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2SA1338 / 2SC3392

PNP/NPN Epitaxial Planar Silicon Transistor
High-Speed Switching Applications

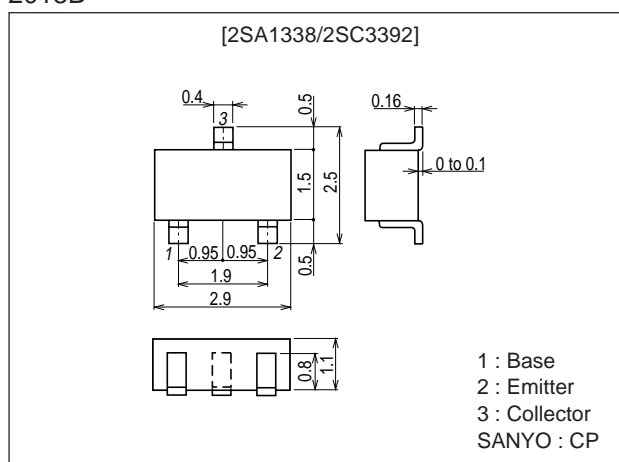
Features

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

Package Dimensions

unit:mm

2018B



() : 2SA1338

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		200	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*	

* : The 2SA1338/2SC3392 are classified by 10mA h_{FE} as follows :

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Rank	4	5	6	7
h_{FE}	100 to 200	140 to 280	200 to 400	280 to 560

Note : 2SA1338 Marking : AL, 2SC3392 Marking : AY

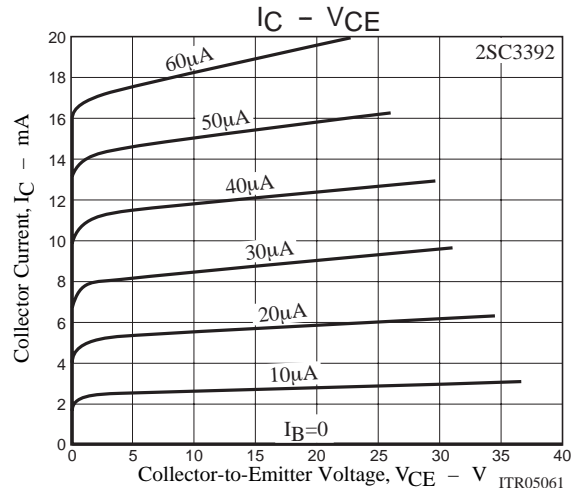
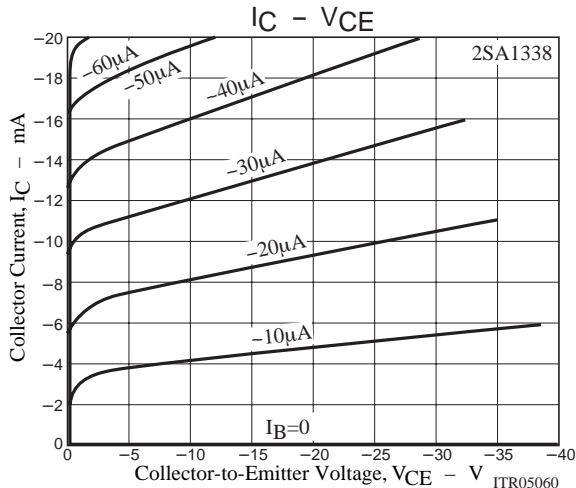
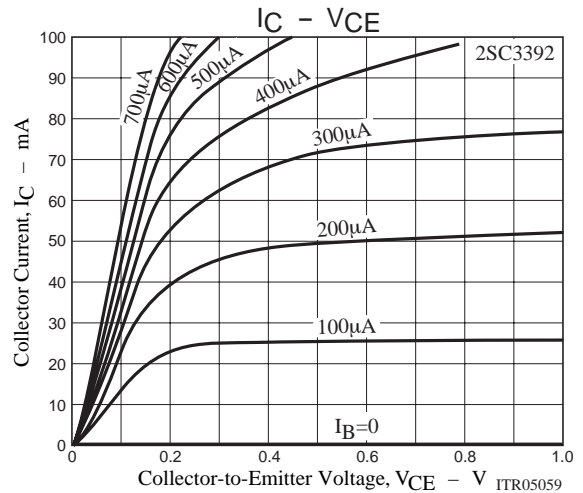
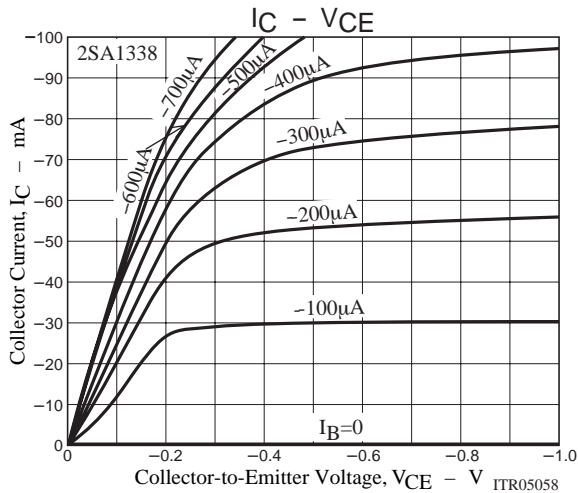
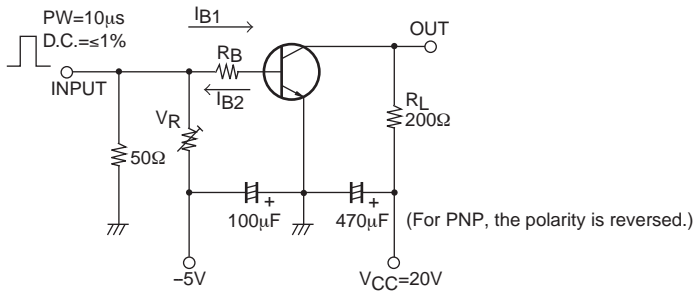
h_{FE} rank : 4, 5, 6, 7

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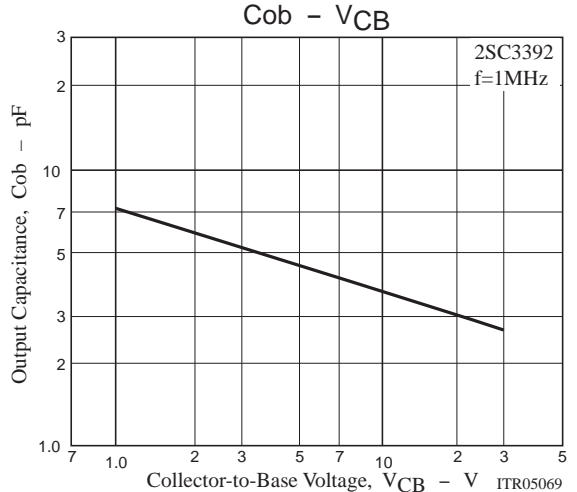
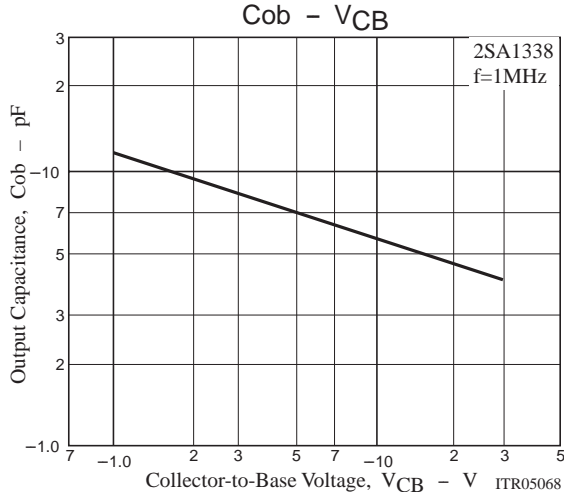
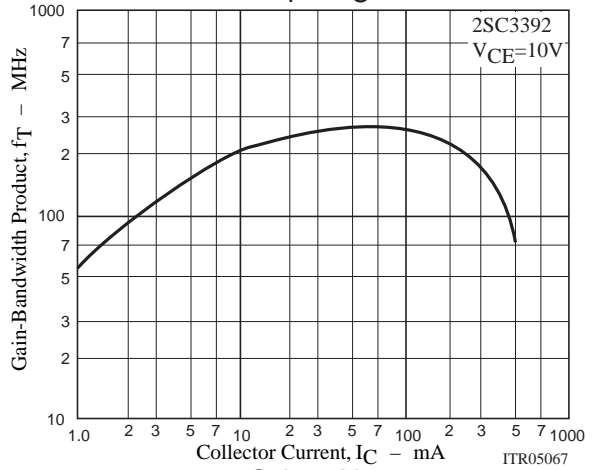
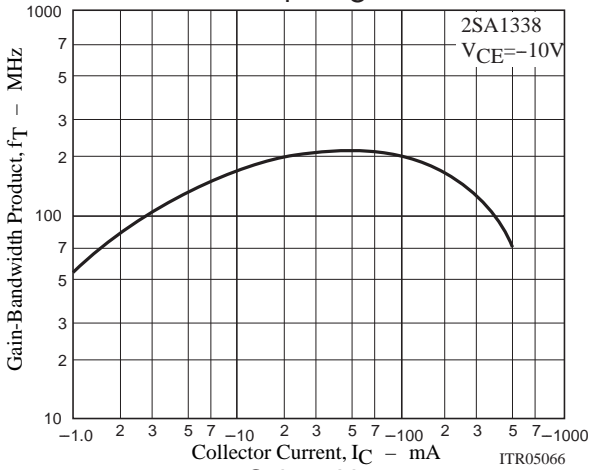
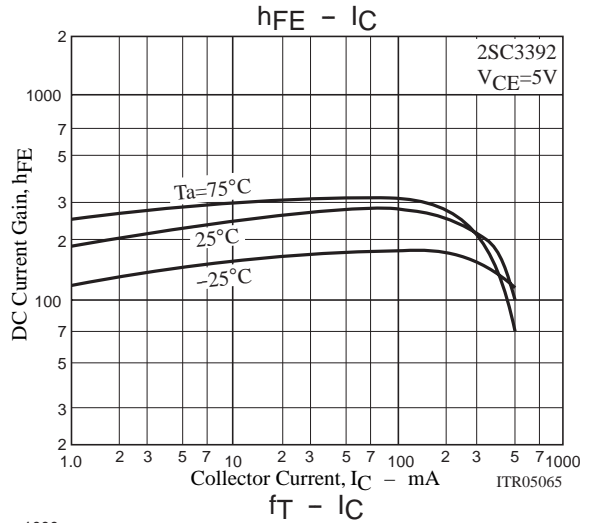
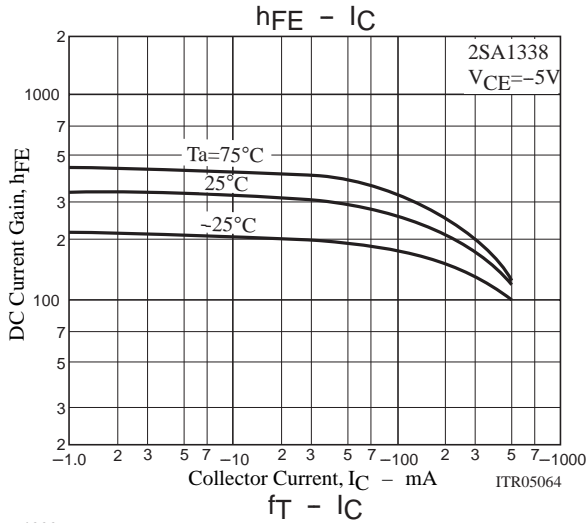
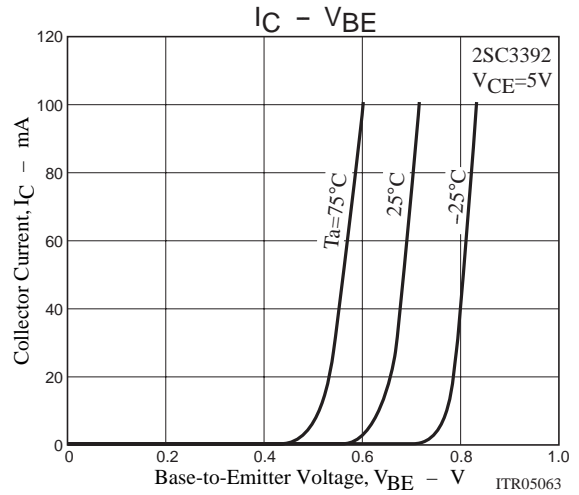
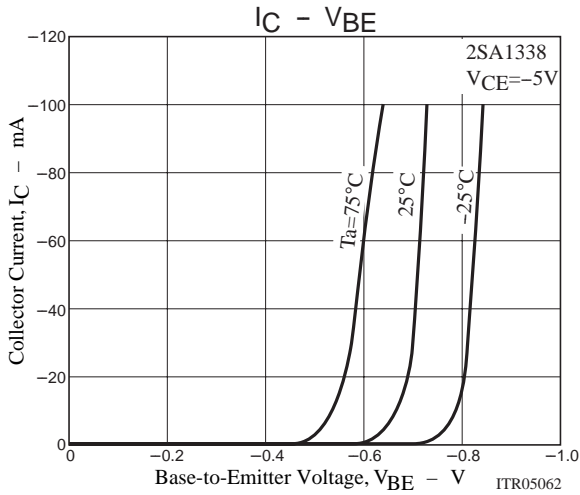
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)50mA$		300 (200)		MHz
Common Base Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		3.7 (5.6)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)100mA, I_B=(-)10mA$		0.1 (0.15)	0.3 (0.4)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)100mA, I_B=(-)10mA$		0.8	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)100\mu A, R_{BE}=\infty$	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-)5			V
Turn-ON Time	t_{on}			70(70)		ns
Storage Time	t_{stg}	$V_{CC}=20V$ $I_C=10I_B1=-10I_B2=100mA$		400 (400)		ns
Fall Time	t_f			70(50)		ns

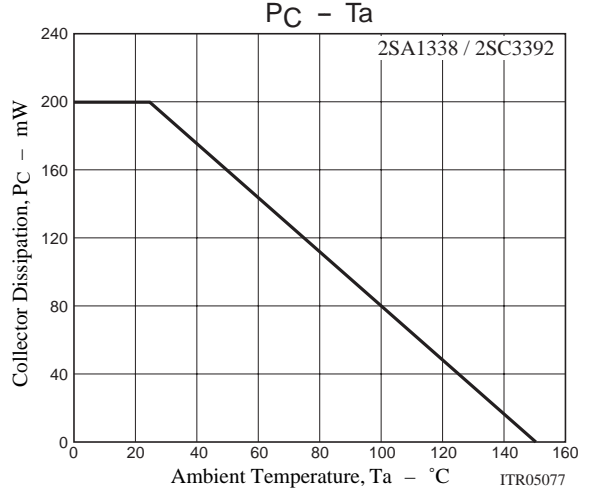
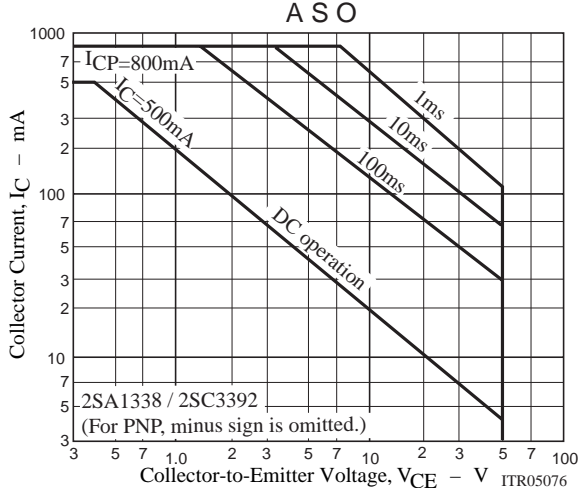
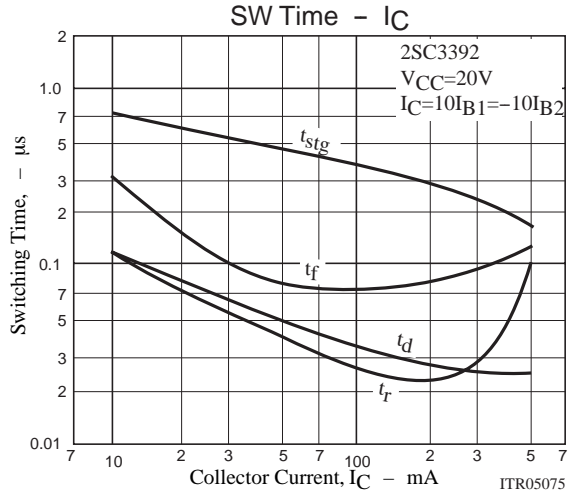
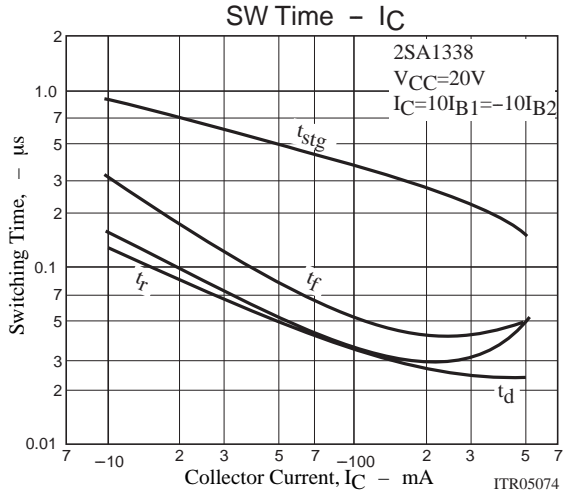
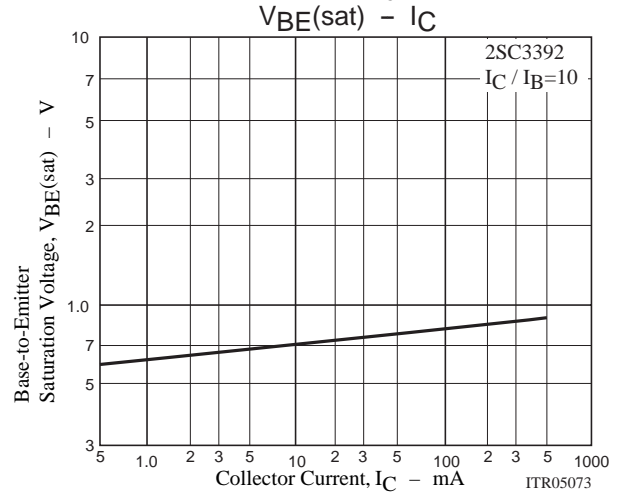
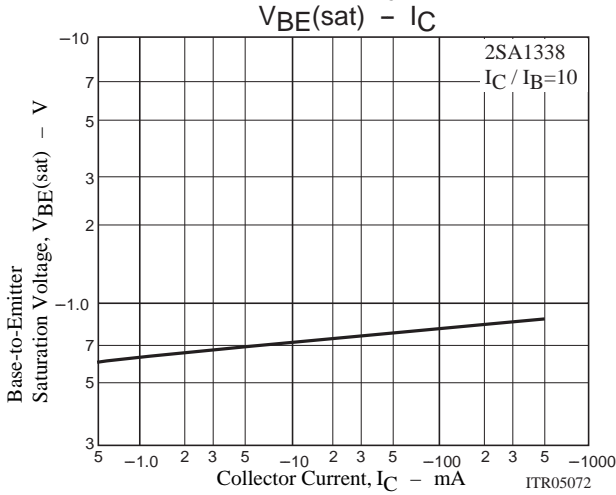
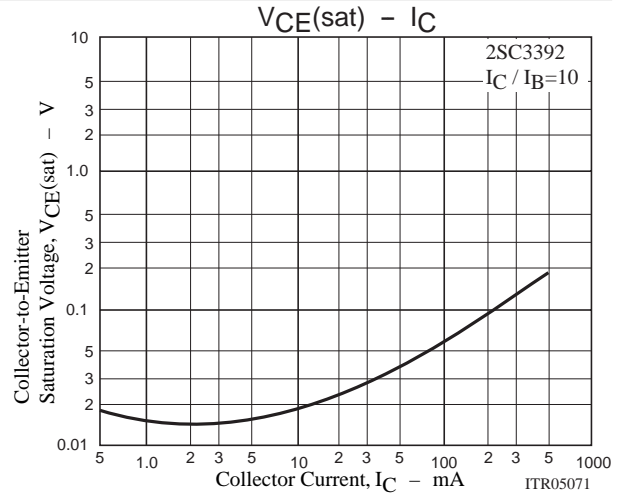
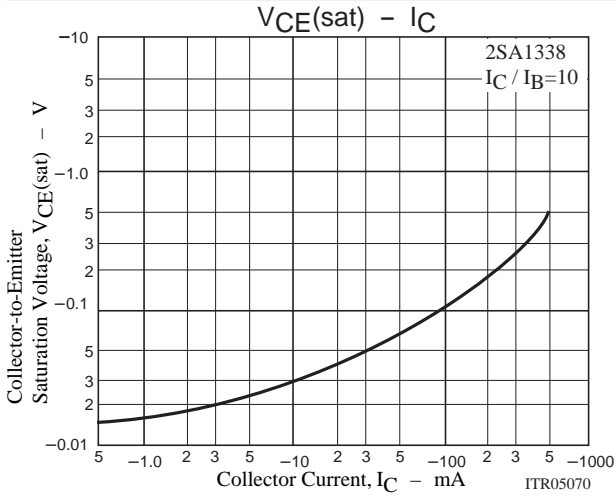
Switching Time Test Circuit



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