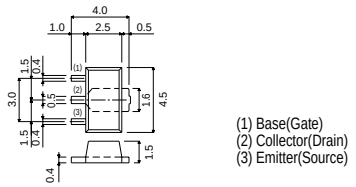
Medium Power Transistor (Motor, Relay drive) (90 $^{+20}_{-10}$, 2A)

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.

●External dimensions (Units : mm)



(1) Base(Gate)
(2) Collector(Drain)
(3) Emitter(Source)

ROHM : MPT3
EIAJ : SC-62

●Absolute maximum ratings (Ta=25°C)

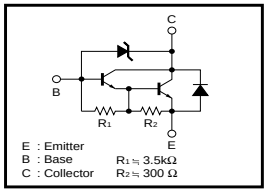
Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	90 $^{+20}_{-10}$	V
Collector-emitter voltage	V_{CES}	90 $^{+20}_{-10}$	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	2	A (DC)
		3	A (Pulse) *1
Collector power dissipation	P_C	2	W *2
Junction temperature	Tj	150	°C
Storage temperature	Tstg	−55~+150	°C

*1 Single pulse Pw = 10ms , Duty = 1 / 2
*2 When mounted on a 40 x 40 x 0.7 mm ceramic board.

●Packaging specifications and h_{FE}

Type	2SD2170
Package	MPT3
h_{FE}	1k~10k
Marking	DM
Code	T100
Basic ordering unit (pieces)	1000

●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 = 50μA
Collector-emitter breakdown voltage	BV_{CEO}	80	-	110	V	I_C = 1mA
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_B = 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	Cob	-	25	-	pF	V_{CB} = 10V , I_E = 0A , f = 1MHz

*1 Measured using pulse current. *2 Transition frequency of the device.