

# Medium Power Transistor (Motor, Relay drive) (60±10V, 2A)

## 2SD2212 / 2SD2143 / 2SD1866 / 2SD2397

●Features

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

●Absolute maximum ratings (Ta = 25°C)

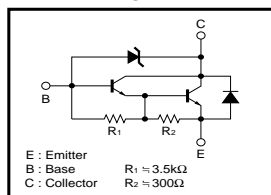
Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	60±10	V
Collector-emitter voltage	V <sub>CE0</sub>	60±10	V
Emitter-base voltage	V <sub>EB0</sub>	6	V
Collector current	I <sub>c</sub>	2	A(DC)
		3	A(Pulse) * <sub>1</sub>
Collector power dissipation	P <sub>c</sub>	2	W * <sub>2</sub>
		10	W(Tc=25°C)
		1	W * <sub>3</sub>
		20	W(Tc=25°C)
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55~+150	°C

\*1 Single pulse P<sub>w</sub>=100ms  
 \*2 When mounted on a 40×40×0.7mm ceramic board.  
 \*3 Printed circuit board 1.7mm thick, collector plating 1cm<sup>2</sup> or larger.

●Packaging specifications and hFE

Type	2SD2212	2SD2143	2SD1866	2SD2397
Package	MPT3	CPT3	ATV	TO-220FN
hFE	1k~10k	1k~10k	1k~10k	1k~10k
Code	T100	TL	TV2	-
Basic ordering unit (pieces)	1000	2500	2500	500

●Circuit diagram



●External dimensions (Units : mm)

2SD2212

ROHM : MPT3  
EIAJ : SC-62

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

2SD2143

ROHM : CPT3  
EIAJ : SC-63

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

2SD1866

ROHM : ATV

(1) Emitter  
(2) Collector  
(3) Base

Taping specifications

2SD2397

ROHM : TO-220FN

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

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### Transistors

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#### ●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	50	-	70	V	I <sub>c</sub> =50μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	50	-	70	V	I <sub>c</sub> =5mA
Collector cutoff current	I <sub>CB0</sub>	-	-	1.0	μA	V <sub>CB</sub> =40V
Emitter cutoff current	I <sub>EB0</sub>	-	-	3	mA	V <sub>EB</sub> =5V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	-	-	1.5	V	I <sub>c</sub> /I <sub>b</sub> =1A/1mA
DC current transfer ratio	h <sub>FE</sub>	1000	-	10000	-	V <sub>CE</sub> =2V, I <sub>C</sub> =1A
Output capacitance	C <sub>ob</sub>	-	25	-	pF	V <sub>CB</sub> =10V, I <sub>E</sub> =0A, f=1MHz

\* Measured using pulse current.