

Transistors

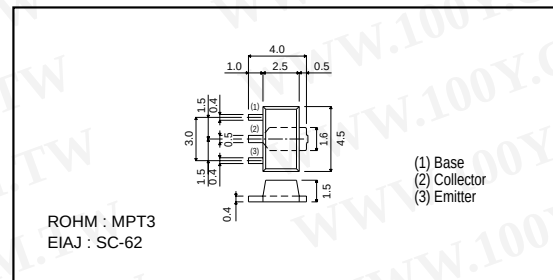
Medium Power Transistor (Motor, Relay drive) (90^{+20}_{-10} , 2A)

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	V
Collector-emitter voltage	V_{CE0}	90	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

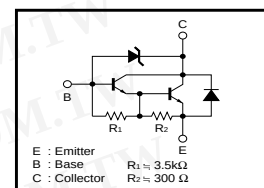
^{*1} Single pulse $P_w = 10ms$, Duty = 1/2

^{*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

●Equivalent circuit



●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	$I_C = 1mA$
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	$I_C/I_E = 1A/1mA$ ^{*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.