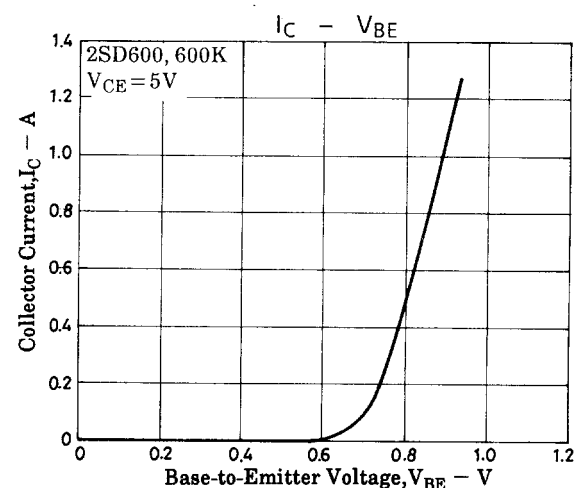
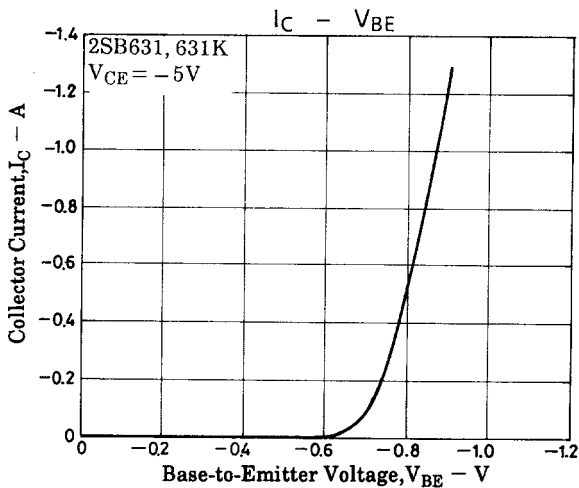
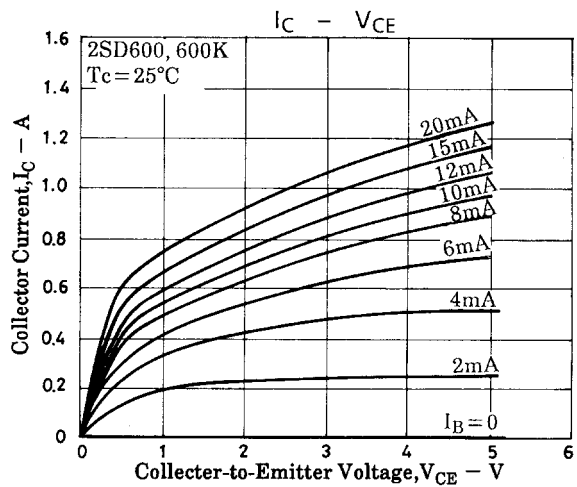
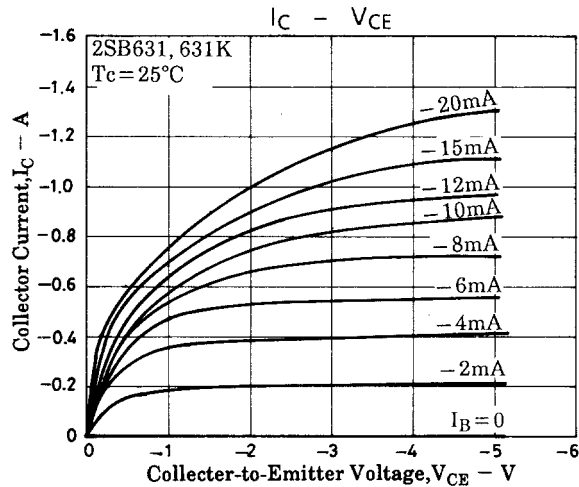
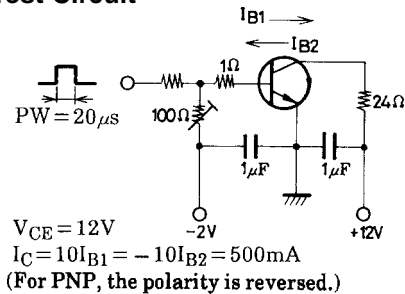
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	h_{FE1}	$V_{CE}=(-)5V, I_C=(-)50mA$	60*		320*	
	h_{FE2}	$V_{CE}=(-)5V, I_C=(-)500mA$	20			
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)50mA$		(110)		MHz
				130		MHz
Output 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

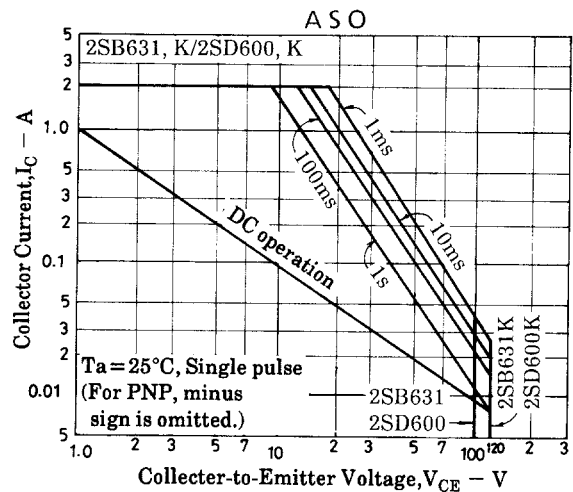
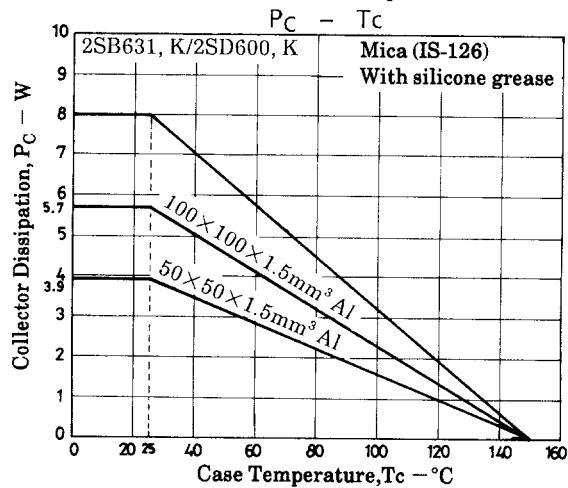
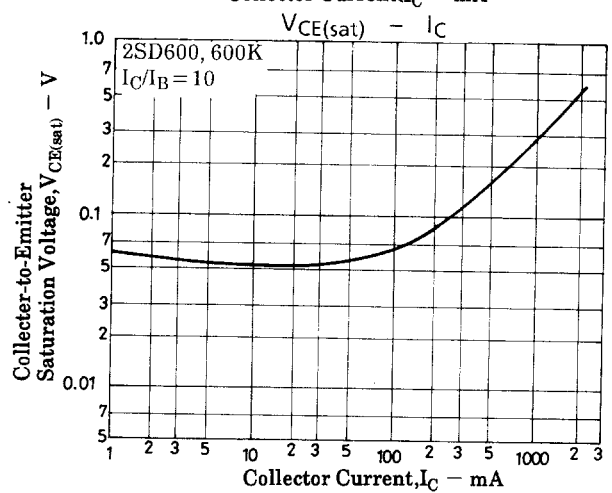
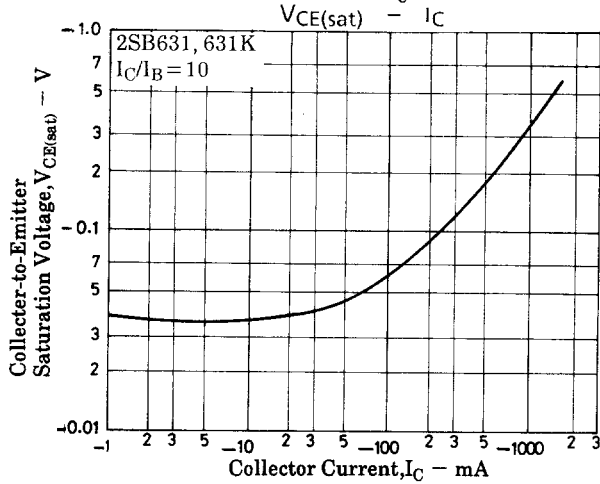
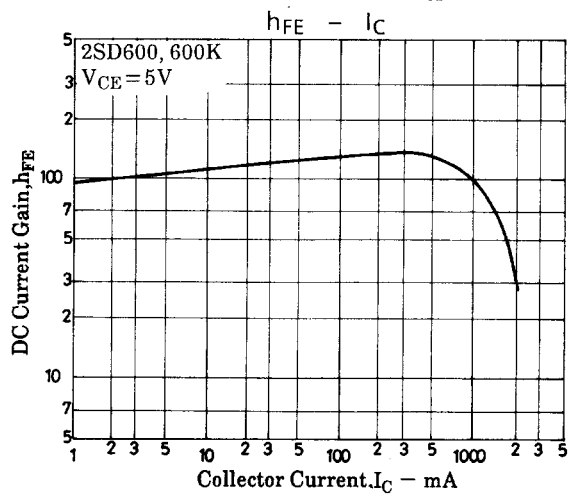
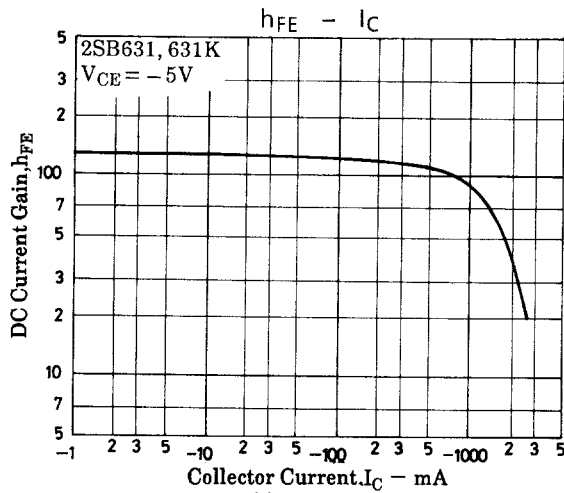
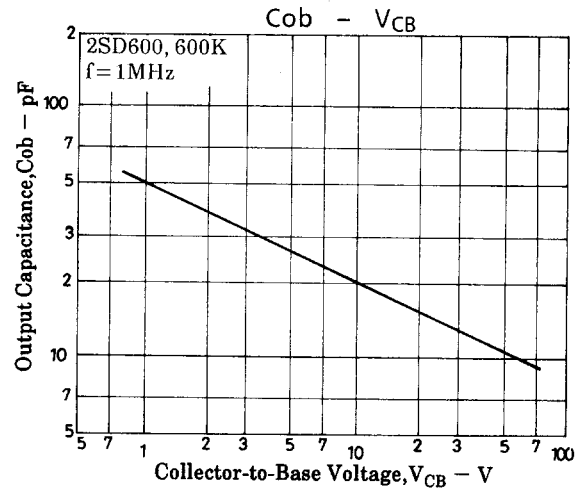
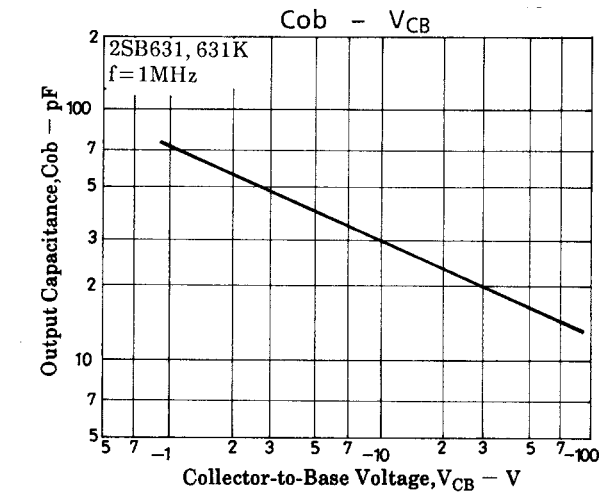
* : The 2SB631/2SD600 are classified by 50mA h_{FE} as follows :

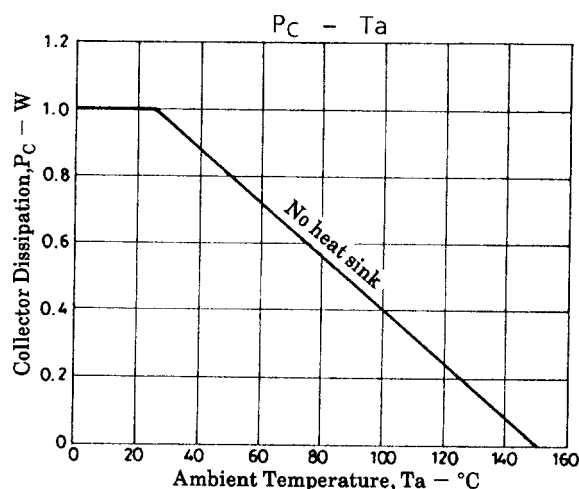
60	D	120	100	E	200	160	F	320
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Switching Time Test Circuit



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