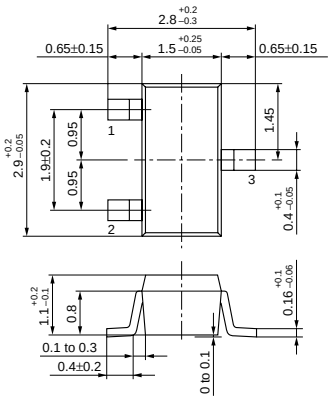
2SD1478, 2SD1478A

Silicon NPN epitaxial planer type darlington

For low-frequency amplification

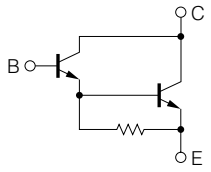
Unit: mm



1:Base JEDEC:TO–236
2:Emitter EIAJ:SC–59
3:Collector Mini Type Package

Marking symbol : 2N(2SD1478)
2O(2SD1478A)

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 20000.
- A shunt resistor is omitted from the driver.

Absolute Maximum Ratings (Ta=25˚C)

Parameter		Symbol	Ratings	Unit
Collector to base voltage	2SD1478	V_{CBO}	30	V
	2SD1478A		60	
Collector to emitter voltage	2SD1478	V_{CEO}	25	V
	2SD1478A		50	
Emitter to base voltage		V_{EBO}	5	V
Peak collector current		I_{CP}	750	mA
Collector current		I_C	500	mA
Collector power dissipation		P_C	200	mW
Junction temperature		T_j	150	˚C
Storage temperature		T_{stg}	–55 ~ +150	˚C

Electrical Characteristics (Ta=25˚C)

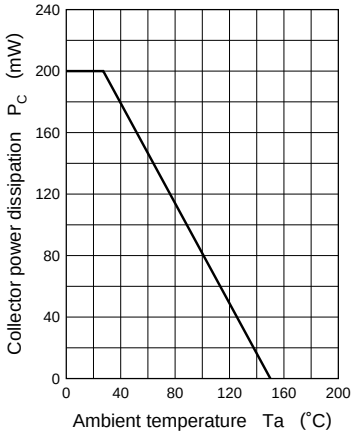
Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current		I_{CBO}	V_{CB} = 25V, I_E = 0			100	nA
Emitter cutoff current		I_{EBO}	V_{EB} = 4V, I_C = 0			100	nA
Collector to base voltage	2SD1478	V_{CBO}	I_C = 100μA, I_E = 0	30			V
	2SD1478A			60			
Collector to emitter voltage	2SD1478	V_{CEO}	I_C = 1mA, I_B = 0	25			V
	2SD1478A		I_C = 1mA, I_B = 0	50			
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 = 500mA*2	4000		20000	
Collector to emitter saturation voltage		$V_{CE(sat)}$	I_C = 500mA, I_B = 0.5mA*2			2.5	V
Base to emitter voltage		$V_{BE(sat)}$	I_C = 500mA, I_B = 0.5mA*2			3.0	V
Transition frequency		f_T	V_{CB} = 10V, I_E = –50mA, f = 200MHz		200		MHz

*1 h_{FE1} Rank classification

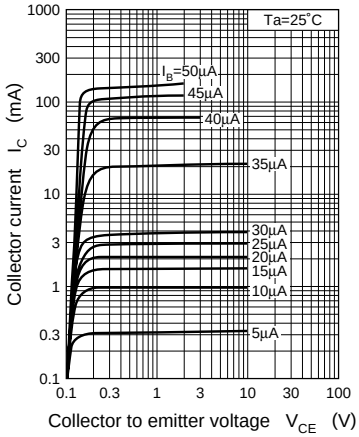
*2 Pulse measurement

Rank		Q	R
h_{FE1}		4000 ~ 10000	8000 ~ 20000
Marking Symbol	2SD1478	2NQ	2NR
	2SD1478A	2OQ	2OR

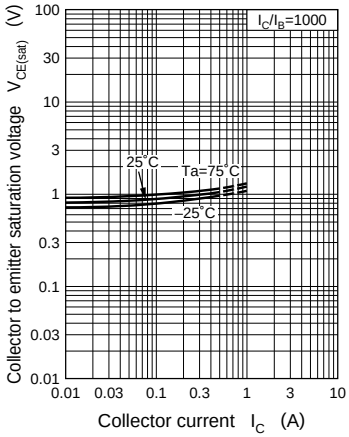
P_C — Ta



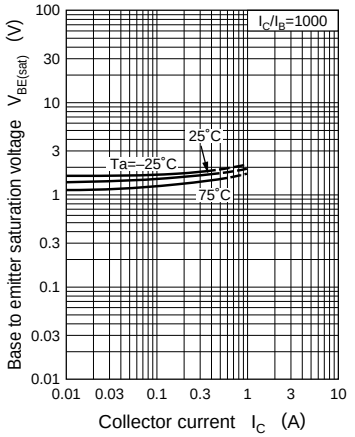
I_C — V_{CE}



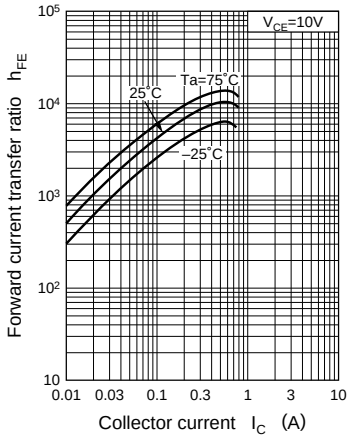
$V_{CE(sat)}$ — I_C



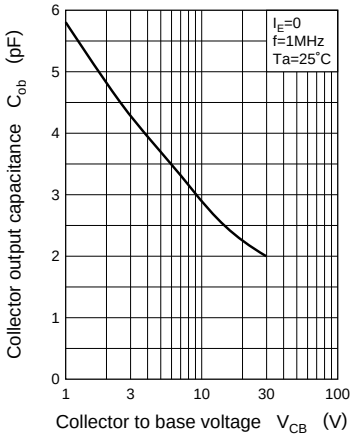
$V_{BE(sat)}$ — I_C



h_{FE} — I_C



C_{ob} — V_{CB}



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