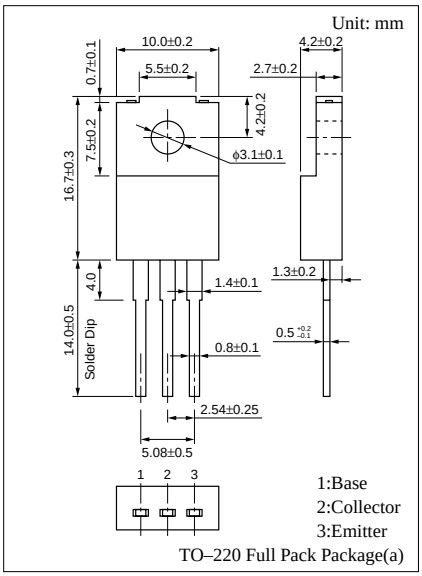
2SD2051

Silicon NPN epitaxial planar type Darlington

For low-frequency amplification



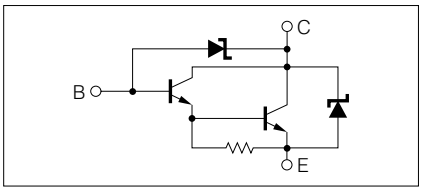
Features

- High foward current transfer ratio h_{FE}
- Incorporating a built-in zener diode
- Full-pack package which can be installed to the heat sink with one screw

Absolute Maximum Ratings (T_C=25˚C)

Parameter		Symbol	Ratings	Unit
Collector to base voltage		V_{CBO}	60±10	V
Collector to emitter voltage		V_{CEO}	60±10	V
Emitter to base voltage		V_{EBO}	5	V
Peak collector current		I_{CP}	2.5	A
Collector current		I_C	1.6	A
Collector power dissipation	T_C=25°C	P_C	12	W
	Ta=25°C		2.0	
Junction temperature		T_j	150	˚C
Storage temperature		T_{stg}	–55 to +150	˚C

Internal Connection



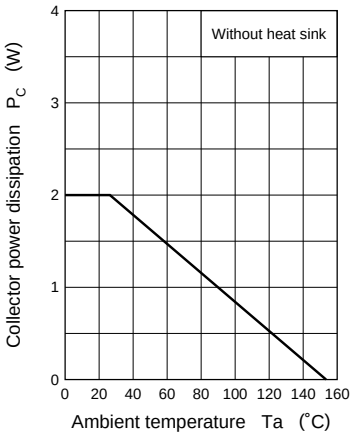
Electrical Characteristics (T_C=25˚C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 25V, I_E = 0			1	μA
Emitter cutoff current	I_{EBO}	V_{EB} = 4V, I_C = 0			1	μA
Collector to base voltage	V_{CBO}	I_C = 100μA, I_E = 0	50		70	V
Collector to emitter voltage	V_{CEO}	I_C = 1mA, I_B = 0	50		70	V
Emitter to base voltage	V_{EBO}	I_E = 100μA, I_C = 0	5			V
Forward current transfer ratio	h_{FE}*	V_{CE} = 10V, I_C = 1.0A	4000		40000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = 1.0A, I_B = 1.0mA			1.5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	I_C = 1.0A, I_B = 1.0mA			2.2	V
Transition frequency	f_T	V_{CE} = 10V, I_C = 10mA, f = 200MHz	200			MHz

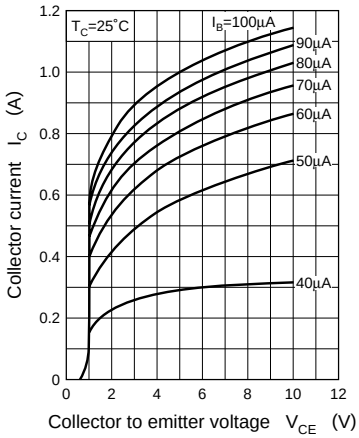
*h_{FE} Rank classification

Rank	Q	R	S
h_{FE}	4000 to 10000	8000 to 20000	16000 to 40000

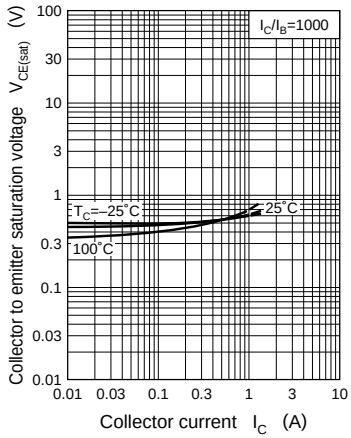
P_C — Ta



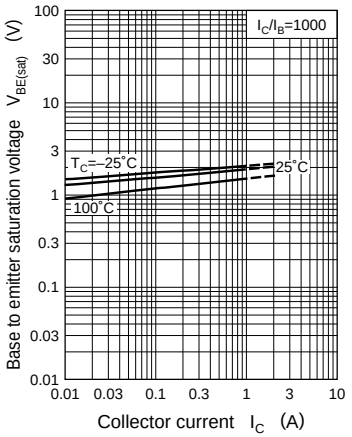
I_C — V_{CE}



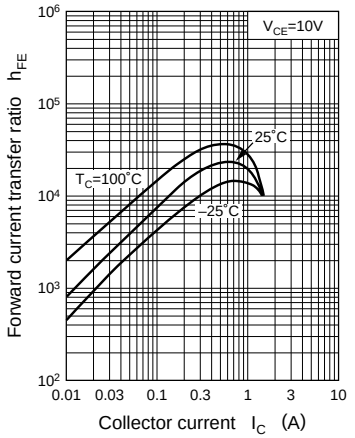
$V_{CE(sat)}$ — I_C



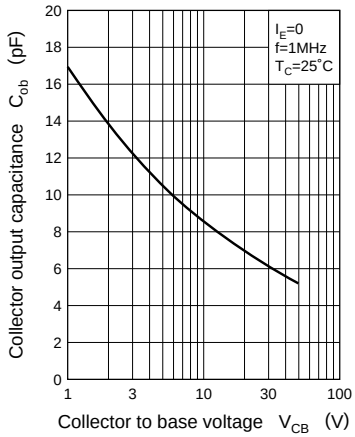
$V_{BE(sat)}$ — I_C



h_{FE} — I_C



C_{ob} — V_{CB}



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