

# 2SD1991A

Silicon NPN epitaxial planer type

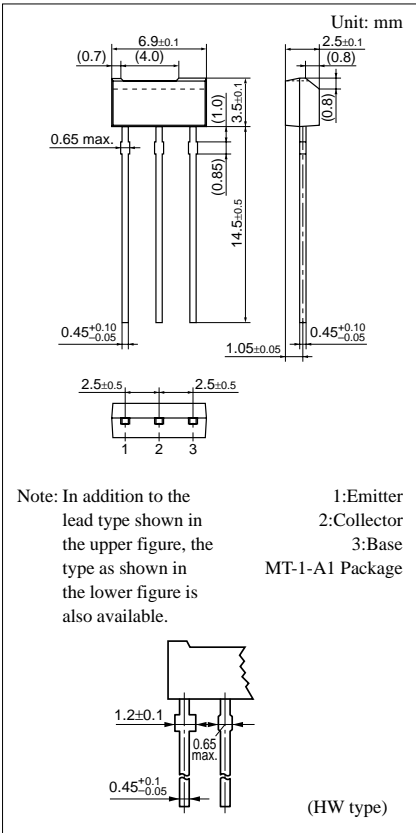
For general amplification  
Complementary to 2SB1320A

## Features

- High forward current transfer ratio  $h_{FE}$ .
- Low collector to emitter saturation voltage  $V_{CE(sat)}$ .
- Allowing supply with the radial taping.

## Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	60	V
Collector to emitter voltage	$V_{CEO}$	50	V
Emitter to base voltage	$V_{EBO}$	7	V
Peak collector current	$I_{CP}$	200	mA
Collector current	$I_C$	100	mA
Collector power dissipation	$P_C$	400	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 ~ +150	°C

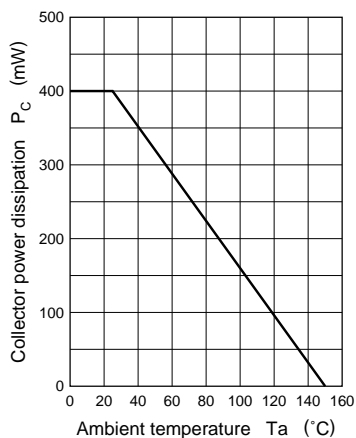
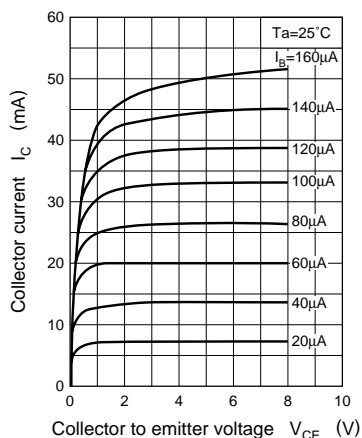
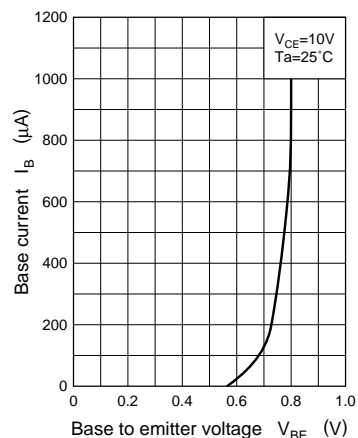
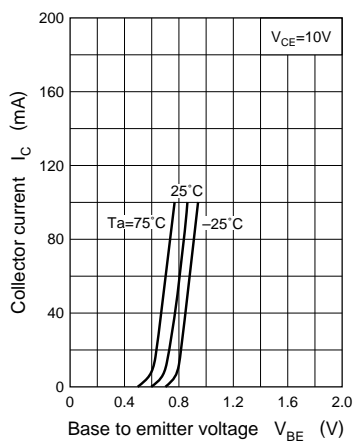
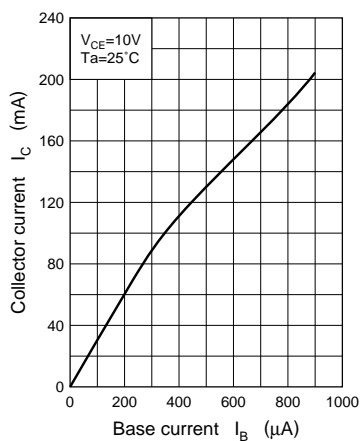
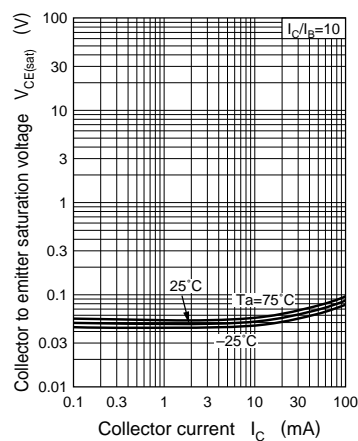
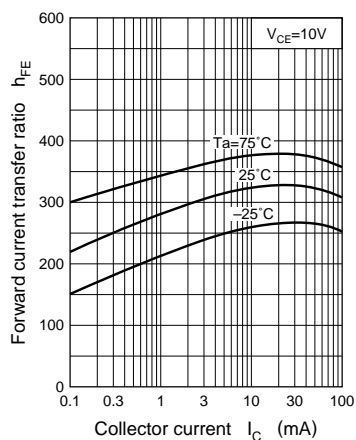
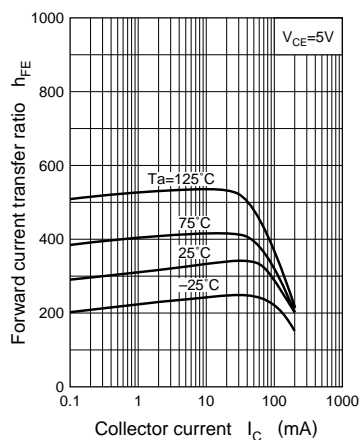
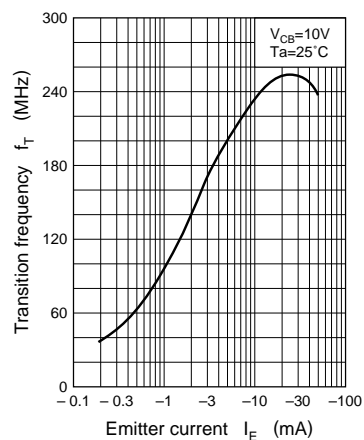


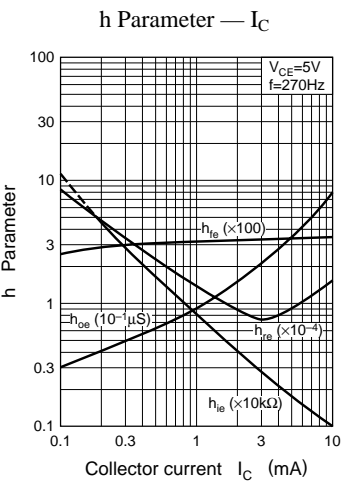
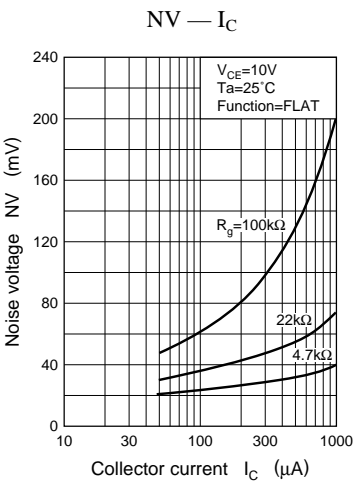
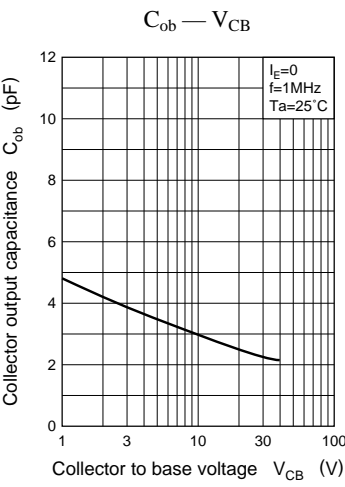
## Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 20V, I_E = 0$			1	$\mu A$
	$I_{CEO}$	$V_{CE} = 20V, I_B = 0$			1	$\mu A$
Collector to base voltage	$V_{CBO}$	$I_C = 10\mu A, I_E = 0$	60			V
Collector to emitter voltage	$V_{CEO}$	$I_C = 2mA, I_B = 0$	50			V
Emitter to base voltage	$V_{EBO}$	$I_E = 10\mu A, I_C = 0$	7			V
Forward current transfer ratio	$h_{FE1}^*$	$V_{CE} = 10V, I_C = 2mA$	160		460	
	$h_{FE2}$	$V_{CE} = 2V, I_C = 100mA$	90			
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 100mA, I_B = 10mA$		0.1	0.3	V
Transition frequency	$f_T$	$V_{CB} = 10V, I_E = -2mA, f = 200MHz$		150		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$		3.5		pF

\* $h_{FE1}$  Rank classification

Rank	Q	R	S
$h_{FE1}$	160 ~ 260	210 ~ 340	290 ~ 460

$P_C - T_a$  $I_C - V_{CE}$  $I_B - V_{BE}$  $I_C - V_{BE}$  $I_C - I_B$  $V_{CE(sat)} - I_C$  $h_{FE} - I_C$  $h_{FE} - I_C$  $f_T - I_E$ 



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