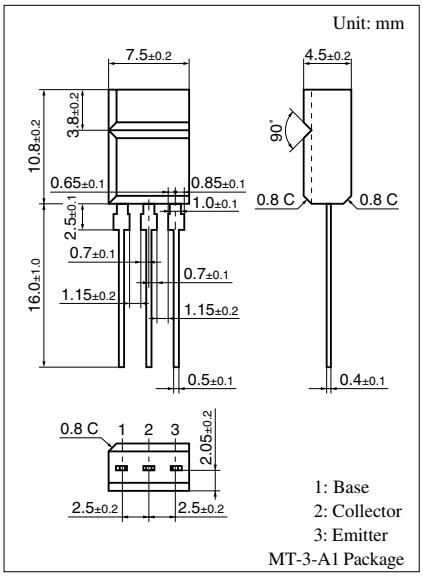
2SD2136

Silicon NPN triple diffusion planar type

For power amplification
Complementary to 2SB1416



■ Features

- High forward current transfer ratio h_{FE} which has satisfactory linearity
- Low collector to emitter saturation voltage $V_{CE(sat)}$
- Allowing supply with the radial taping

■ Absolute Maximum Ratings $T_C = 25°C$

Parameter	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	60	V
Collector to emitter voltage	V_{CEO}	60	V
Emitter to base voltage	V_{EBO}	6	V
Peak collector current	I_{CP}	5	A
Collector current	I_C	3	A
Collector power dissipation	P_C	1.5	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

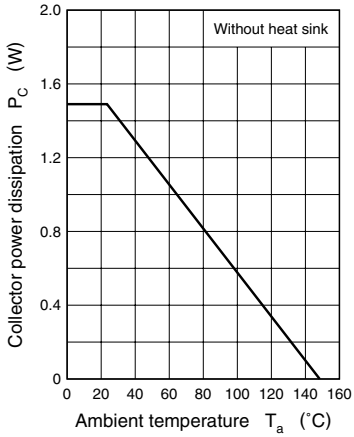
■ Electrical Characteristics $T_C = 25°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CES}	V_{CE} = 60 V, V_{BE} = 0			200	µA
	I_{CEO}	V_{CE} = 60 V, I_B = 0			300	µA
Emitter cutoff current	I_{EBO}	V_{EB} = 6 V, I_C = 0			1	mA
Collector to emitter voltage	V_{CEO}	I_C = 30 mA, I_B = 0	60			V
Forward current transfer ratio	h_{FE1} *	V_{CE} = 4 V, I_C = 1 A	40		250	
	h_{FE2}	V_{CE} = 4 V, I_C = 3 A	10			
Base to emitter voltage	V_{BE}	V_{CE} = 4 V, I_C = 3 A			1.8	V
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = 3 A, I_B = 0.375 A			1.2	V
Transition frequency	f_T	V_{CE} = 5 V, I_E = − 0.1 A, f = 200 MHz		220		MHz
Turn-on time	t_{on}	I_C = 1 A, I_{B1} = 0.1 A, I_{B2} = − 0.1 A		0.5		µs
Storage time	t_{stg}			2.5		µs
Fall time	t_f			0.4		µs

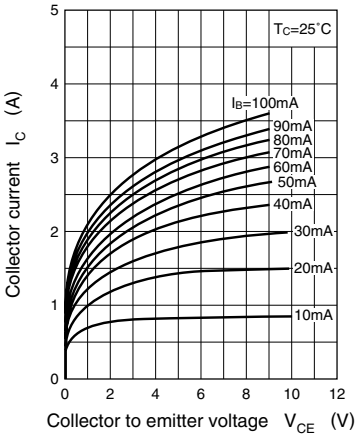
Note) *: Rank classification

Rank	P	Q	R
h_{FE1}	40 to 90	70 to 150	120 to 250

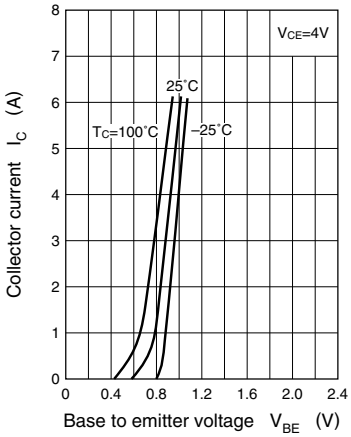
P_C — T_a



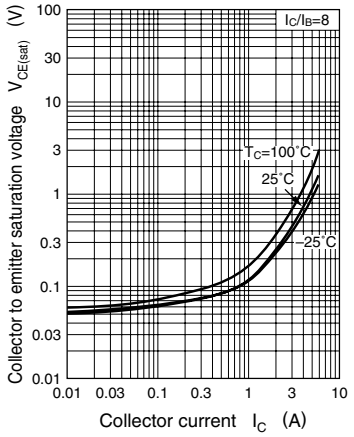
I_C — V_{CE}



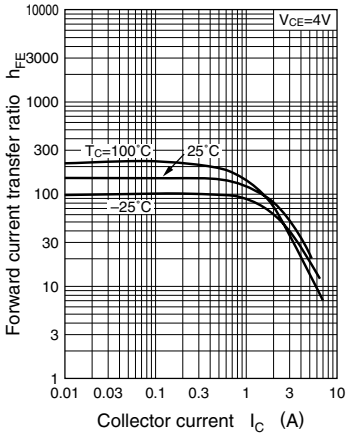
I_C — V_{BE}



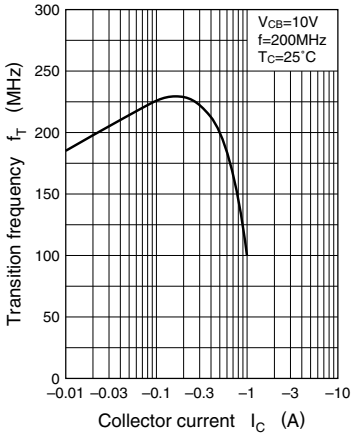
$V_{CE(sat)}$ — I_C



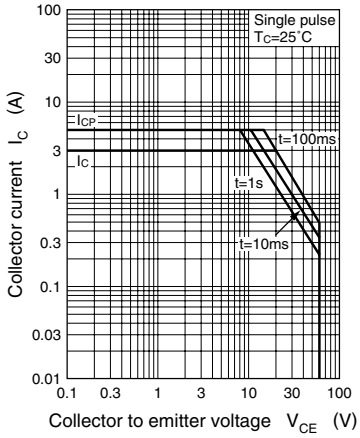
h_{FE} — I_C



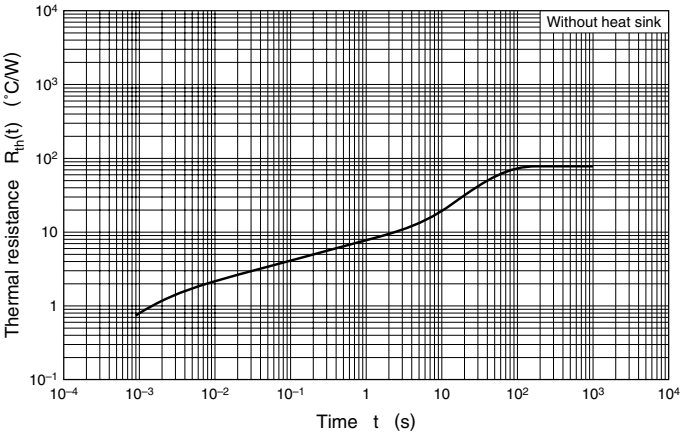
f_T — I_C



Area of safe operation (ASO)



$R_{th(t)}$ — t



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