

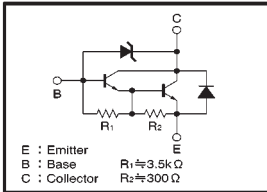
Medium Power Transistor (Motor or Relay drive) (90^{+20}_{-10} V, -2 A)

2SD2170

●Features

- 1) Built-in zener diode between collector and base.
- 2) Zener diode has low dispersion.
- 3) Strong protection against reverse power surges due to "L" loads.
- 4) Darlington connection for high DC current gain.
- 5) Built-in resistor between base and emitter.
- 6) Built-in damper diode.

●Circuit diagram



●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	80	—	110	V	$I_C = 50 \mu A$
Collector-emitter breakdown voltage	BV_{CEO}	80	—	110	V	$I_C = 1 mA$
Collector cutoff current	I_{CBO}	—	—	10	μA	$V_{CB} = 70V$
Emitter cutoff current	I_{EBO}	—	—	3	mA	$V_{EB} = 5V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	1.5	—	V	$I_C/I_E = 1A/1mA$ *1
DC current transfer ratio	h_{FE}	1000	—	10000	—	$V_{CE} = 2V, I_C = 1A$ *1
Transition frequency	f_T	—	80	—	MHz	$V_{CE} = 5V, I_E = -0.1A, f = 30MHz$ *2
Output capacitance	C_{ob}	—	25	—	pF	$V_{CB} = 10V, I_E = 0A, f = 1MHz$

*1 Measured using pulse current.

*2 Transition frequency of the device.

(96-241-D405)

Medium Power Transistor (Motor or Relay drive) (60 ± 10 A, 4 A)

2SC4574

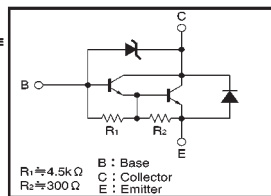
●Features

- 1) Built-in zener diode between collector and base.
- 2) Strong protection against reverse power surges due to "L" loads.
- 3) Built-in resistor between base and emitter.
- 4) Built-in damper diode.

●Packaging specifications and hFE

Type	2SC4574
Package	TO-220FP
h_{FE}	2k~20k
Code	—
Basic ordering unit (pieces)	500

●Circuit diagram



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	60 ± 10	V
Collector-emitter voltage	V_{CEO}	60 ± 10	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	4	A (DC)
		6	A (Pulse) *
Collector power dissipation	P_C	5	W
		30	W ($T_C = 25^\circ C$)
Junction temperature	T_J	150	$^\circ C$
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ C$

* Single pulse, $P_W = 100ms$

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	50	60	70	V	$I_C = 50 \mu A$
Collector-emitter breakdown voltage	BV_{CEO}	50	60	70	V	$I_C = 5mA$
Collector cutoff current	I_{CBO}	—	—	10	μA	$V_{CB} = 40V$
Emitter cutoff current	I_{EBO}	—	—	3	mA	$V_{EB} = 5V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	1	1.5	V	$I_C/I_E = 1.5A/6mA$ *1
DC current transfer ratio	h_{FE}	2000	—	10000	—	$V_{CE}/I_C = 5V/1.5A$ *1
Transition frequency	f_T	—	80	—	MHz	$V_{CE} = 5V, I_E = -0.2A, f = 30MHz$ *2
Output capacitance	C_{ob}	—	30	—	pF	$V_{CB} = 10V, I_E = 0A, f = 1MHz$
Turn-on time	t_{on}	—	0.4	—	μs	$I_C = 1.5A, R_L = 14\Omega$
Storage time	t_{stg}	—	1.5	—	μs	$I_{B1} = -I_{B2} = 6mA$
Fall time	t_f	—	0.4	—	μs	$V_{CC} \approx 20V$

*1 Measured using pulse current.

*2 Transition frequency of the device.

(94L-686-D406)