

2SD1199

Silicon NPN epitaxial planer type

For low-frequency amplification

Features

- High foward current transfer ratio h_{FE} .
- Low collector to emitter saturation voltage $V_{CE(sat)}$.
- High emitter to base voltage V_{EBO} .
- Low noise voltage NV.
- M type package allowing easy automatic and manual insertion as well as stand-alone fixing to the printed circuit board.

Absolute Maximum Ratings (Ta=25°C)

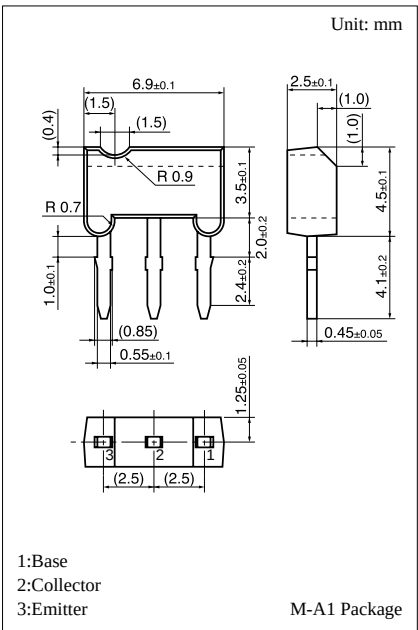
Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	50	V
Collector to emitter voltage	V_{CEO}	40	V
Emitter to base voltage	V_{EBO}	15	V
Peak collector current	I_{CP}	100	mA
Collector current	I_C	50	mA
Collector power dissipation	P_C	400	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 ~ +150	°C

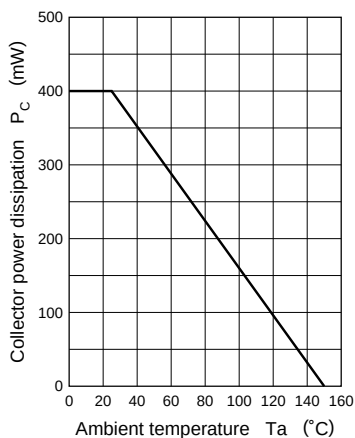
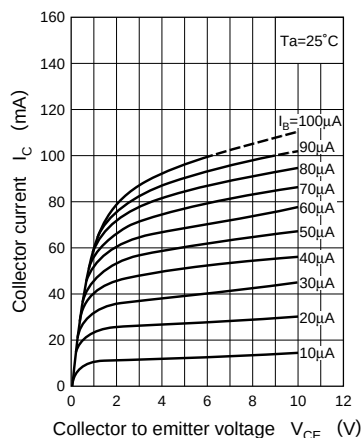
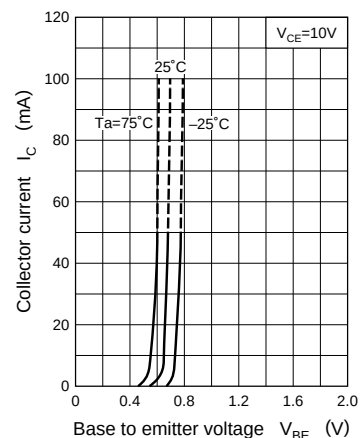
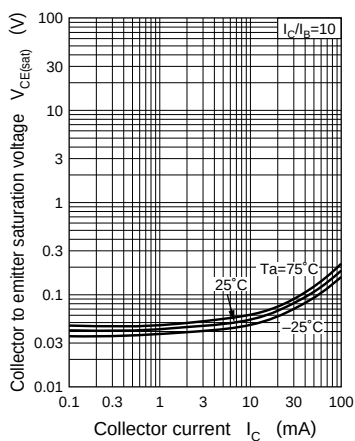
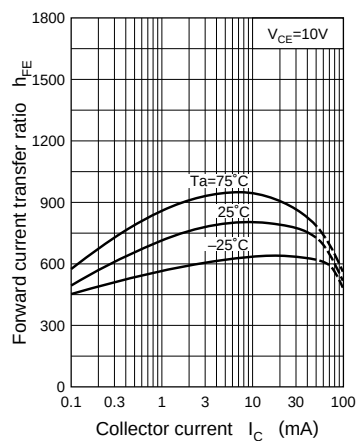
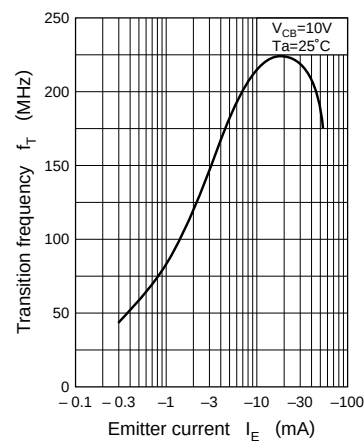
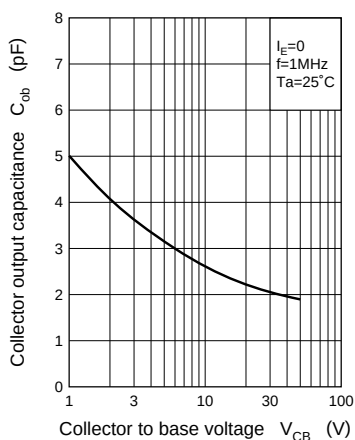
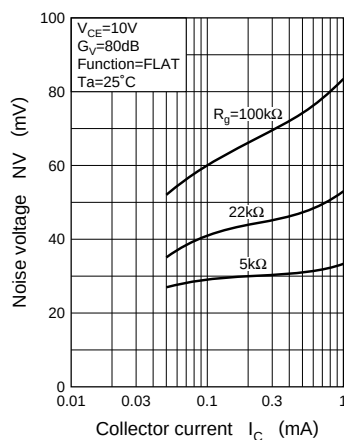
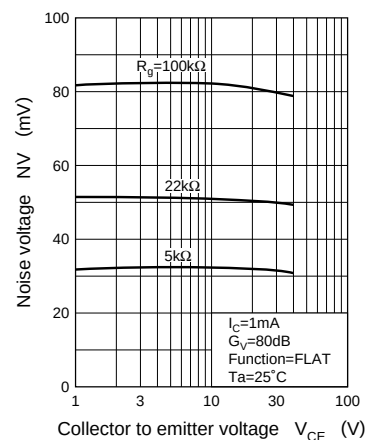
Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 20V, I_E = 0$			100	nA
	I_{CEO}	$V_{CE} = 20V, I_B = 0$			1	μA
Collector to base voltage	V_{CBO}	$I_C = 10\mu A, I_E = 0$	50			V
Collector to emitter voltage	V_{CEO}	$I_C = 1mA, I_B = 0$	40			V
Emitter to base voltage	V_{EBO}	$I_E = 10\mu A, I_C = 0$	15			V
Forward current transfer ratio	h_{FE}^*	$V_{CE} = 10V, I_C = 2mA$	400		2000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 1mA$		0.05	0.2	V
Transition frequency	f_T	$V_{CB} = 10V, I_E = -2mA, f = 200MHz$		120		MHz
Noise voltage	NV	$V_{CE} = 10V, I_C = 1mA, G_V = 80dB$ $R_g = 100k\Omega, \text{Function} = \text{FLAT}$		80		mV

* h_{FE} Rank classification

Rank	R	S	T
h_{FE}	400 ~ 800	600 ~ 1200	1000 ~ 2000



$P_C - T_a$  $I_C - V_{CE}$  $I_C - V_{BE}$  $V_{CE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_E$  $C_{ob} - V_{CB}$  $NV - I_C$  $NV - V_{CE}$ 

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