



2SB631,631K/2SD600,600K

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

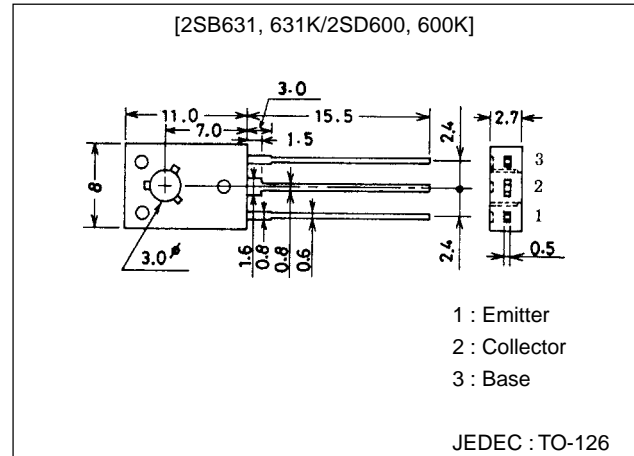
Features

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

Package Dimensions

unit:mm

2009B



() : 2SB631, 631K

Specifications

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

Parameter	Symbol	Condition	2SB631, D60	2SB631K, D600	Unit
Collector-to-Base Voltage	CBO		(\ominus)100	(∇)12	
Collector-to-Emitter Voltage	CEO		(\ominus)100	(∇)12	
Emitter-to-Base Voltage	EBO			(∇)5	
Collector Current	C			(A)1	
Collector Current (Pulse)	CP			(A)2	
Collector Dissipation	C			1W	
		$T_c=25^\circ\text{C}$		8W	
Junction Temperature	T			150	$^\circ\text{C}$
Storage Temperature	Tst			-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Condition	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	(BR)CBO	$I_C=(-)10\mu\text{A}, I_E=0$	B631, D600	(∇)10		
			B631K, D600K	(∇)12		
Collector-to-Emitter Breakdown Voltage	(BR)CEO	$I_C=(-)1\text{mA}, R_{BE}=\infty$	B631, D600	(∇)10		
			B631K, D600K	(∇)12		
Emitter-to-Base Breakdown Voltage	(BR)EBO	$I_E=(-)10\mu\text{A}, I_C=0$		(∇)		
Collector Cutoff Current	CBO	$V_{CB}=(-)50\text{V}, I_E=0$			(A)	μ
Emitter Cutoff Current	EBO	$V_{EB}=(-)4\text{V}, I_C=0$			(A)	μ

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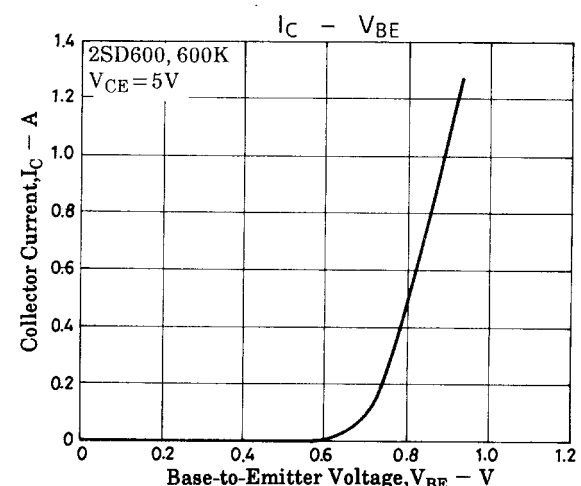
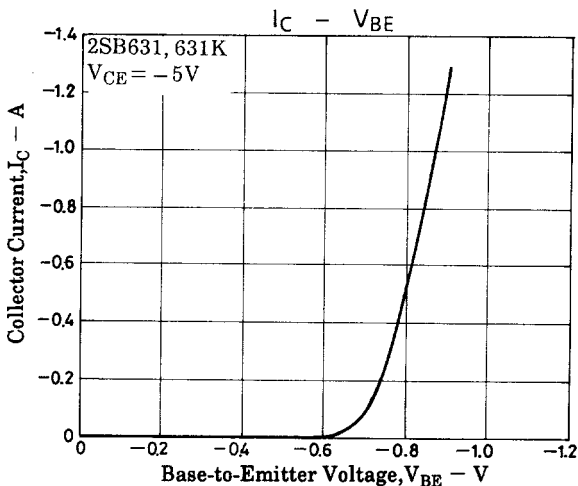
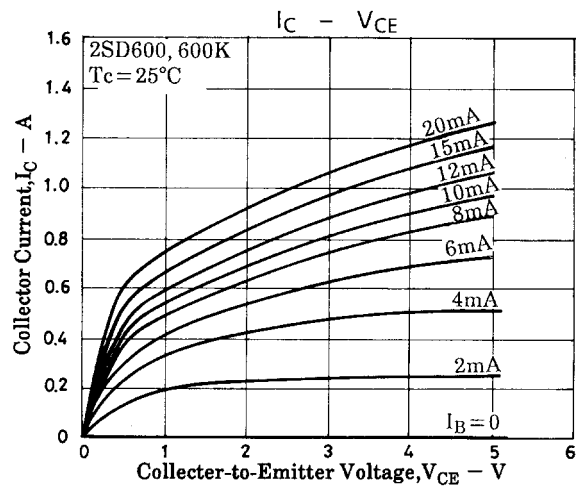
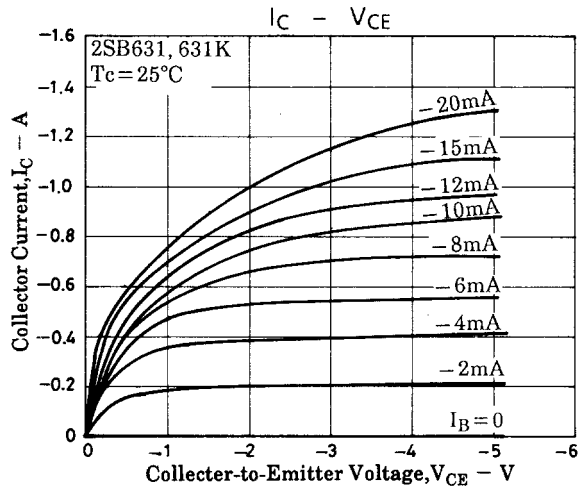
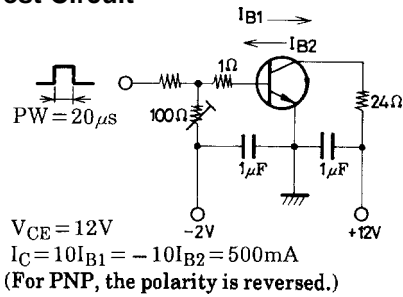
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	h_{FE1}	$V_{CE}=(-)5V, I_C=(-)50mA$	60*		320*	
	h_{FE2V}	$V_{CE}=(-)5V, I_C=(-)500mA$	2			
Gain-Bandwidth Product	T	$V_{CE}=(-)10V, I_C=(-)50mA$		(\pm 10)		MH
				120		MH
Output Capacitance	ob	$V_{CB}=(\theta)10V, f=1MHz$		(θ)2		p
Collector-to-Emitter Saturation Voltage	CE(sat)	$I_C=(-)500mA, I_B=(\theta)50mA$		(4)0.1	(ψ)0.	
Base-to-Emitter Saturation Voltage	BE(sat)	$I_C=(-)500mA, I_B=(\theta)50mA$		(2)0.8	(ψ)1.	
Fall Time	f	See specified Test Circuit		(θ)		n
				1 θ 0		n
Turn-OFF Time	off	See specified Test Circuit		(θ)00		n
				5 θ 0		n
Storage Time	stg	See specified Test Circuit		(θ)00		n
				7 θ 0		n

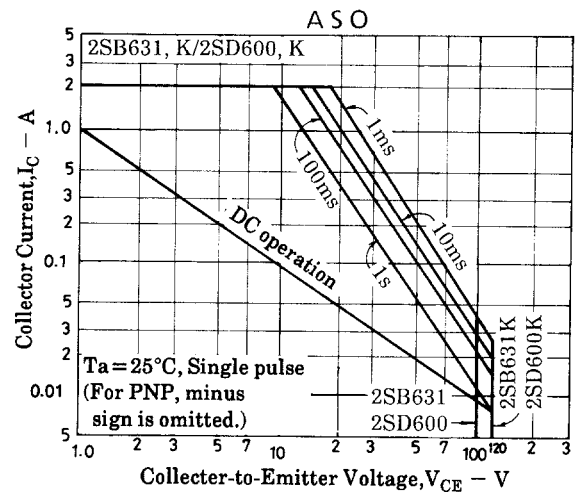
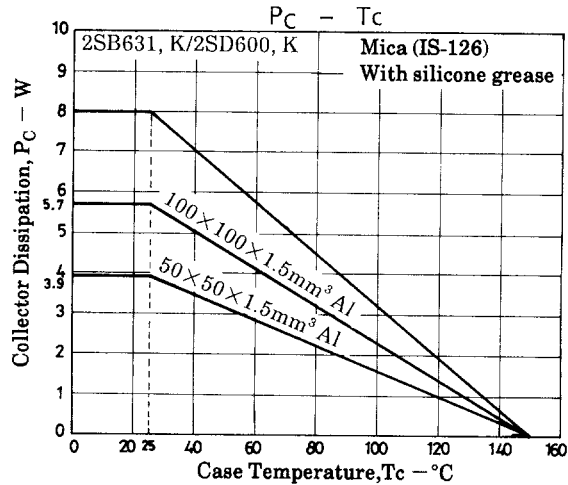
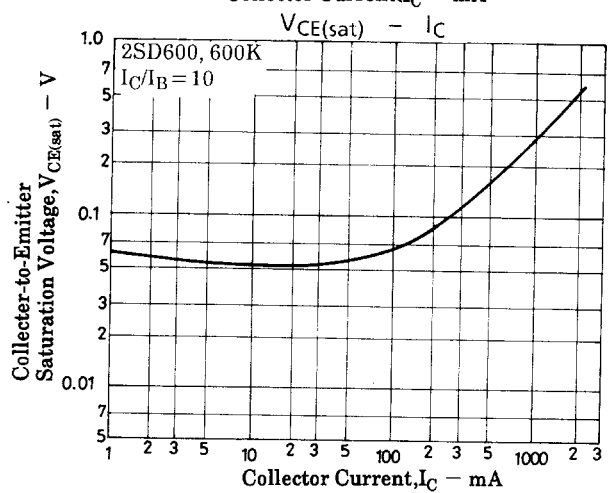
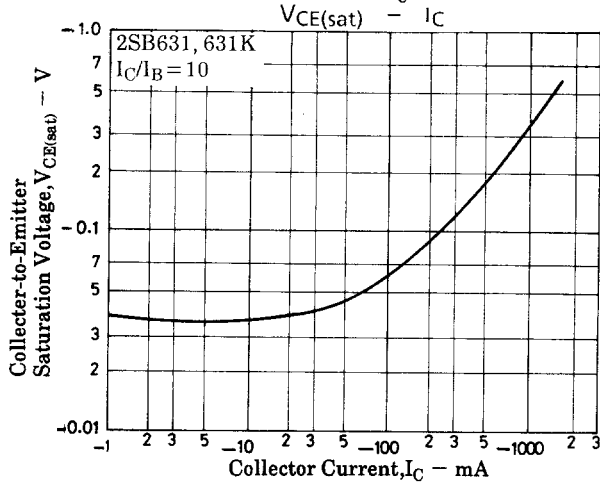
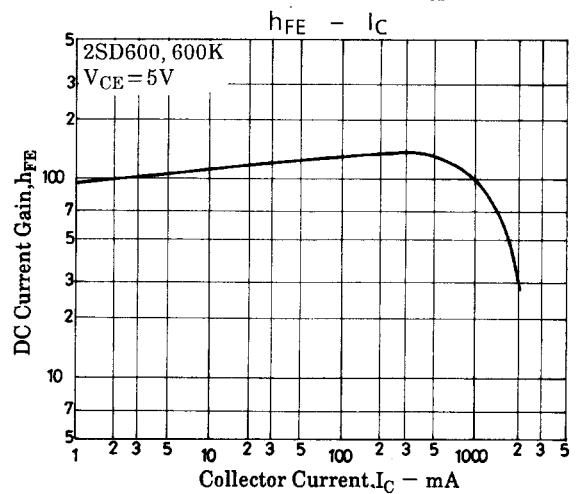
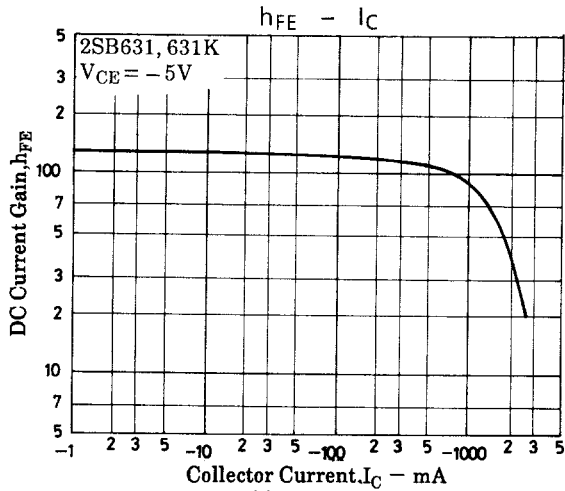
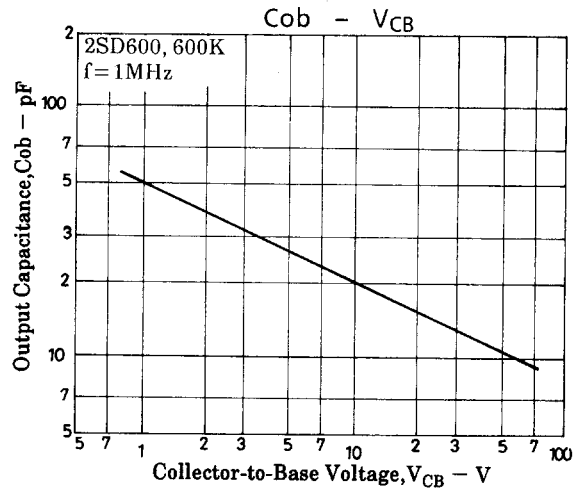
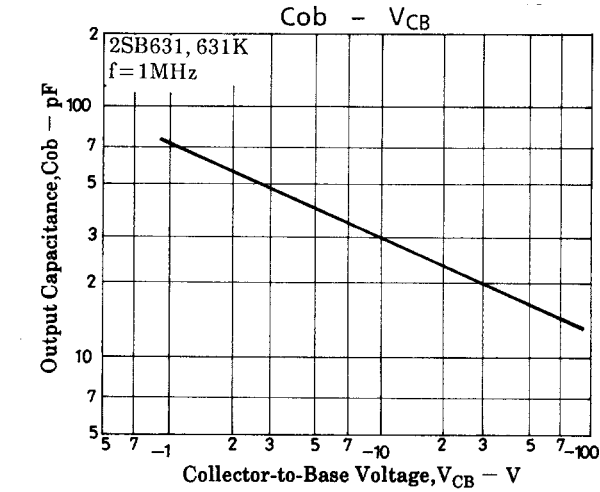
* : The 2SB631/2SD600 are classified by 50mA h_{FE} as follows :

60	D	120	100	E	20	160	F	32
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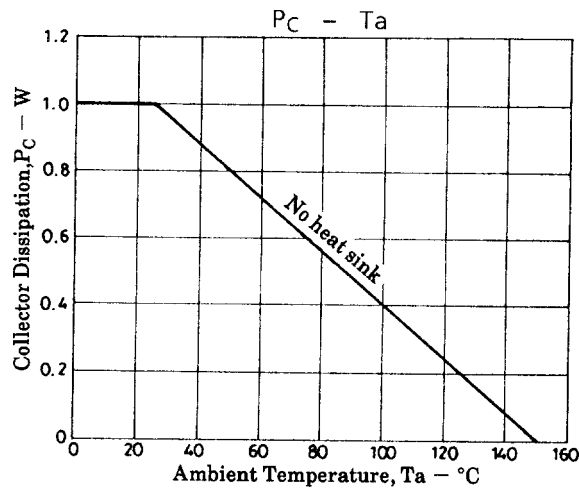
Switching Time Test Circuit



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