

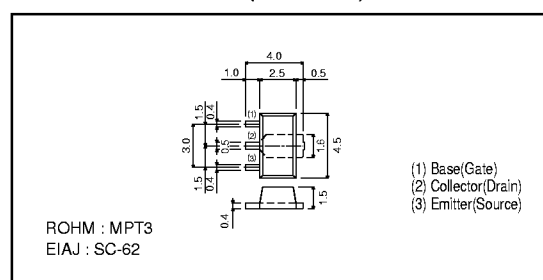
Medium Power Transistor (Motor, Relay drive) (90^{+20}_{-10} , 2A)

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)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	90 $\frac{+10}{-10}$	V
Collector-emitter voltage	V _{CE0}	90 $\frac{+10}{-10}$	V
Emitter-base voltage	V _{EB0}	6	V
Collector current	I _C	2	A (DC)
		3	A (Pulse) *1
Collector power dissipation	P _C	2	W *2
Junction temperature	T _J	150	°C
Storage temperature	T _{stg}	-55~+150	°C

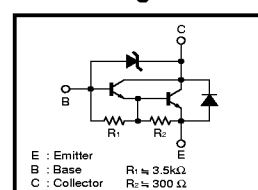
*1 Single pulse P_w = 10ms, Duty = 1 / 2

*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



E : Emitter
B : Base
C : Collector
R₁ ≙ 3.5kΩ
R₂ ≙ 300Ω

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	80	-	110	V	I _C = 50μA
Collector-emitter breakdown voltage	BV _{CE0}	80	-	110	V	I _C = 1mA
Collector cutoff current	I _{CB0}	-	-	10	μA	V _{CB} = 70V
Emitter cutoff current	I _{EB0}	-	-	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	C _{ob}	-	25	-	pF	V _{CB} = 10V, I _E = 0A, f = 1MHz

*1 Measured using pulse current.

*2 Transition frequency of the device.