

2SD1478, 2SD1478A

Silicon NPN epitaxial planer type darlington

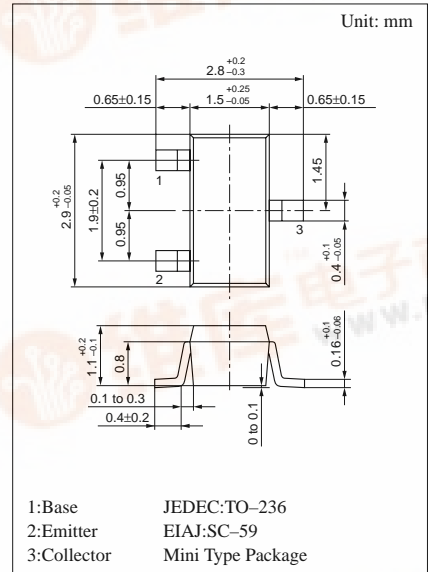
For low-frequency amplification

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.

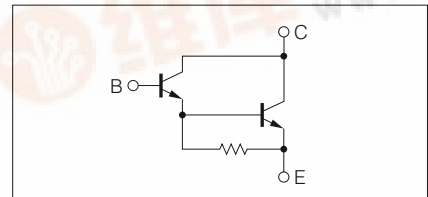
Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V _{CB0}	30	V
2SD1478A		60	
Collector to emitter voltage	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



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

Internal Connection



Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I _{CB0}	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 _{CB0}	I _C = 100μA, I _E = 0	30			V
			60			
Collector to emitter voltage	V _{CEO}	I _C = 1mA, I _B = 0	25			V
			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

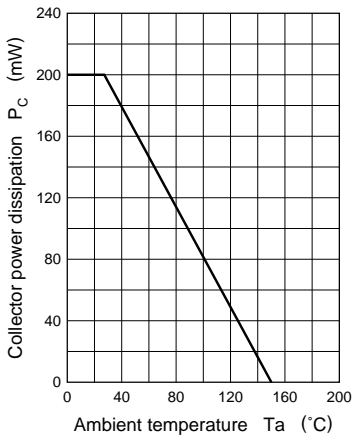
^{*1}h_{FE1} Rank classification

^{*2} Pulse measurement

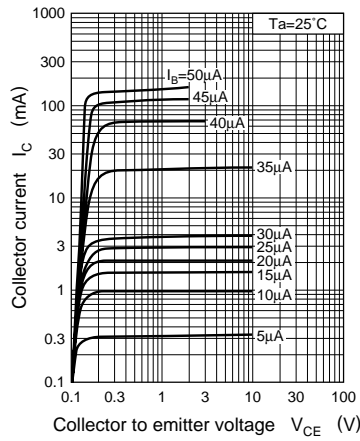
Rank	Q	R
h _{FE1}	4000 ~ 10000	8000 ~ 20000
Marking Symbol	2SD1478	2SD1478A
	2NQ	2NR
	2Q	2OR



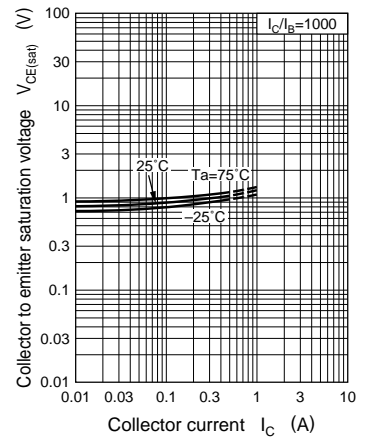
$P_C - T_a$



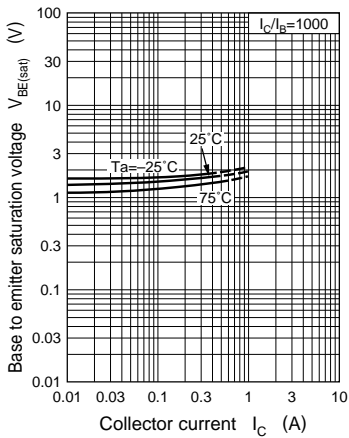
$I_C - V_{CE}$



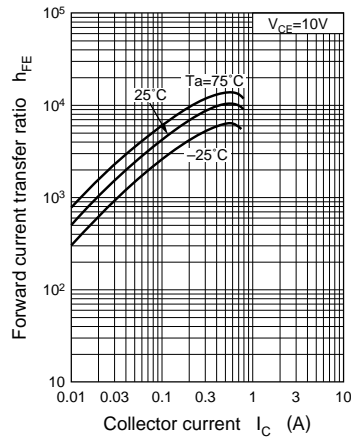
$V_{CE(sat)} - I_C$



$V_{BE(sat)} - I_C$



$h_{FE} - I_C$



$C_{ob} - V_{CB}$

