

2SD1991, 2SD1991A

Silicon NPN Epitaxial Planar Type

For general amplification
Complementary pair with 2SB1320 and 2SB1320A

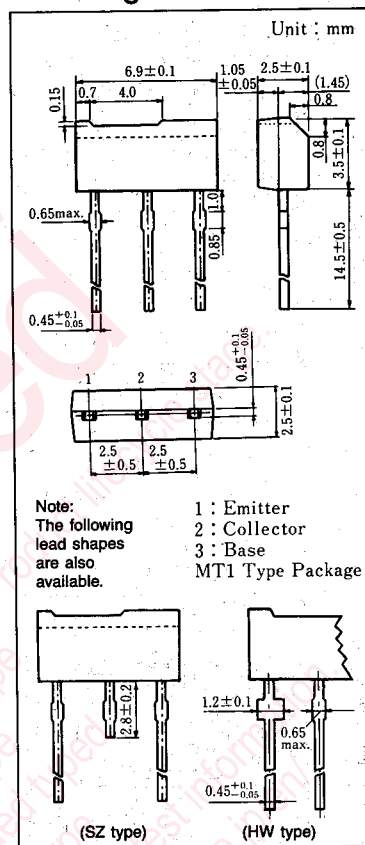
■ Features

- High DC current gain h_{FE}
- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Automatic insertion by radial tapering possible

■ Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Item	Symbol	Value	Unit
Collector-Base Voltage	2SD1991	30	V
	2SD1991A	60	
Collector-Emitter Voltage	2SD1991	25	V
	2SD1991A	50	
Emitter-Base Voltage	V_{EBO}	7	V
Peak Collector Voltage	I_{CP}	200	mA
Collector Current	I_C	100	mA
Collector Power Dissipation	P_C	400	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$

■ Package Dimensions

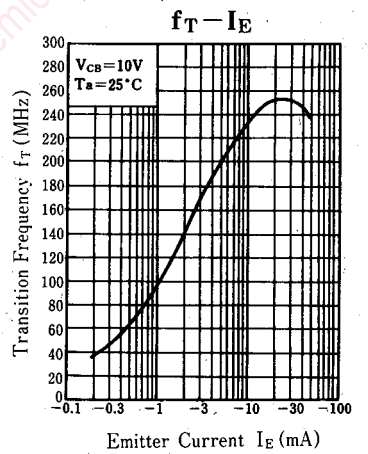
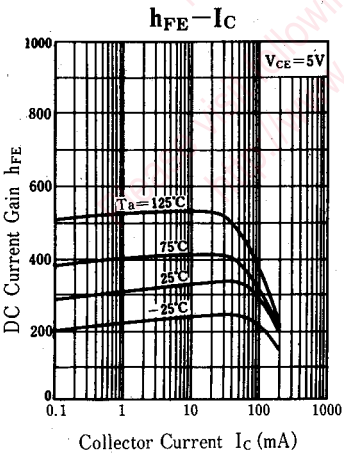
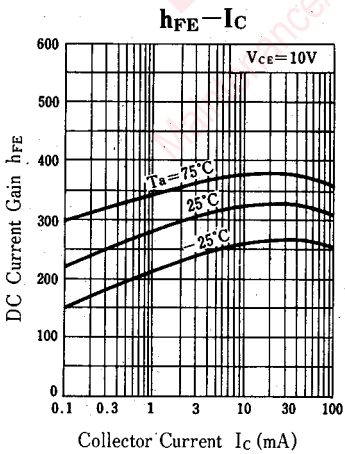
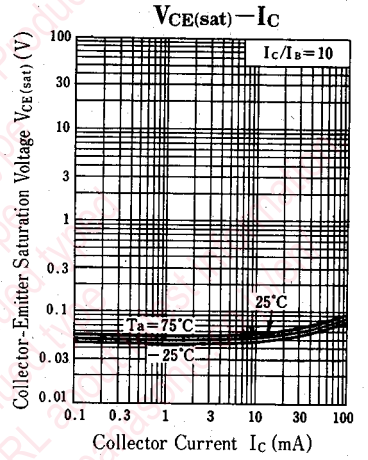
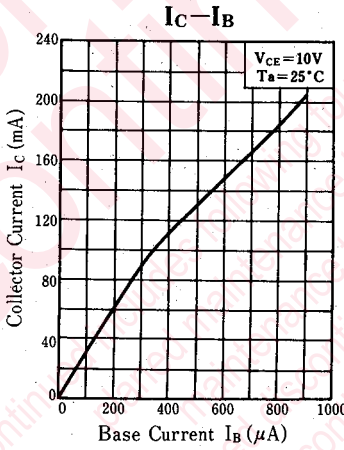
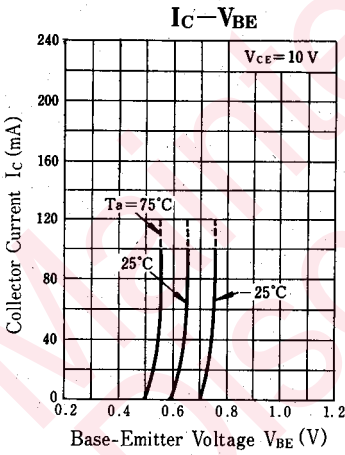
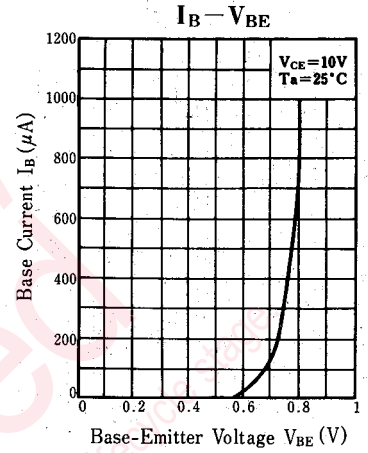
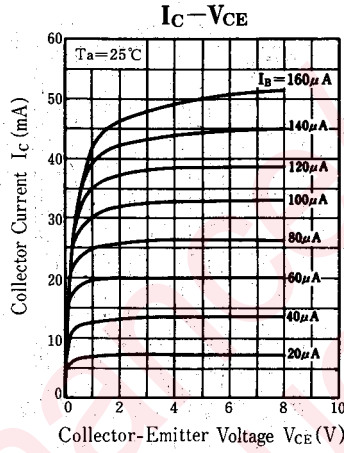
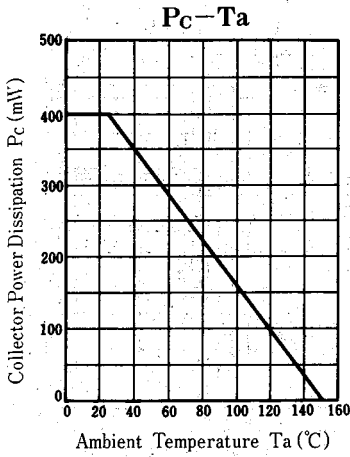


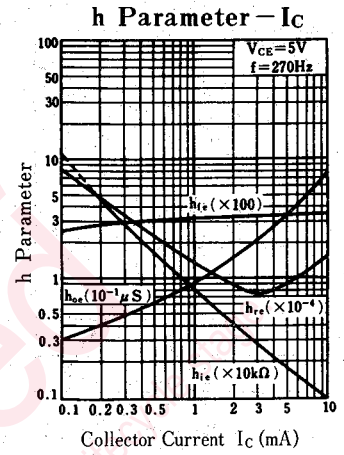
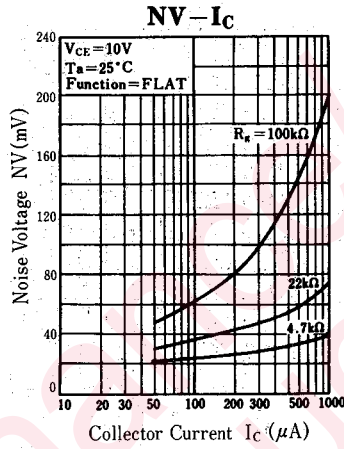
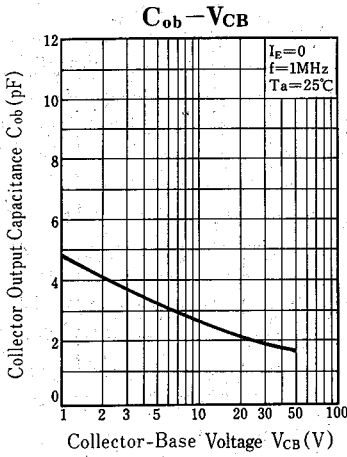
■ Electrical Characteristics ($T_a=25^\circ\text{C}$)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=20\text{ V}, I_E=0$			1	μA
	I_{CEO}	$V_{CE}=20\text{ V}, I_B=0$			1	μA
Collector-Base Voltage	V_{CBO}	$I_C=10\ \mu\text{A}, I_E=0$	30			V
			60			
Collector-Emitter Voltage	V_{CEO}	$I_C=2\text{ mA}, I_B=0$	25			V
			50			
Emitter-Base Voltage	V_{EBO}	$I_E=10\ \mu\text{A}, I_C=0$	7			V
DC Current Gain	h_{FE1}^*	$V_{CE}=10\text{ V}, I_C=2\text{ mA}$	160		460	
	h_{FE2}	$V_{CE}=2\text{ V}, I_C=100\text{ mA}$	90			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100\text{ mA}, I_B=10\text{ mA}$		0.3	0.5	V
Transition Frequency	f_T	$V_{CB}=10\text{ V}, I_E=-2\text{ mA}, f=200\text{ MHz}$		150		MHz
Noise Voltage	NV	$V_{CE}=10\text{ V}, I_C=1\text{ mA}, G_v=80\text{ dB}$ $R_g=100\text{ k}\Omega, \text{Function}=\text{FLAT}$		300		mV
Collector Output Capacitance	C_{ob}	$V_{CB}=10\text{ V}, I_E=0, f=1\text{ MHz}$		3.5		pF

* h_{FE1} Ranking

Rank	Q	R	S
h_{FE1}	160~260	200~340	290~460





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