

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_{CBO}	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

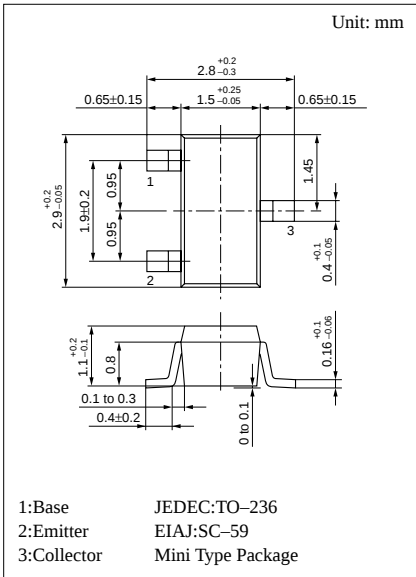
■ Electrical Characteristics (Ta=25°C)

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}	$I_C = 100\mu A, I_E = 0$	30			V
			60			
Collector to emitter voltage	V_{CEO}	$I_C = 1mA, I_B = 0$	25			V
			50			
Emitter to base voltage	V_{EBO}	$I_E = 100\mu A, I_C = 0$	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

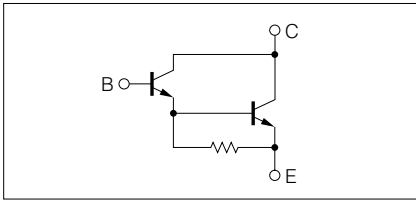
^{*2} Pulse measurement

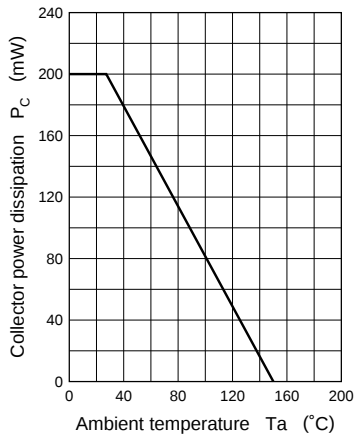
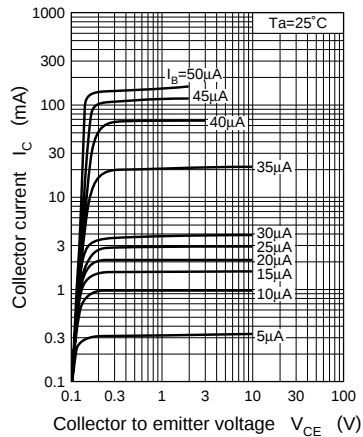
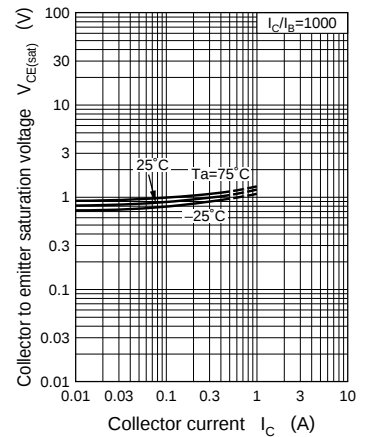
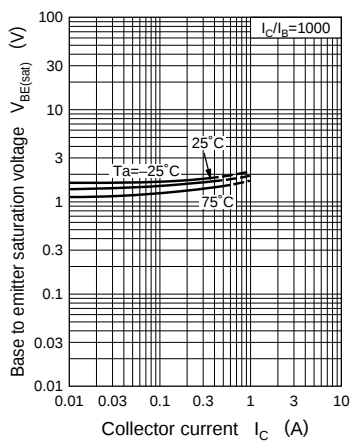
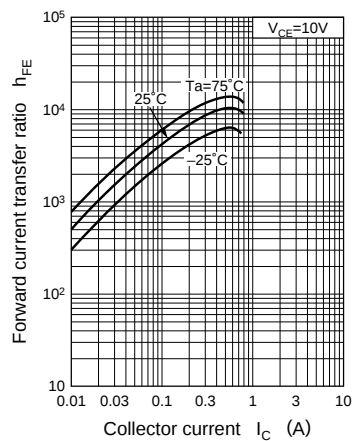
Rank	Q	R
h_{FE1}	4000 ~ 10000	8000 ~ 20000
Marking	2SD1478	2NQ
Symbol	2SD1478A	2OR



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

Internal Connection



$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(\text{sat})} - I_C$  $V_{BE(\text{sat})} - I_C$  $h_{FE} - I_C$  $C_{ob} - V_{CB}$ 