

# 2SA1319/2SC3332

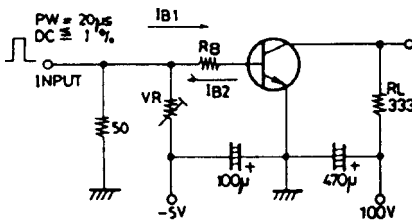


## High-Voltage Switching Applications

### Features

- High breakdown voltage.
- Excellent  $h_{FE}$  linearity.
- Wide ASO and highly resistant to breakdown.
- Adoption of MBIT process.

### Switching Test Circuit



$20I_{B1} = -20I_{B2} = I_C = 300\text{mA}$   
 (For PNP, the polarity is reversed)  
 Unit (resistance :  $\Omega$ , capacitance : F)

( ) : 2SA1319

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-)180	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)160	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)6	V
Collector Current	$I_C$		(-)0.7	A
Collector Current (Pulse)	$I_{CP}$		(-)1.5	A
Collector Dissipation	$P_C$		700	mW
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)120\text{V}, I_E=0$			(-)0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4\text{V}, I_C=0$			(-)0.1	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=(-)5\text{V}, I_C=(-)100\text{mA}$	100*		400*	
	$h_{FE2}$	$V_{CE}=(-)5\text{V}, I_C=(-)10\text{mA}$	80			
Gain Bandwidth Product	$f_T$	$V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$		120		MHz
Common Base Output Capacitance	$C_{ob}$	$V_{CB}=(-)10\text{V}$		(11)8		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)250\text{mA}, I_B=(-)25\text{mA}$		(0.20) 0.12	(0.5) 0.4	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)250\text{mA}, I_B=(-)25\text{mA}$		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}, I_E=0$	(-)180			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}, R_{BE}=\infty$	(-)160			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}, I_C=0$	(-)6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		(60)50		ns
Storage Time	$t_{stg}$	See specified Test Circuit		(900) 1000		ns
Fall Time	$t_f$	See specified Test Circuit		(60)60		ns

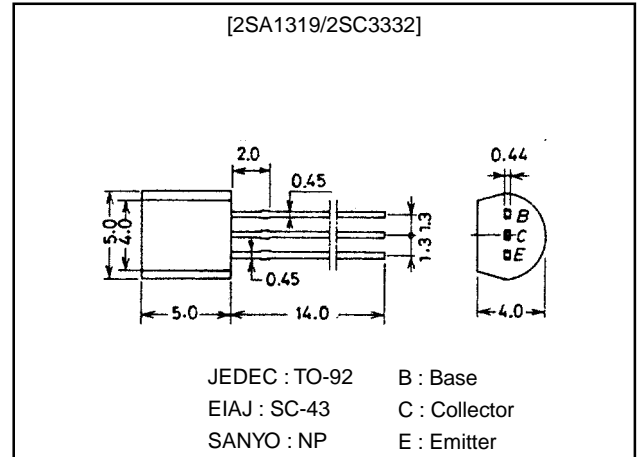
\* : The 2SA1319/2SC3332 are classified by 100mA  $h_{FE}$  as follows :

100 R	200	140 S	280	200 T	400
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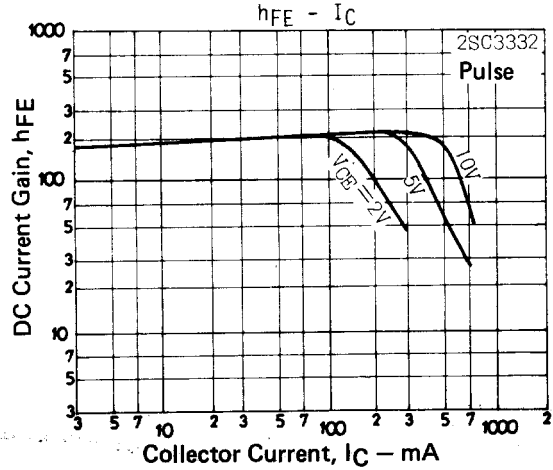
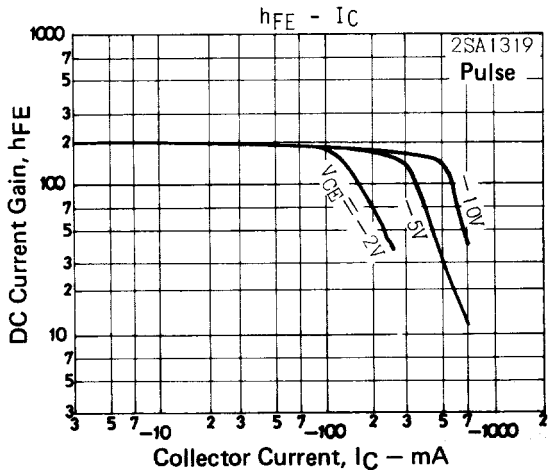
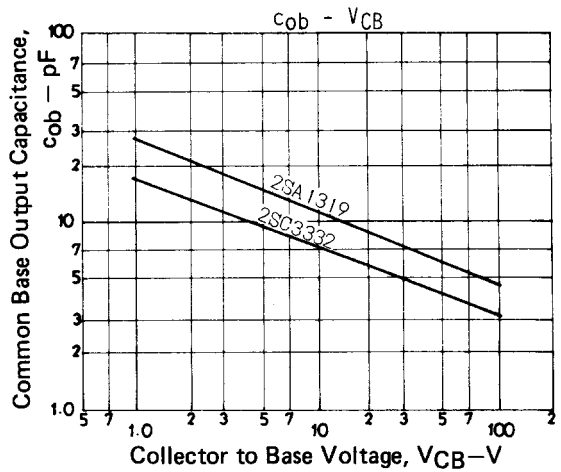
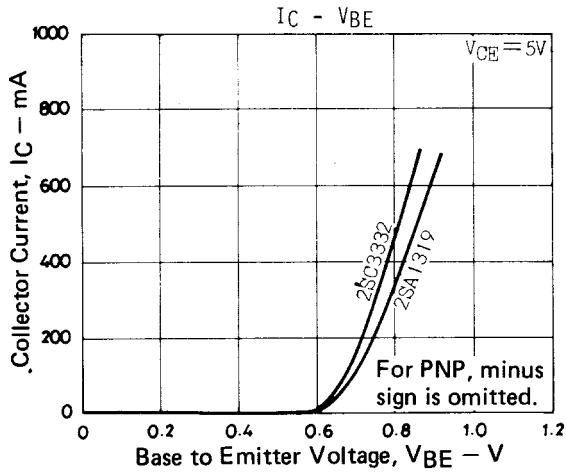
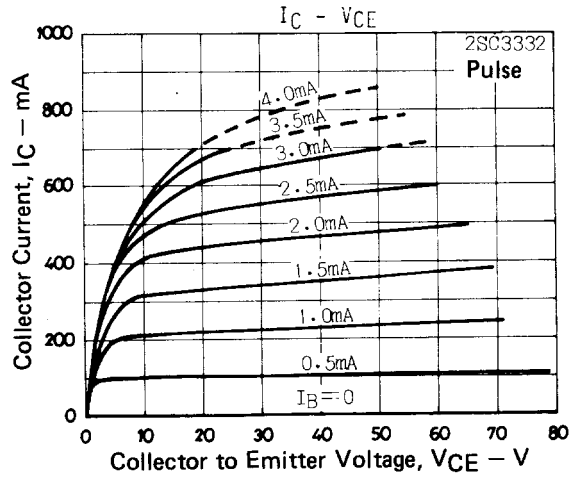
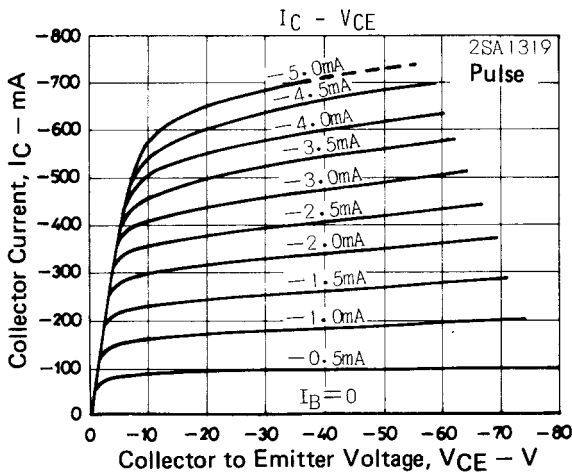
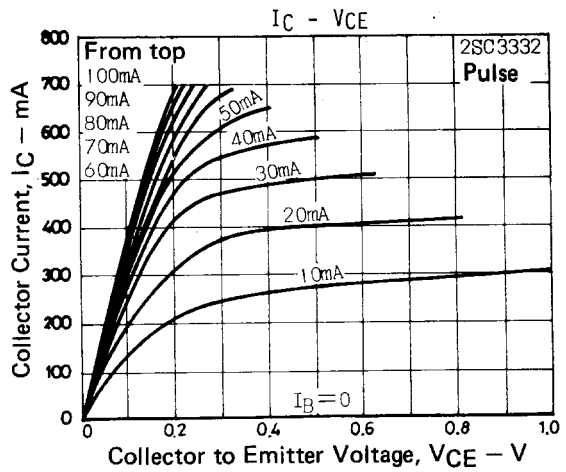
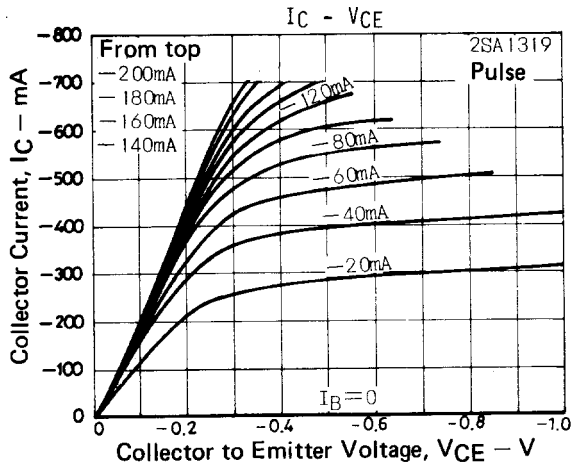
### Package Dimensions

unit:mm

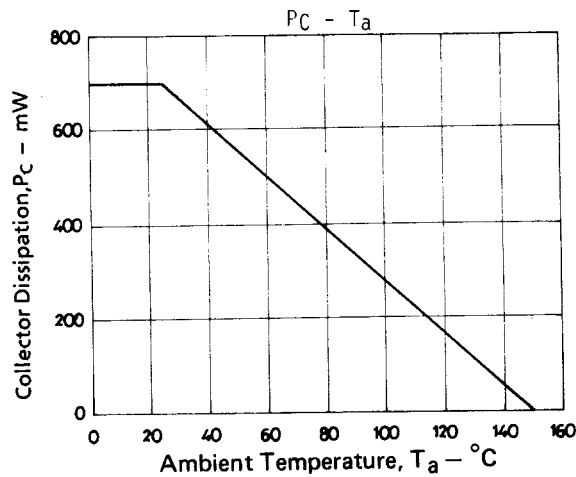
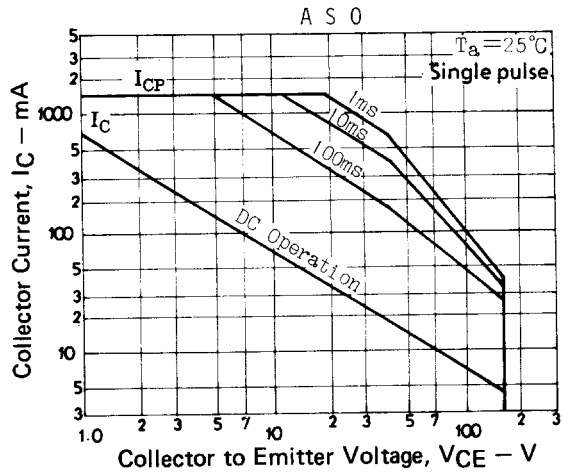
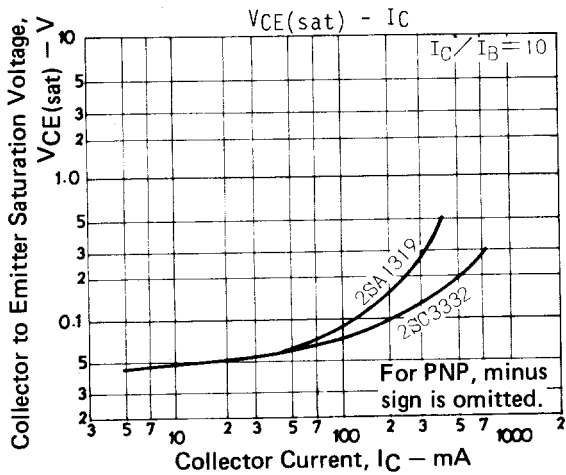
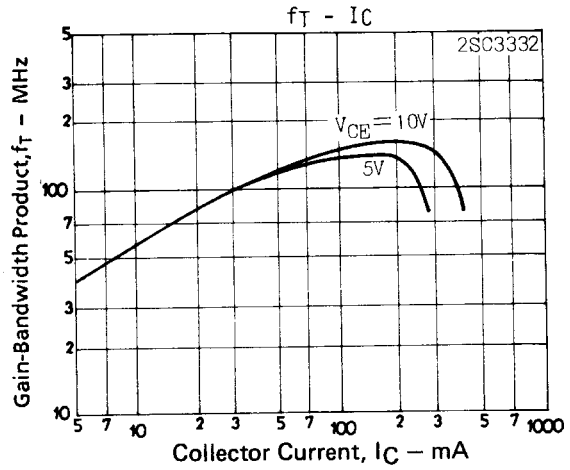
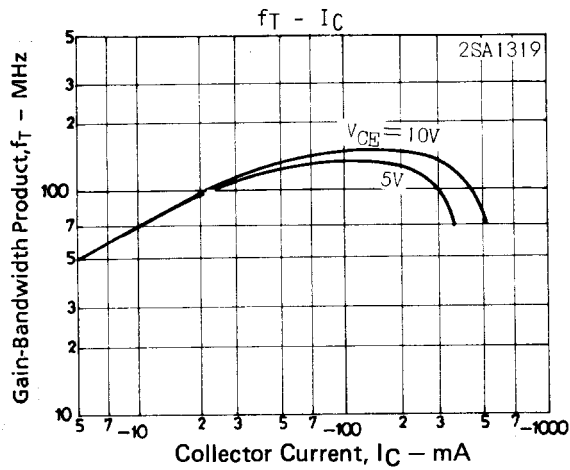
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