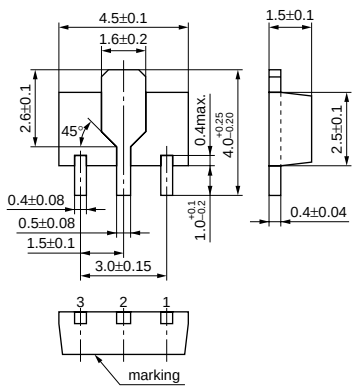
2SD1511

Silicon NPN epitaxial planer type darlington

For low-frequency output amplification

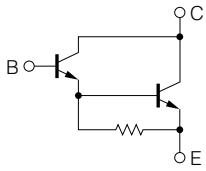
Unit: mm



1:Base
2:Collector EIAJ:SC–62
3:Emitter Mini Power Type Package

Marking symbol : P

Internal Connection



Features

- Forward current transfer ratio h_{FE} is designed high, which is appropriate to the driver circuit of motors and printer bammer: h_{FE} = 4000 to 2000.
- A shunt resistor is omitted from the driver.
- Mini Power type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	100	V
Collector to emitter voltage	V_{CEO}	80	V
Emitter to base voltage	V_{EBO}	5	V
Peak collector current	I_{CP}	1.5	A
Collector current	I_C	1	A
Collector power dissipation	P_C*	1	W
Junction temperature	T_j	150	˚C
Storage temperature	T_{stg}	–55 ~ +150	˚C

* Printed circuit board: Copper foil area of 1cm^2 or more, and the board thickness of 1.7mm for the collector portion

Electrical Characteristics (Ta=25˚C)

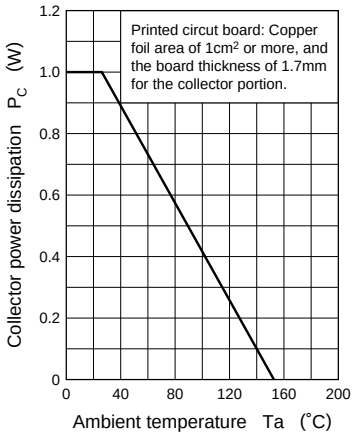
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 25V, I_E = 0			100	nA
Emitter cutoff current	I_{EBO}	V_{EB} = 4V, I_C = 0			100	nA
Collector to base voltage	V_{CBO}	I_C = 100μA, I_E = 0	100			V
Collector to emitter voltage	V_{CEO}	I_C = 1mA, I_B = 0	80			V
Emitter to base voltage	V_{EBO}	I_E = 100μA, I_C = 0	5			V
Forward current transfer ratio	h_{FE}*1	V_{CE} = 10V, I_C = 1A*2	4000		40000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = 1.0A, I_B = 1.0mA*2			1.8	V
Base to emitter saturation voltage	$V_{BE(sat)}$	I_C = 1.0A, I_B = 1.0mA*2			2.2	V
Transition frequency	f_T	V_{CB} = 10V, I_E = –50mA, f = 200MHz		150		MHz

*2 Pulse measurement

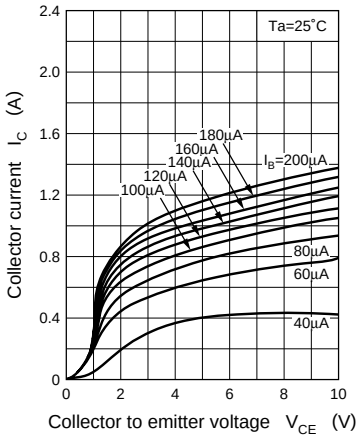
*1h_{FE} Rank classification

Rank	Q	R	S
h_{FE}	4000 ~ 10000	8000 ~ 20000	16000 ~ 40000
Marking Symbol	PQ	PR	PS

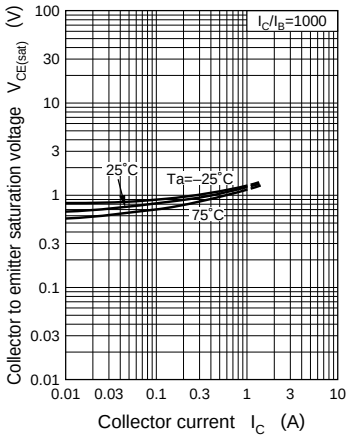
P_C — Ta



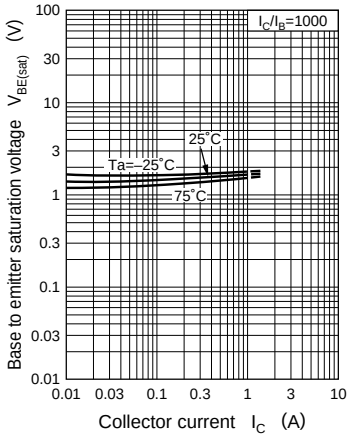
I_C — V_{CE}



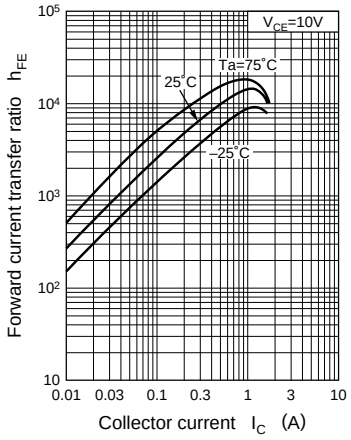
$V_{CE(sat)}$ — I_C



$V_{BE(sat)}$ — I_C



h_{FE} — I_C



C_{ob} — V_{CB}