

Medium Power Transistor

(Motor, Relay drive) (60±10V, 2A)

2SD2143 / 2SD1866

●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)

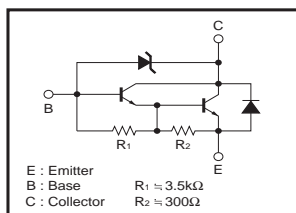
Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	60±10	V
Collector-emitter voltage	V _{CEO}	60±10	V
Emitter-base voltage	V _{EBO}	6	V
Collector current	I _c	2	A (DC)
		3 *1	A (Pulse)
Collector power dissipation	P _c	1	W
		10	W (T _c =25°C)
		1 *2	W
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

*1 Single pulse P_w=100ms
*2 Printed circuit board 1.7mm thick, collector plating 1cm² or larger.

●Packaging specifications and h_{FE}

Type	2SD2143	2SD1866
Package	CPT3	ATV
h _{FE}	1k to 10k	1k to 10k
Marking	-	-
Code	TL	TV2
Basic ordering unit (pieces)	2500	2500

●Inner circuit

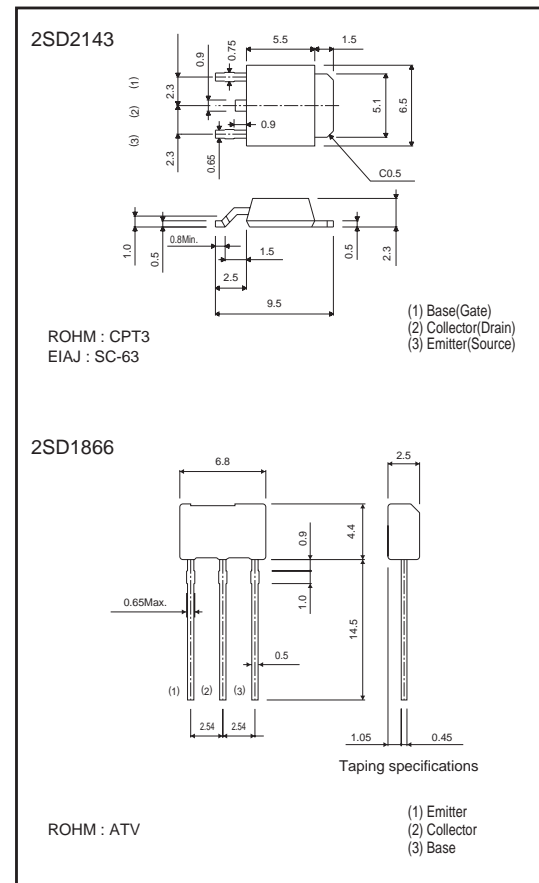


●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	50	-	70	V	I _c =50μA
Collector-emitter breakdown voltage	BV _{CEO}	50	-	70	V	I _c =5mA
Collector cutoff current	I _{cBO}	-	-	1.0	μA	V _{CB} =40V
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
DC current transfer ratio	h _{FE}	1000	-	10000	-	V _{CE} =2V, I _c =1A
Transition frequency	f _r	-	80	-	MHz	V _{CE} =5V, I _E =-0.1A, f=30MHz
Output capacitance	C _{ob}	-	25	-	pF	V _{CB} =10V, I _E =0A, f=1MHz

* Measured using pulse current.

●Dimensions (Unit : mm)



●Electrical characteristics curves

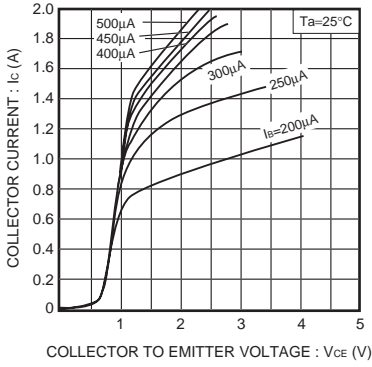


Fig.1 Grounded emitter output characteristics (I)

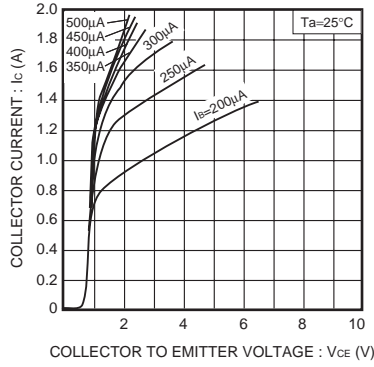


Fig.2 Grounded emitter output characteristics (II)

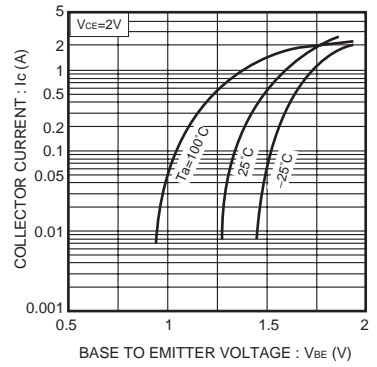


Fig.3 Grounded emitter propagation characteristics

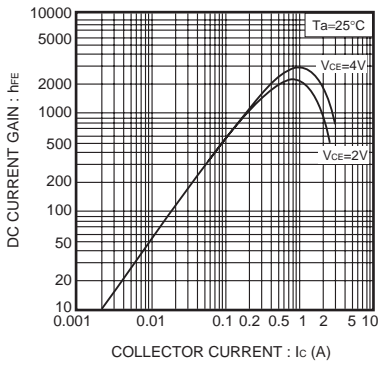


Fig.4 DC current gain vs. collector current (I)

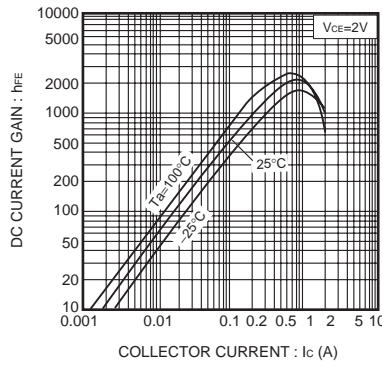


Fig.5 DC current gain vs. collector current (II)

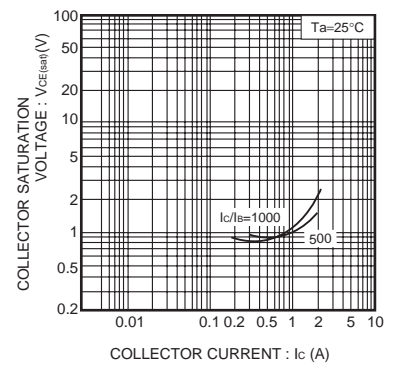


Fig.6 Collector-emitter saturation voltage vs. collector current

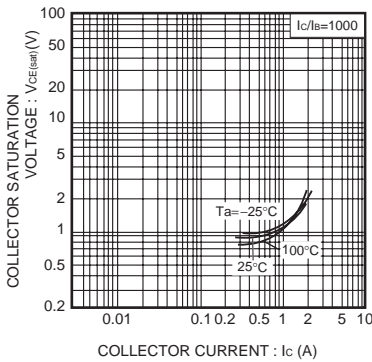


Fig.7 Collector-emitter saturation voltage vs. collector current

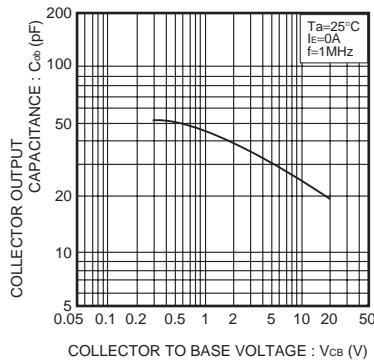


Fig.8 Collector output capacitance vs. collector-base voltage

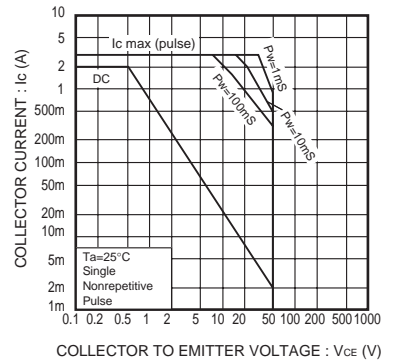


Fig.9 Safe operating area (A. S. O) 2SD2143 (CPT)

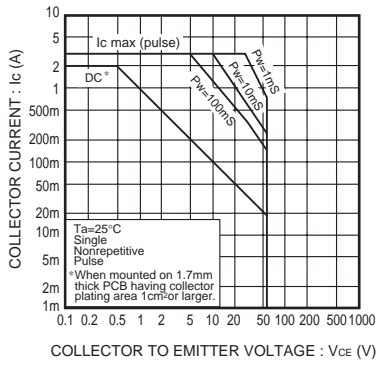


Fig.10 Safe operating area (A. S. O)
2SD1866 (ATV)

Notes

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