



2SA1339/2SC3393

High-Speed Switching Applications

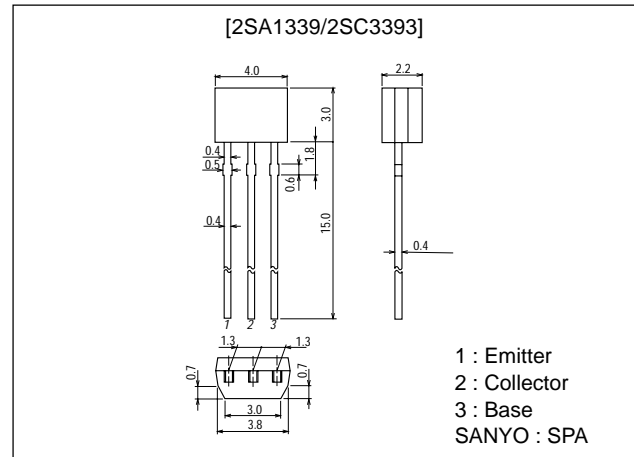
Features

- Very small-sized package permitting sets to be small-sized, slim.
- High breakdown voltage : $V_{CEO}=(-)50V$.
- Complementary pair transistor having large current capacity and high f_T .
- Adoption of FBET process.

Package Dimensions

unit:mm

2033A



() : 2SA1339

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(-)60	V
Collector-to-Emitter Voltage	V_{CEO}		(-)50	V
Emitter-to-Base Voltage	V_{EBO}		(-)5	V
Collector Current	I_C		(-)500	mA
Collector Current (Pulse)	I_{CP}		(-)800	mA
Collector Dissipation	P_C		300	mW
Junction Temperature	T_J		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

Electrical Characteristics at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)40V, I_E=0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4V, I_C=0$			(-)0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=(-)5V, I_C=(-)10mA$	100*		560*	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)50mA$		300 (200)		MHz
Common Base Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		3.7 (5.6)		pF

* : The 2SA1339/2SC3393 are classified by 10mA h_{FE} as follows :

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Rank	R	S	T	U
h_{FE}	100 to 200	140 to 280	200 to 400	280 to 560

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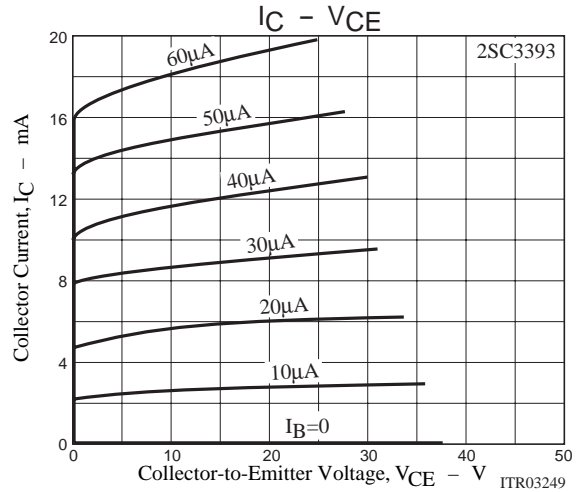
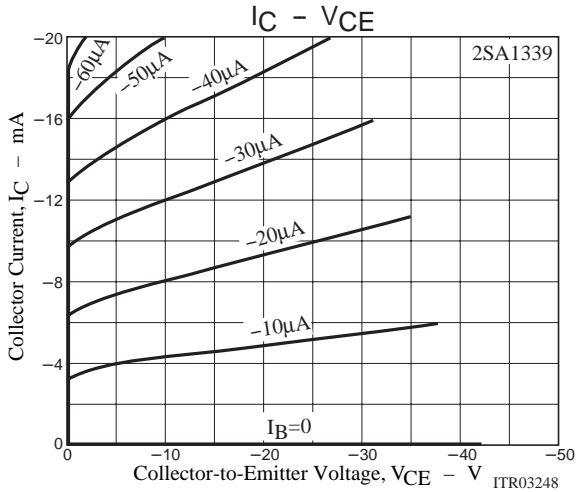
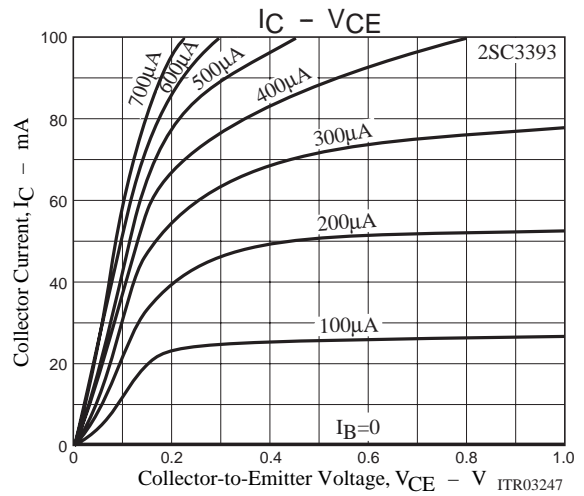
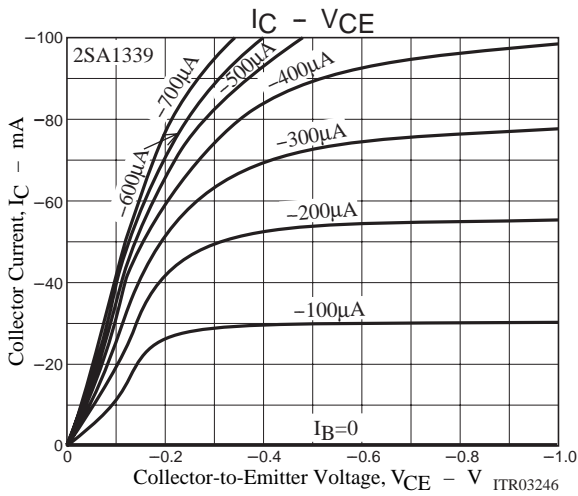
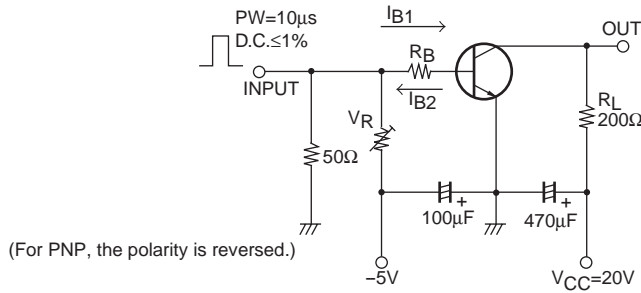
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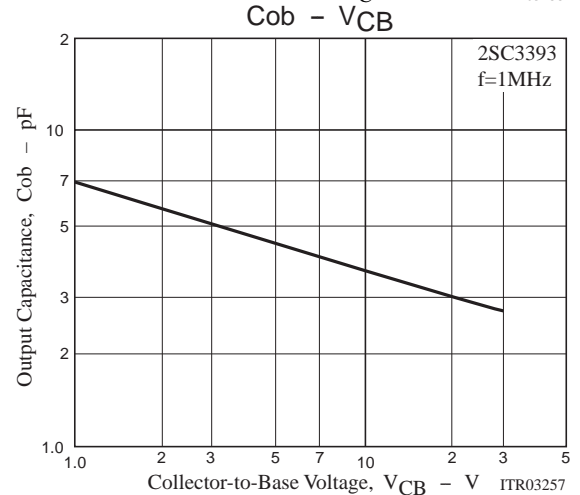
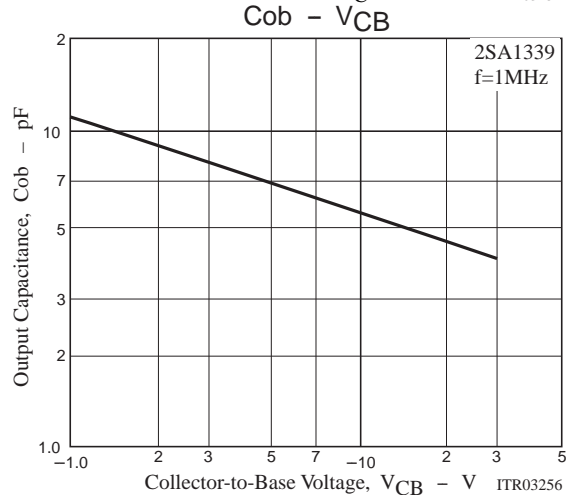
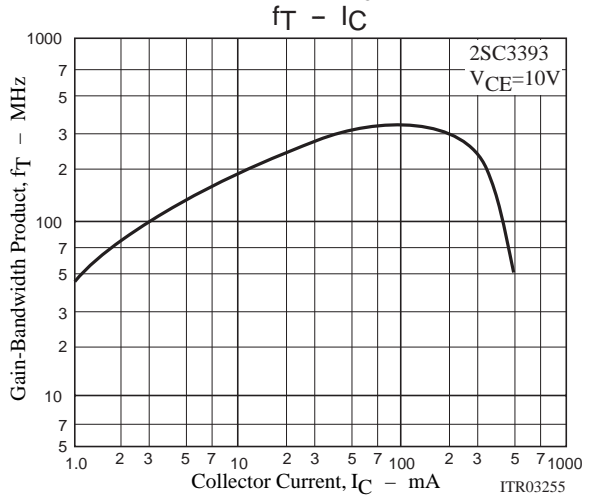
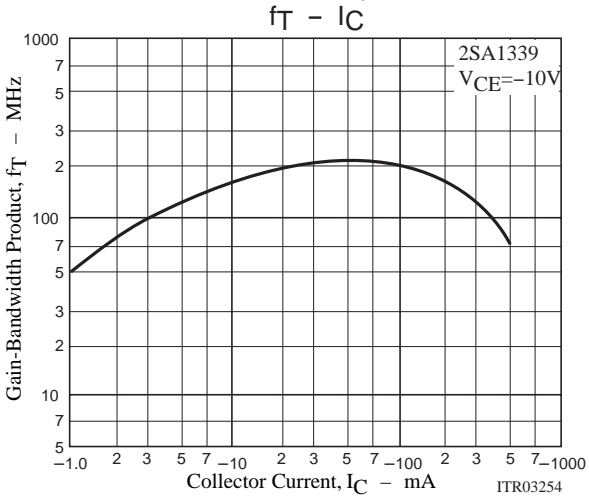
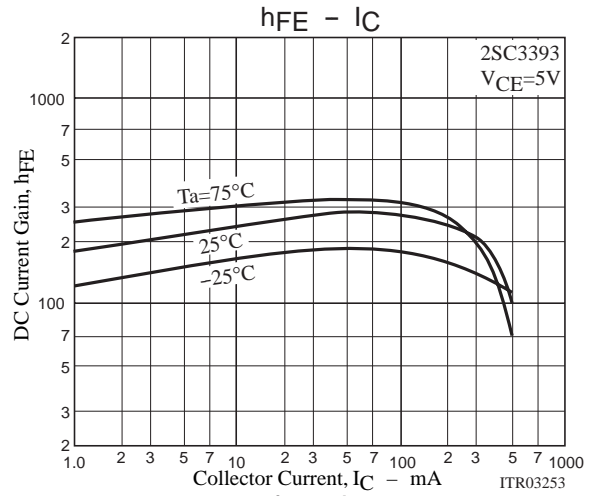
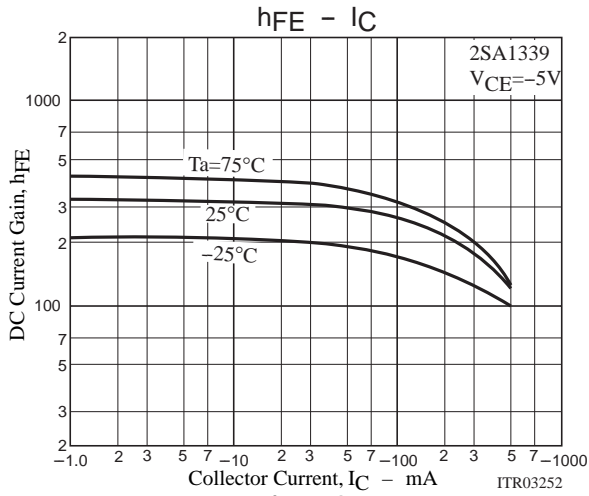
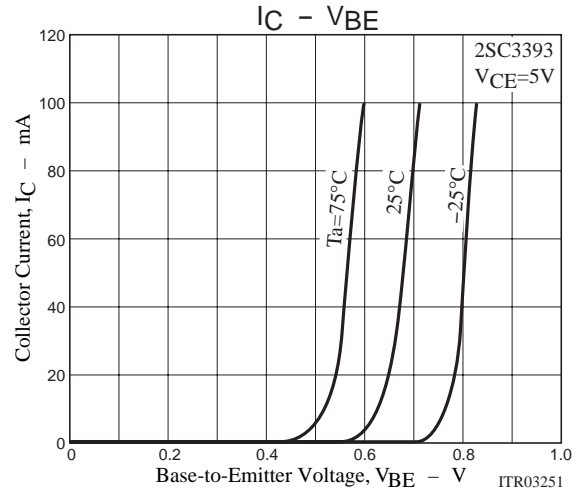
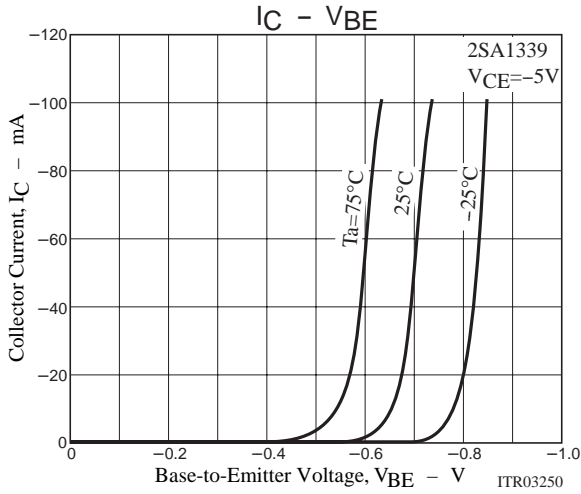
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)100\text{mA}, I_B=(-)10\text{mA}$		0.1 (0.15)	0.3 (0.4)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)100\text{mA}, I_B=(-)10\text{mA}$		0.8	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}, I_E=0$	(-)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)100\mu\text{A}, R_{BE}=\infty$	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}, I_C=\infty$	(-)5			V
Turn-ON Time	t_{on}			70(70)		ns
Storage Time	t_{stg}	$V_{CC}=20\text{V}$ $I_C=10\text{I}_B, I_{B1}=-10\text{I}_B, I_{B2}=100\text{mA}$		400 (400)		ns
Fall Time	t_f			70(50)		ns

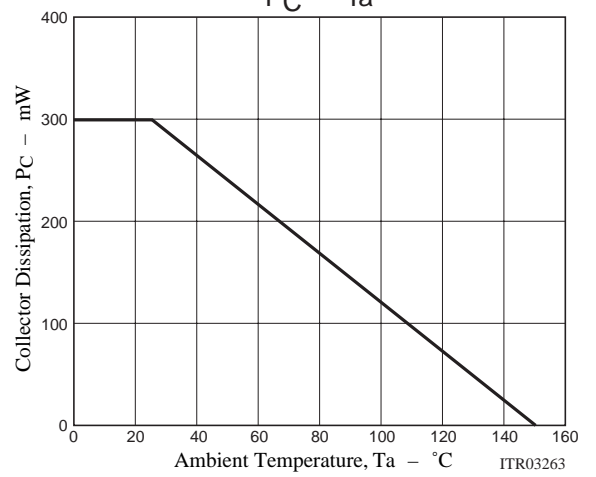
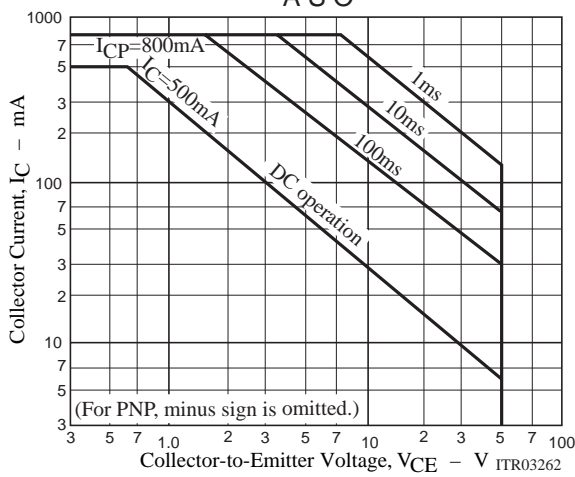
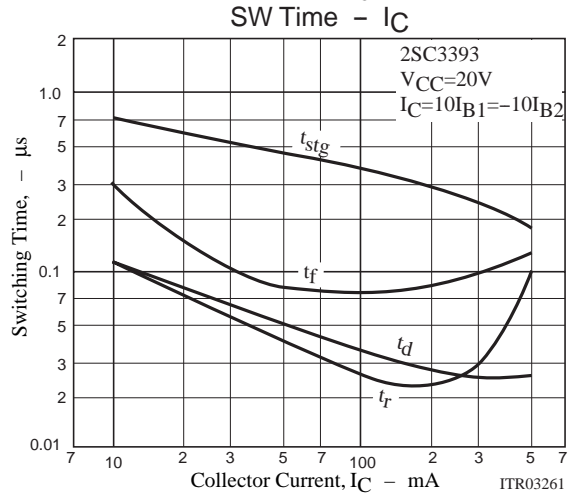
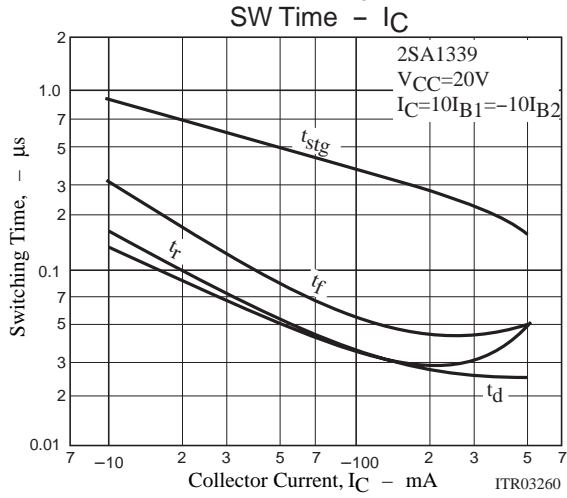
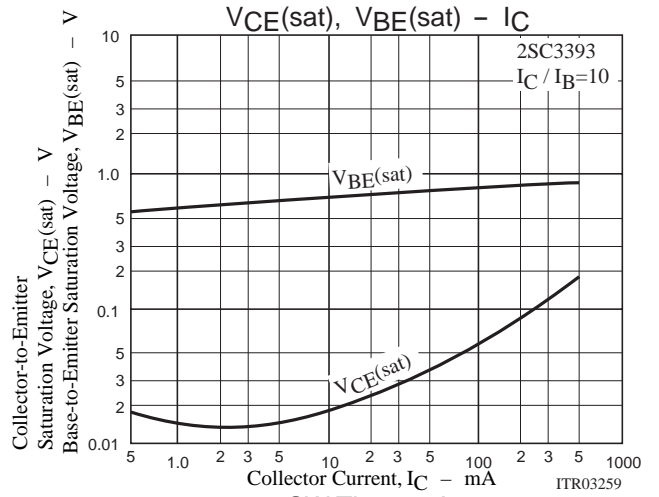
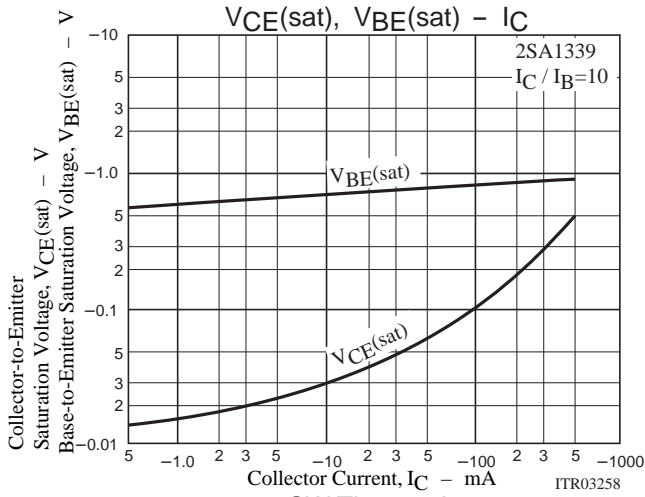
Switching Time Test Circuit



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