Ordering number: EN 1421A

SANYO

No.1421A

2SA1338/2SC3392

PNP/NPN Epitaxial Planar Silicon Transistors

High-Speed Switching Applications

Features

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

( ): 2SA1338

Absolute Maximum Ratings at Ta=25°C

			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	°C
Storage Temperature	T_{stg}	-55 to +150	°C

Electrical Characteristics at Ta=25°C

			min	typ	max	unit
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
Output Capacitance	C_{ob}	V_{CB}=(-)10V, f=1MHz		3.7 (5.6)		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=(-)100mA, I_B=(-)10mA		0.1 (0.15)	0.3 (0.4)	V
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=(-)100mA, I_B=(-)10mA		0.8	1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=(-)10μA, I_E=0	(-)60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=(-)100μA, R_{BE}=∞	(-)50			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=(-)10μA, I_C=0	(-)5			V
Turn-on Time	t_{on}	V_{CC}=20V,		70 (70)		ns
Storage Time	t_{stg}	I_C=10I_{B1}=-10I_{B2}=100mA		400 (400)		ns
Fall Time	t_f			70 (50)		ns

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

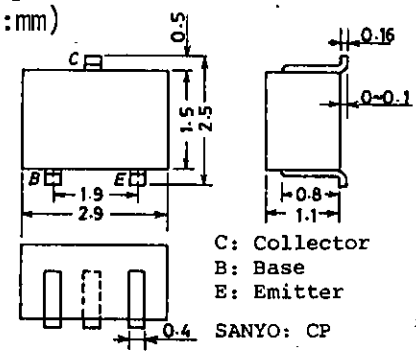
2SA1338/ 2SC3392	100	4	200	140	5	280
	200	6	400	280	7	560

(Note) 2SA1338 marking: AL/2SC3392 marking: AY

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

Package Dimensions 2018A

(unit: mm)



C: Collector
B: Base
E: Emitter
SANYO: CP

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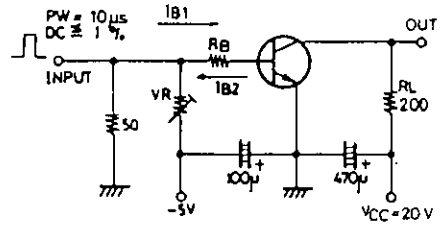
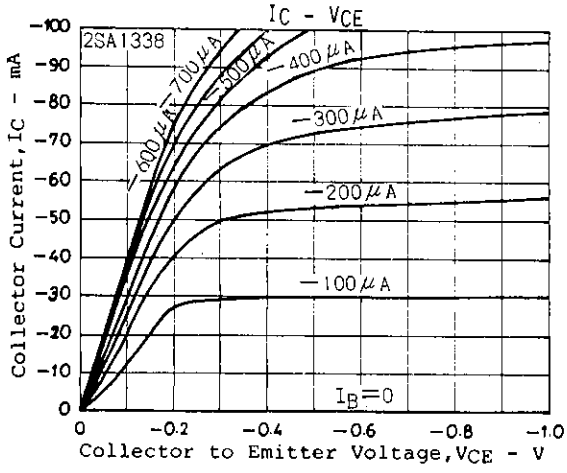
TOKYO OFFICE Tokyo Bldg., 1-10,1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

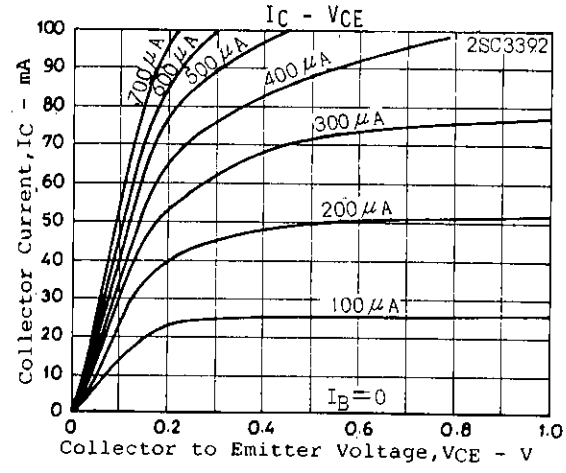
Switching Time Test Circuit

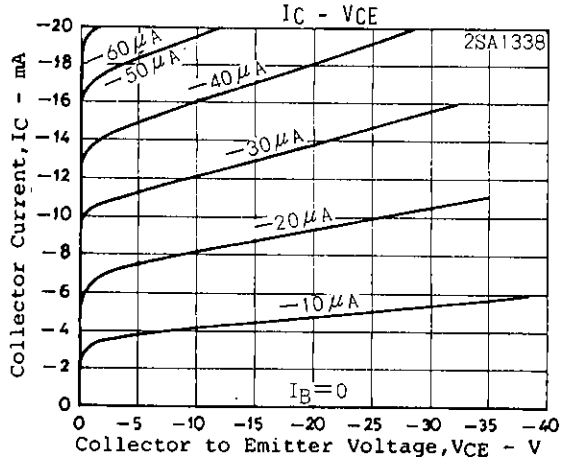


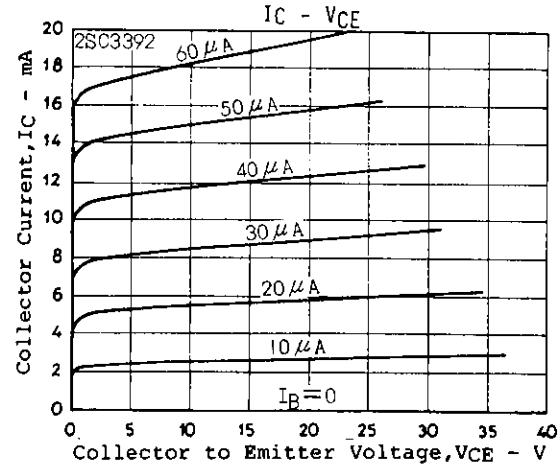
(For PNP, the polarity is reversed.)

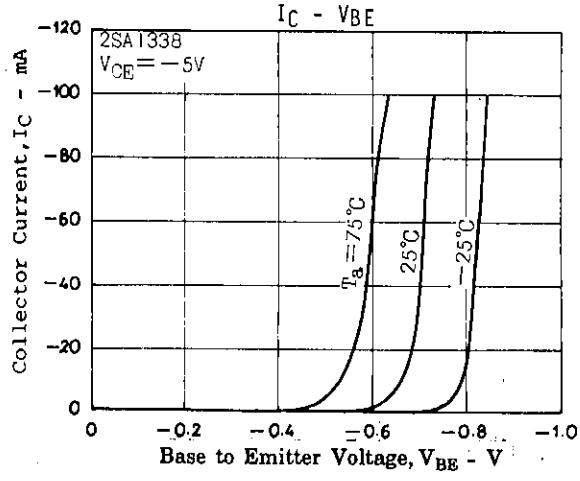
Unit (Resistance : Ω, Capacitance : F)

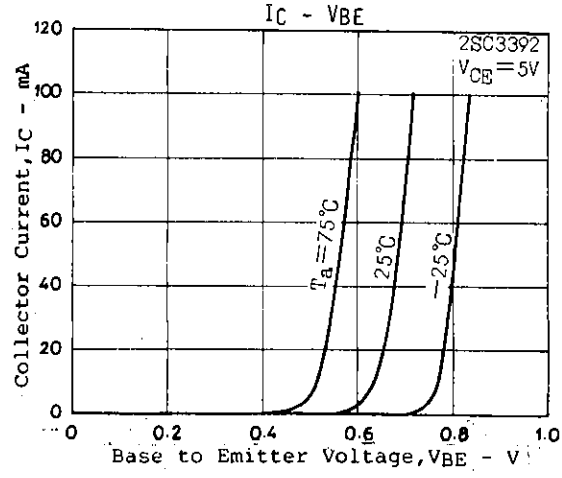


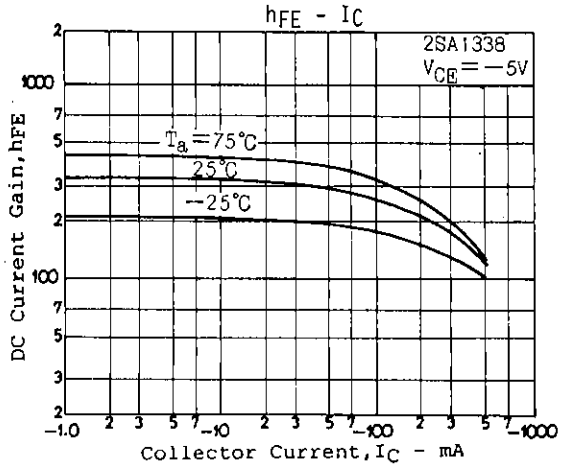


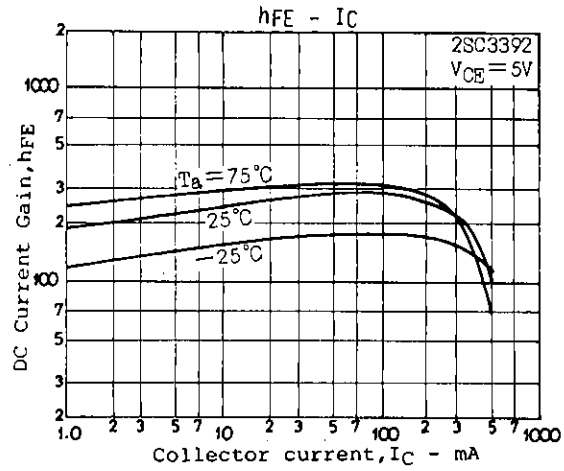


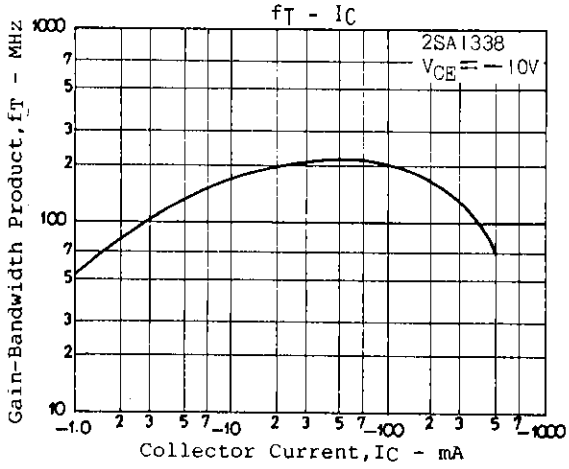


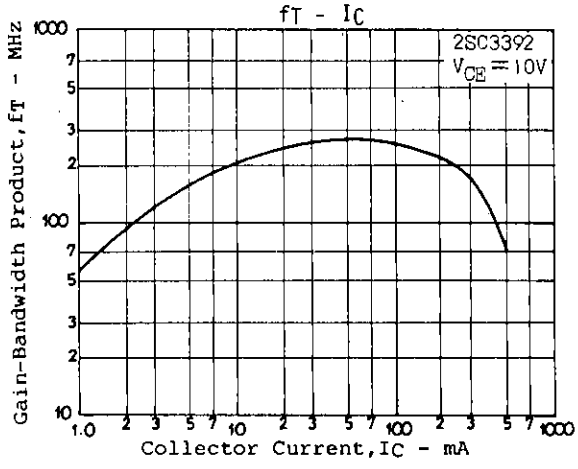


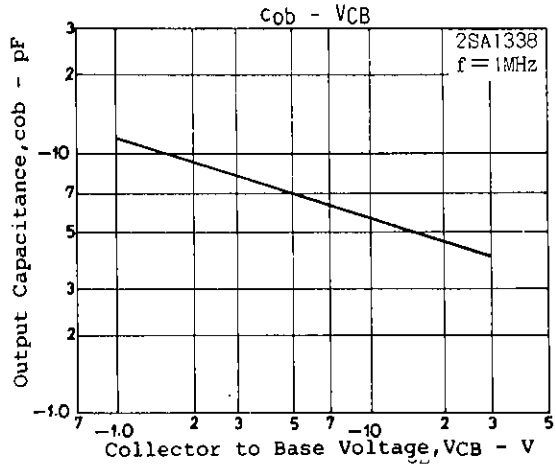


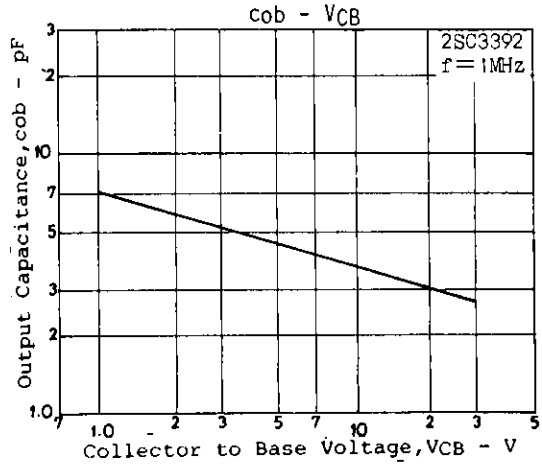

hFE - IC
2SA1338
VCE=−5V
Ta=75°C
25°C
−25°C
DC Current Gain,hFE
Collector Current,IC - mA

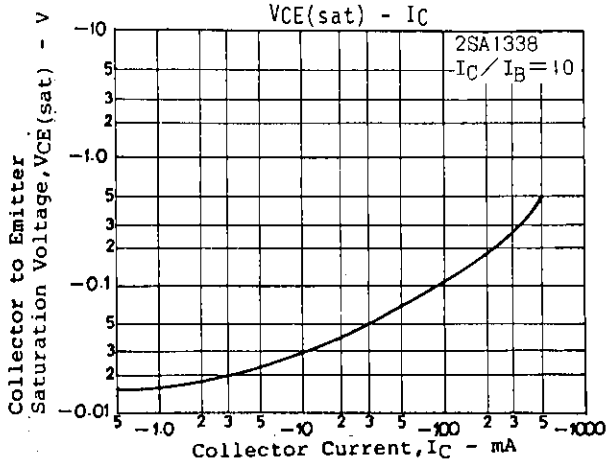

hFE - IC
2SC3392
VCE=5V
Ta=75°C
25°C
−25°C
DC Current Gain,hFE
Collector current,IC - mA

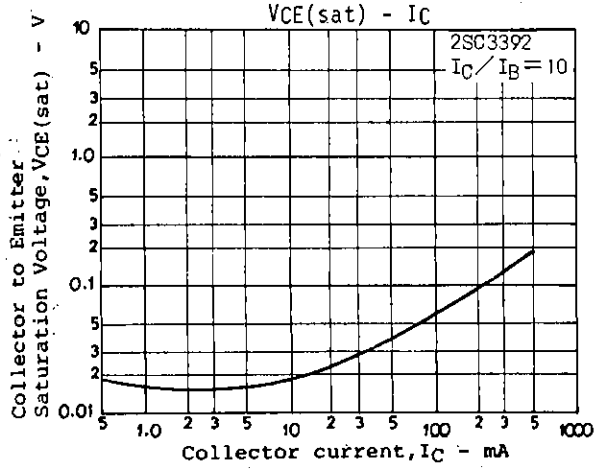

fT - IC
2SA1338
VCE=−10V
Gain-Bandwidth Product,fT - MHz
Collector Current,IC - mA


fT - IC
2SC3392
VCE=10V
Gain-Bandwidth Product,fT - MHz
Collector Current,IC - mA


Cob - VCB
2SA1338
f=1MHz
Output Capacitance,cob - pF
Collector to Base Voltage,VCB - V


Cob - VCB
2SC3392
f=1MHz
Output Capacitance,cob - pF
Collector to Base Voltage,VCB - V


VCE(sat) - IC
2SA1338
IC/IB=10
Collector to Emitter Saturation Voltage,VCE(sat) - V
Collector Current,IC - mA


VCE(sat) - IC
2SC3392
IC/IB=10
Collector to Emitter Saturation Voltage,VCE(sat) - V
Collector current,IC - mA