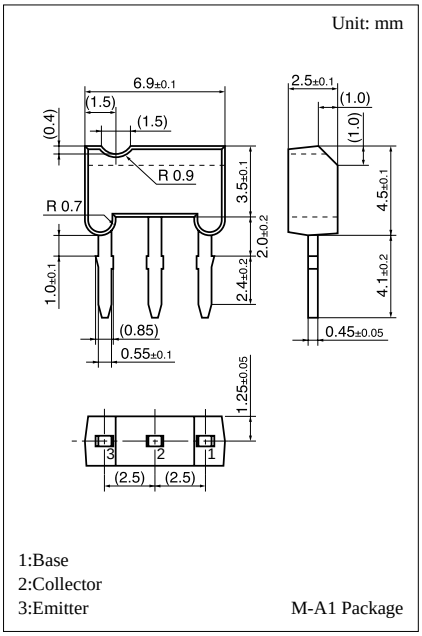
2SD1199

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

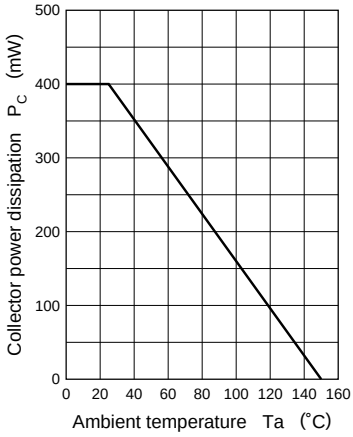
Electrical Characteristics (Ta=25˚C)

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 = 10µA, 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 = 10µA, 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 = 100kΩ, Function = FLAT		80		mV

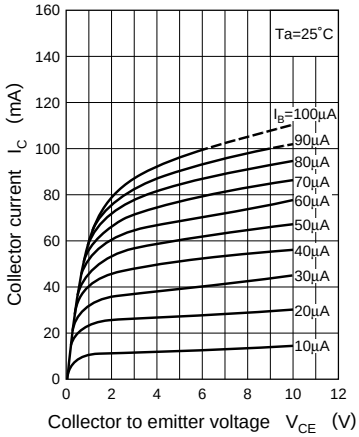
*h_{FE} Rank classification

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

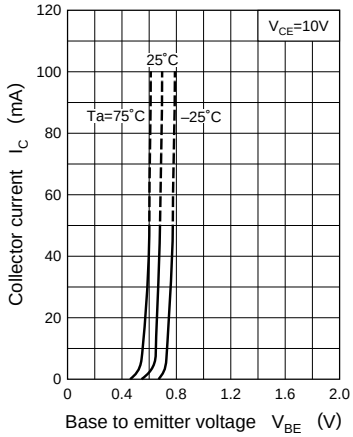
P_C — Ta



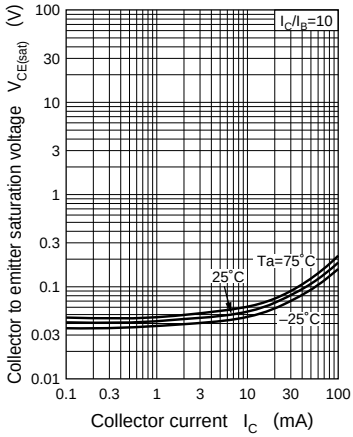
I_C — V_{CE}



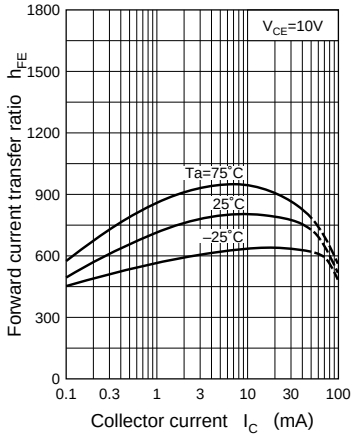
I_C — V_{BE}



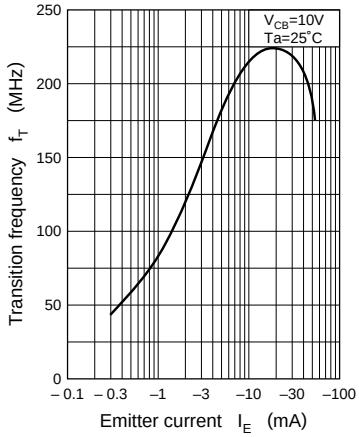
$V_{CE(sat)}$ — I_C



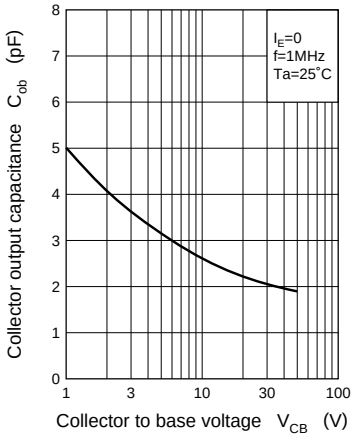
h_{FE} — I_C



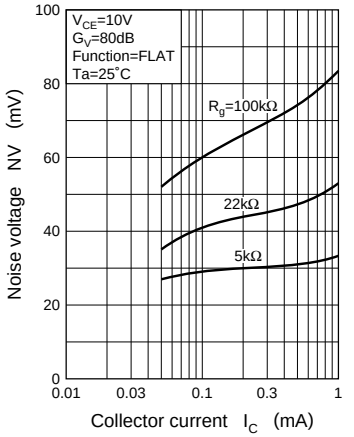
f_T — I_E



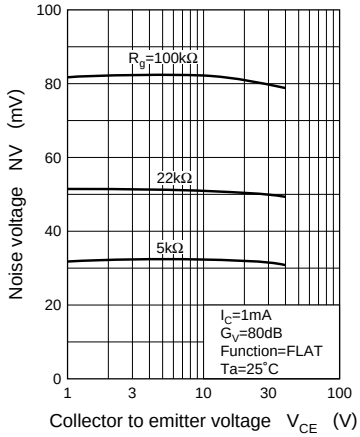
C_{ob} — V_{CB}



NV — I_C



NV — V_{CE}



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