

2SD1499

Silicon NPN triple diffusion planar type

For high power amplification

Complementary to 2SB1063

Features

- Extremely satisfactory linearity of the forward current transfer ratio h_{FE}
- Wide area of safe operation (ASO)
- High transition frequency f_T
- Full-pack package which can be installed to the heat sink with one screw

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

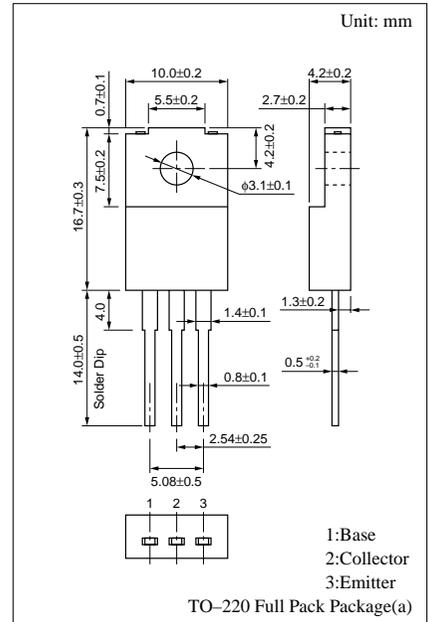
Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	100	V
Collector to emitter voltage	V_{CEO}	100	V
Emitter to base voltage	V_{EBO}	5	V
Peak collector current	I_{CP}	8	A
Collector current	I_C	5	A
Collector power dissipation	P_C	$T_C=25^\circ\text{C}$	40
		$T_a=25^\circ\text{C}$	2
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +155	$^\circ\text{C}$

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

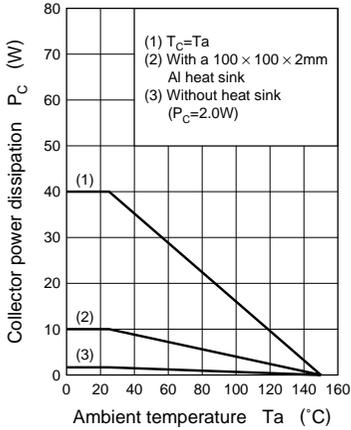
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 100\text{V}, I_E = 0$			50	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 3\text{V}, I_C = 0$			50	μA
Forward current transfer ratio	h_{FE1}	$V_{CE} = 5\text{V}, I_C = 20\text{mA}$	20			
	h_{FE2}^*	$V_{CE} = 5\text{V}, I_C = 1\text{A}$	60		200	
	h_{FE3}	$V_{CE} = 5\text{V}, I_C = 3\text{A}$	20			
Base to emitter voltage	V_{BE}	$V_{CE} = 5\text{V}, I_C = 3\text{A}$			1.8	V
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3\text{A}, I_B = 0.3\text{A}$			2.0	V
Transition frequency	f_T	$V_{CE} = 5\text{V}, I_C = 0.5\text{A}, f = 1\text{MHz}$		20		MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		90		pF

* h_{FE2} Rank classification

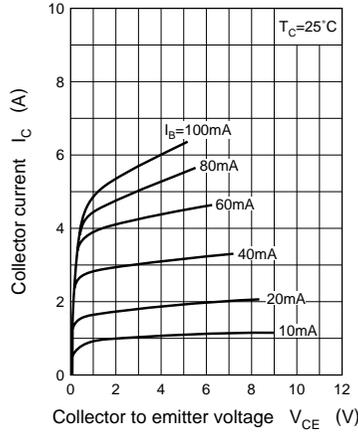
Rank	Q	P
h_{FE2}	60 to 120	100 to 200



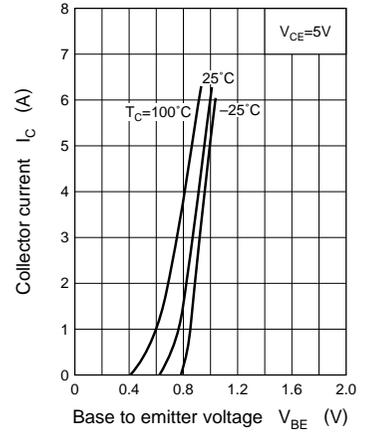
$P_C - T_a$



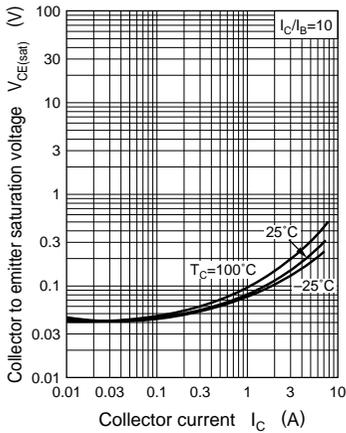
$I_C - V_{CE}$



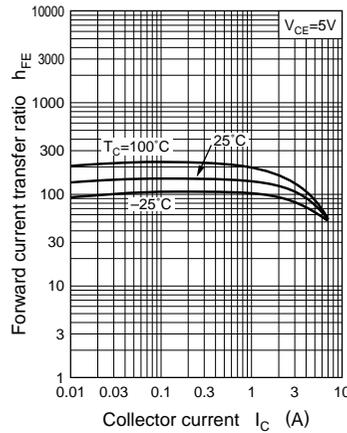
$I_C - V_{BE}$



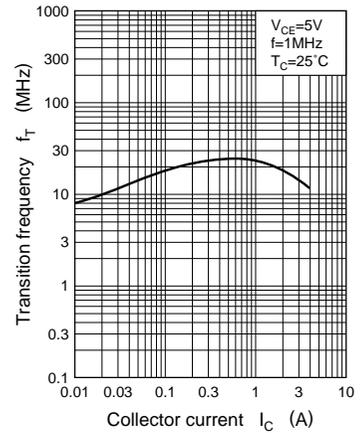
$V_{CE(sat)} - I_C$



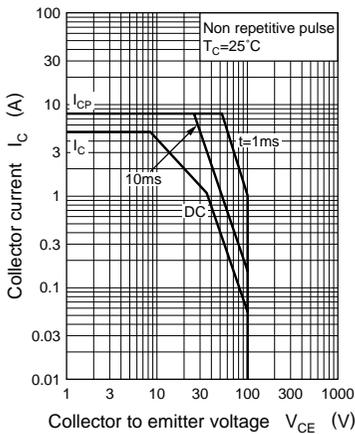
$h_{FE} - I_C$



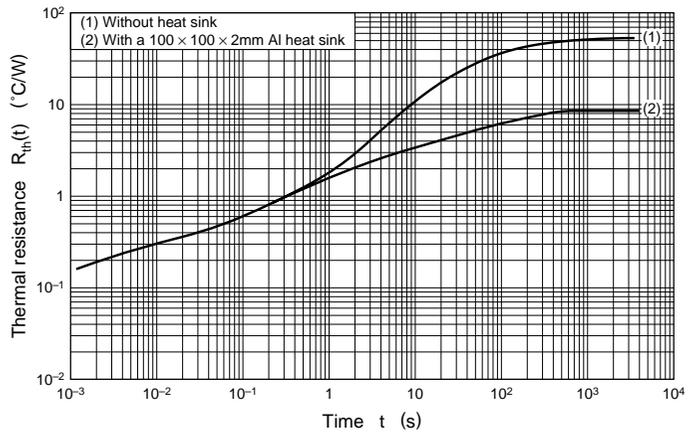
$f_T - I_C$



Area of safe operation (ASO)



$R_{th(t)} - t$



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