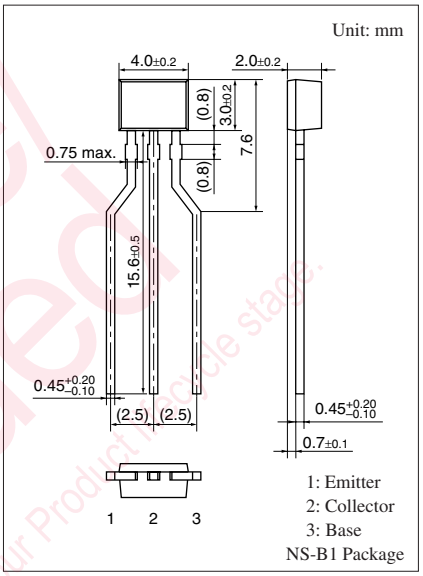
2SD1450

Silicon NPN epitaxial planar type

For low-frequency amplification



■ Features

- Optimum for high-density mounting
- Allowing supply with the radial taping
- Low collector-emitter saturation voltage $V_{CE(sat)}$

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	25	V
Collector-emitter voltage (Base open)	V_{CEO}	20	V
Emitter-base voltage (Collector open)	V_{EBO}	12	V
Collector current	I_C	0.5	A
Peak collector current	I_{CP}	1	A
Collector power dissipation	P_C	300	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	–55 to +150	°C

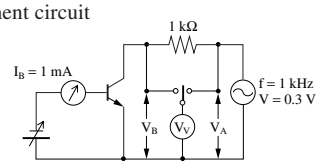
■ Electrical Characteristics $T_a = 25°C \pm 3°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 10\ \mu A$, $I_E = 0$	25			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 1$ mA, $I_B = 0$	20			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = 10\ \mu A$, $I_C = 0$	12			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 25$ V, $I_E = 0$			100	nA
Forward current transfer ratio *1	h_{FE1} *2	$V_{CE} = 2$ V, $I_C = 0.5$ A	200		800	—
	h_{FE2}	$V_{CE} = 2$ V, $I_C = 1$ A	60			
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_C = 500$ mA, $I_B = 20$ mA		0.13	0.40	V
Base-emitter saturation voltage *1	$V_{BE(sat)}$	$I_C = 500$ mA, $I_B = 20$ mA			1.2	V
Transition frequency	f_T	$V_{CB} = 10$ V, $I_E = -50$ mA, f = 200 MHz		200		MHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	$V_{CB} = 10$ V, $I_E = 0$, f = 1 MHz		10		pF
ON resistance *3	R_{on}			0.6		Ω

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. ∗1: Pulse measurement
∗2: Rank classification

Rank	R	S	T	No rank
h_{FE1}	200 to 350	300 to 500	400 to 800	200 to 800

∗3: R_{on} Measurement circuit



$$R_{on} = \frac{V_B}{V_A - V_B} \times 1\,000\ (\Omega)$$

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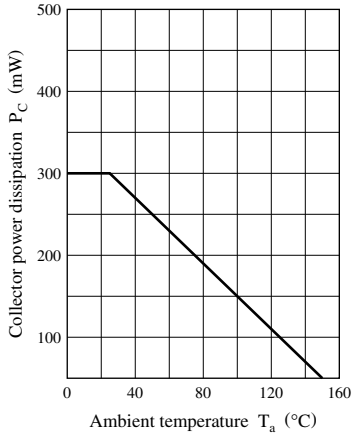
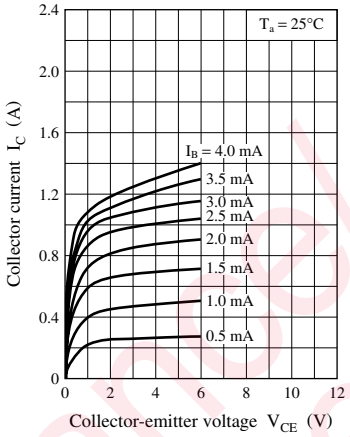
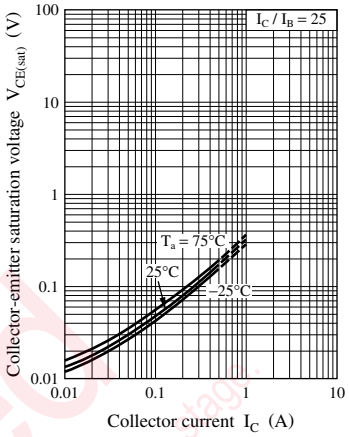
P_C — T_a



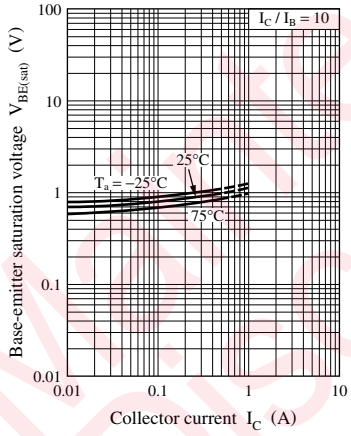
I_C — V_{CE}



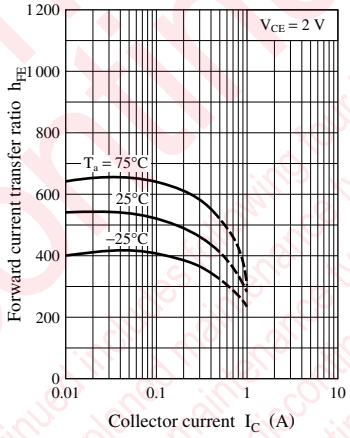
$V_{CE(sat)}$ — I_C



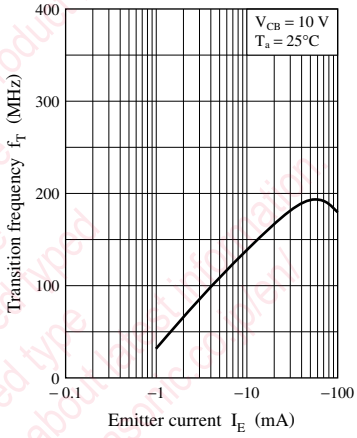
$V_{BE(sat)}$ — I_C



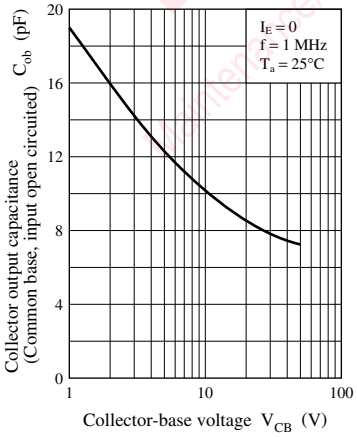
h_{FE} — I_C



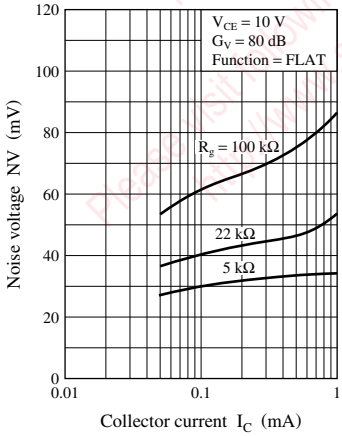
f_T — I_E



C_{ob} — V_{CB}



NV — I_C



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