



2SA1331/2SC3361

High-Speed Switching Applications

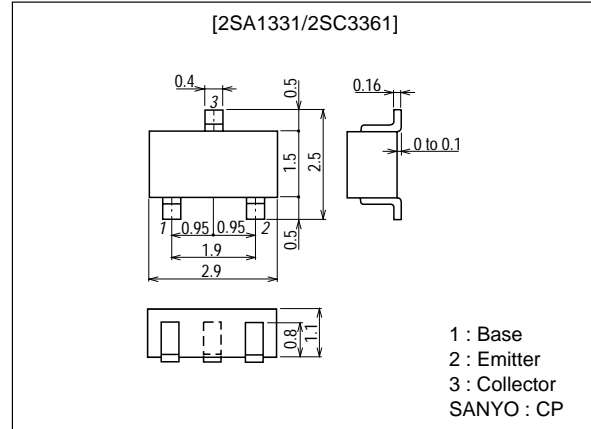
Features

- Fast switching speed.
- High breakdown voltage.
- Small-sized package permitting the 2SA1331/2SC3361-applied sets to be made small and slim.

Package Dimensions

unit:mm

2018B



(): 2SA1331

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-)60	V
Collector-to-Emitter Voltage	V_{CEO}		(-)50	V
Emitter-to-Base Voltage	V_{EBO}		(-)5	V
Collector Current	I_C		(-)150	mA
Collector Current (Pulse)	I_{CP}		(-)400	mA
Base Current	I_B		(-)40	mA
Collector Dissipation	P_C		150	mW
Junction Temperature	T_j		125	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +125	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB} = (-)40\text{V}, I_E = 0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4\text{V}, I_C = 0$			(-)0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = (-)6\text{V}, I_C = (-)1\text{mA}$	90*		400*	
Gain-Bandwidth Product	f_T	$V_{CE} = (-)6\text{V}, I_C = (-)1\text{mA}$		100		MHz
Common Base Output Capacitance	C_{ob}	$V_{CB} = (-)6\text{V}, f = 1\text{MHz}$		(3.5) 2.7		pF

* : The 2SA1331/2SC3361 are classified by 1mA h_{FE} as follows :

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Marking 2SA1331 : O, 2SC3361 : S

 h_{FE} rank : 4, 5, 6

Rank	4	5	6
h_{FE}	90 to 180	135 to 270	200 to 400

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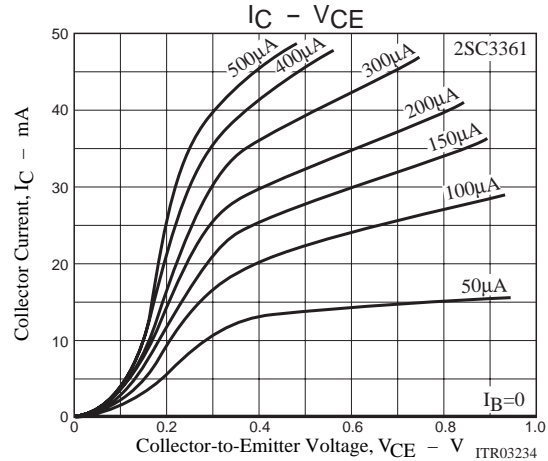
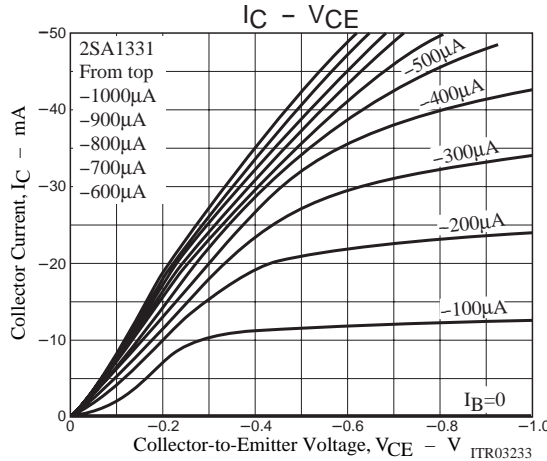
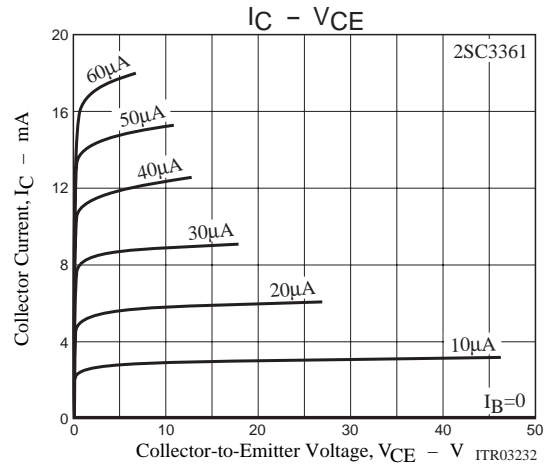
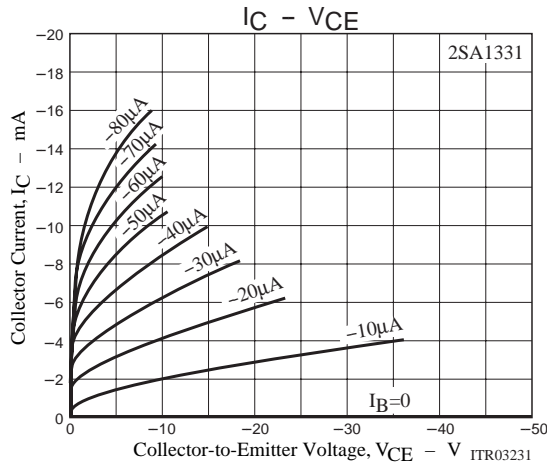
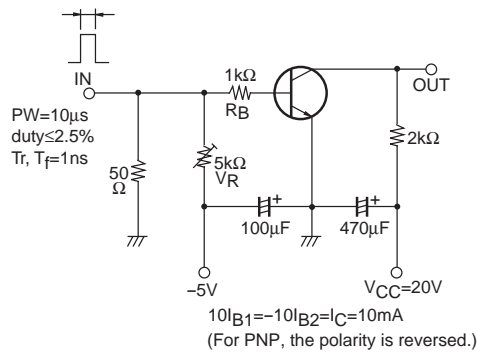
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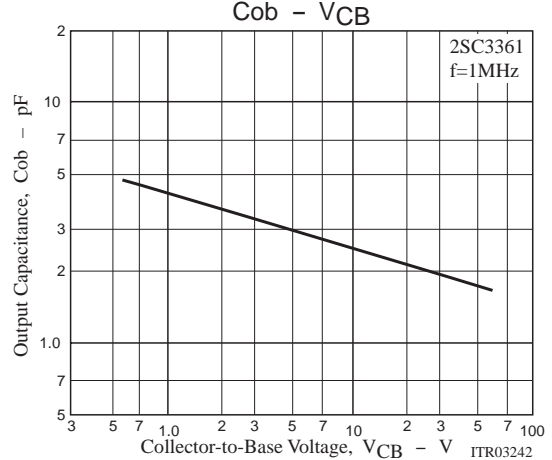
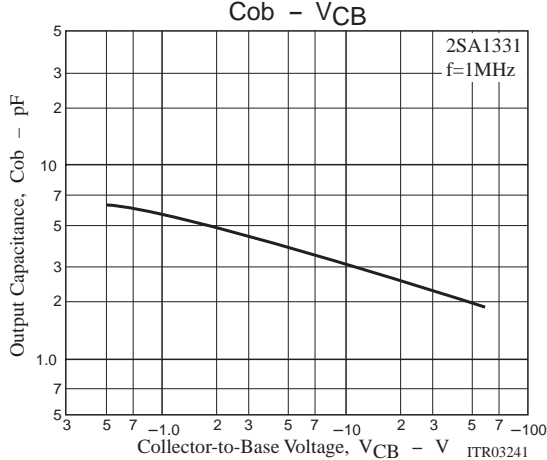
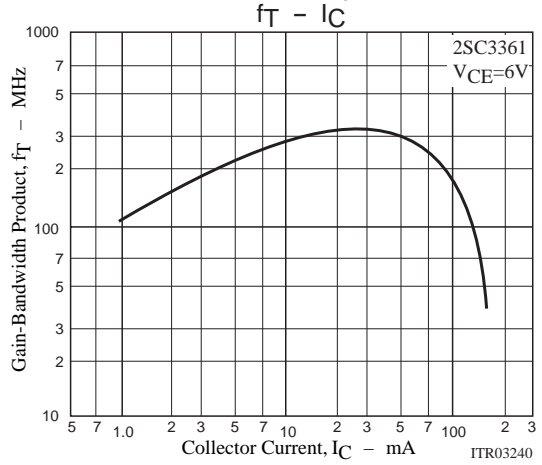
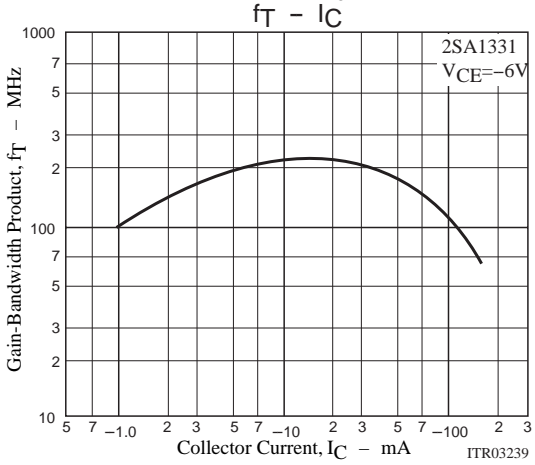
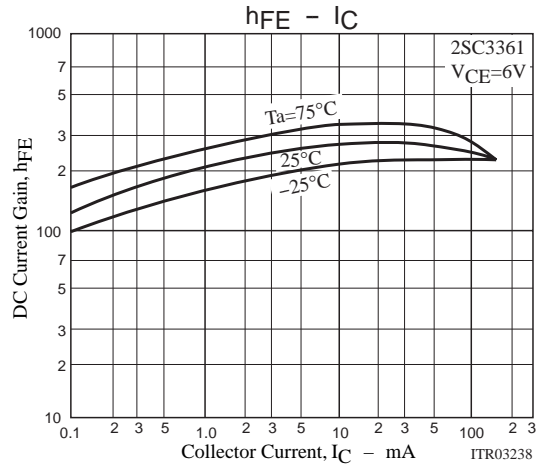
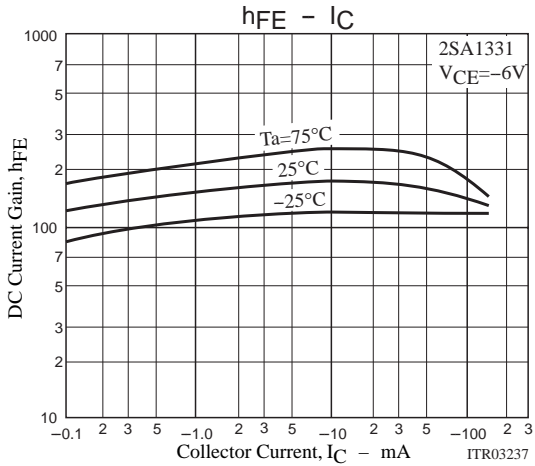
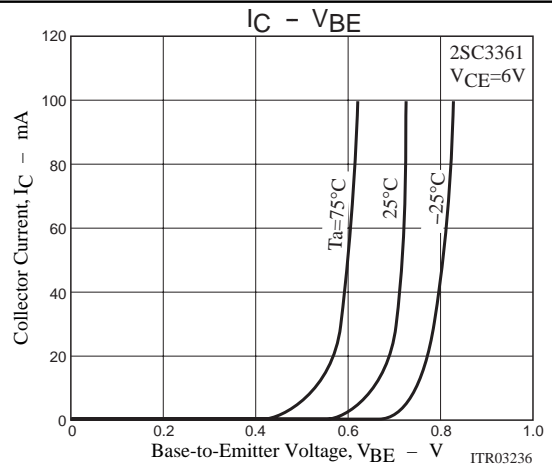
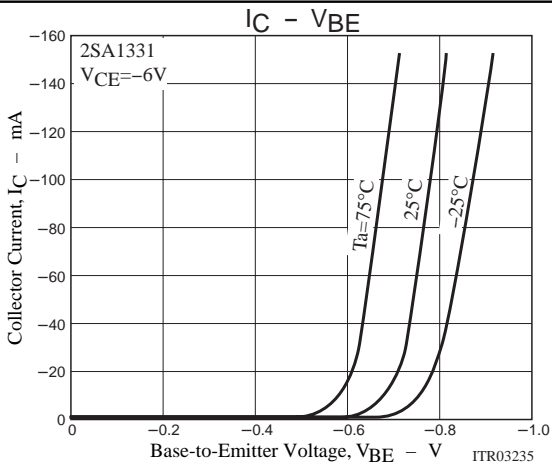
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)10mA, I_B=(-)1mA$		(-)0.1	(-)0.4	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)10mA, I_B=(-)1mA$		(-)0.75	(-)1.1	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-)5			V
Delay Time	t_d	See specified Test Circuit		40		ns
Rise Time	t_r	See specified Test Circuit		(120) 80		ns
Storage Time	t_{stg}	See specified Test Circuit		(190) 230		ns
Fall Time	t_f	See specified Test Circuit		(200) 160		ns

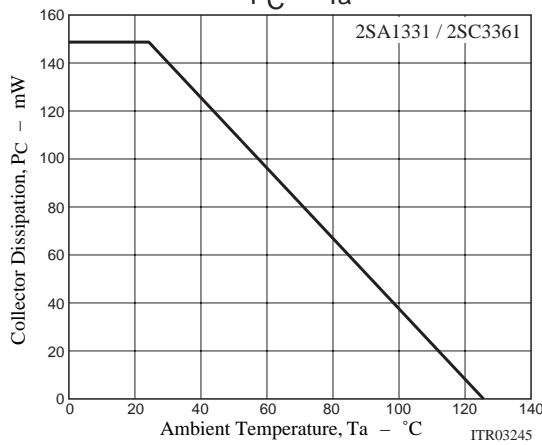
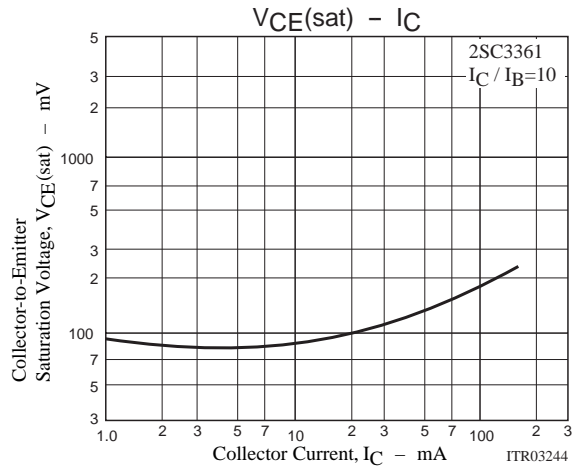
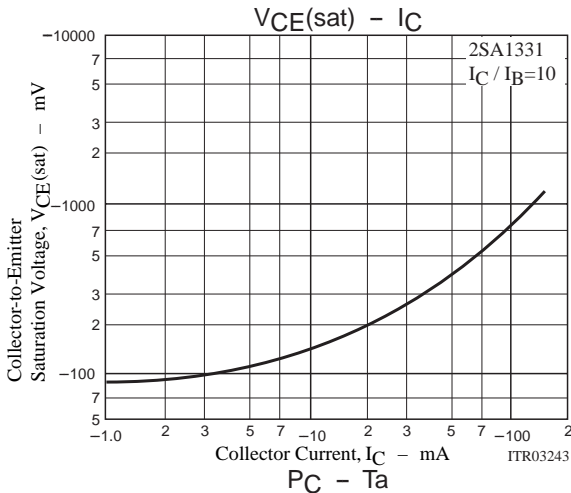
Switching Time Test Circuit



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