Medium Power Transistor

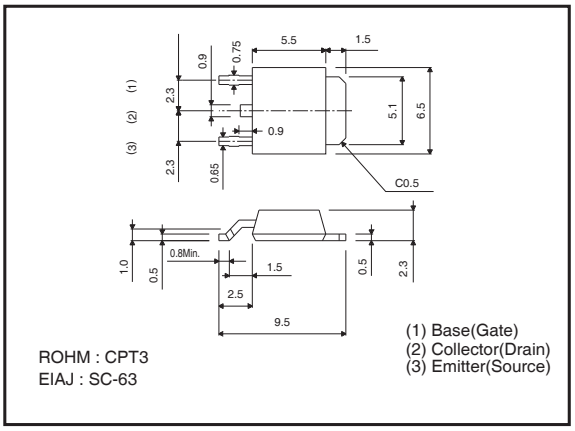
(Motor, Relay drive) (60±10V, 2A)

2SD2143

●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.

● Dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

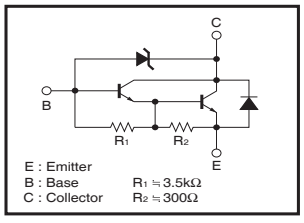
Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	60±10	V
Collector-emitter voltage	V_{CEO}	60±10	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	2	A (DC)
		3 *1	A (Pulse)
Collector power dissipation	P_C	1	W
		10	W (T_C=25°C)
Junction temperature	Tj	150	°C
Storage temperature	Tstg	−55 to +150	°C

*1 Single pulse Pw=100ms

●Packaging specifications and h_{FE}

Type	2SD2143
Package	CPT3
h_{FE}	1k to 10k
Marking	–
Code	TL
Basic ordering unit (pieces)	2500

●Inner circuit



●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	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_T	–	80	–	MHz	V_{CE}=5V, I_E= −0.1A, f=30MHz
Output capacitance	Cob	–	25	–	pF	V_{CB}=10V, I_E=0A, f=1MHz

* Measured using pulse current.

●Electrical characteristics curves

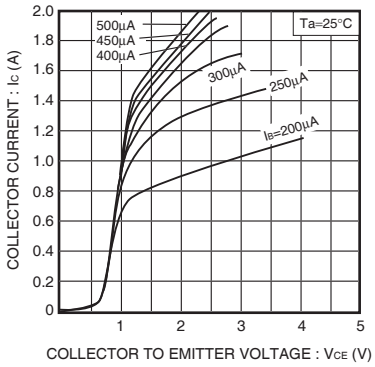


Fig.1 Groundede emitter output characteristics (I)

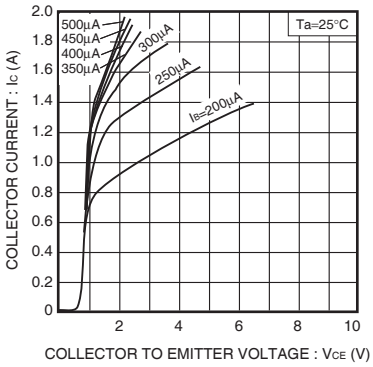


Fig.2 Grounded emitter output characteristics (II)

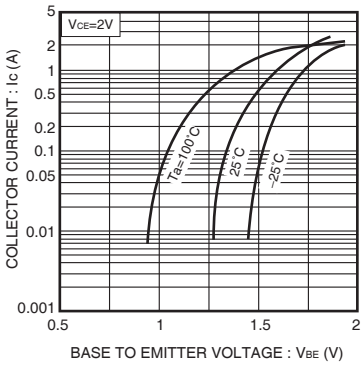


Fig.3 Grounded emitter propagation characteristics

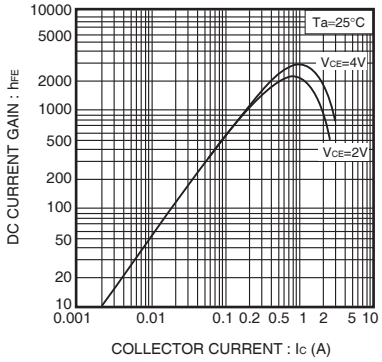


Fig.4 DC current gain vs. collector current (I)

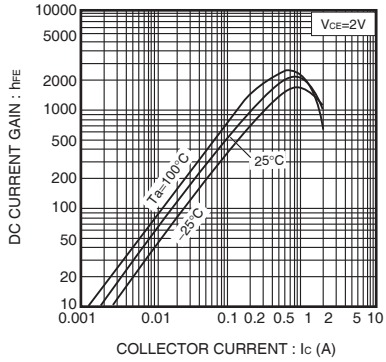


Fig.5 DC current gain vs. collector current (II)

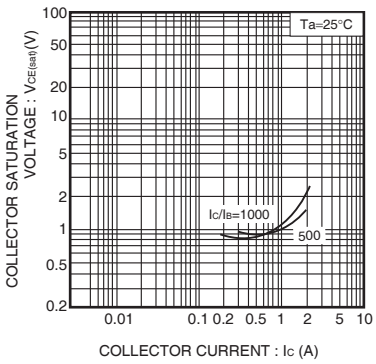


Fig.6 Collector-emitter saturation voltage vs. collector current

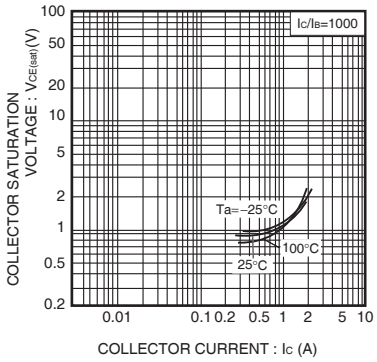


Fig.7 Collector-emitter saturation voltage vs. collector current

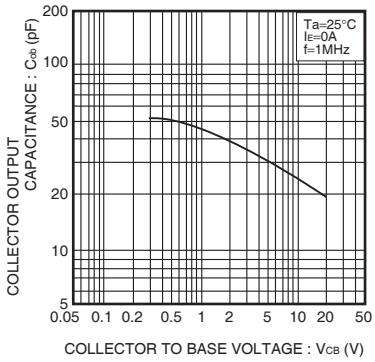


Fig.8 Collector output capacitance vs. collector-base voltage

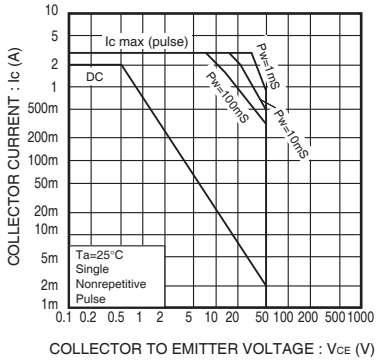


Fig.9 Safe operating area (A. S. O) 2SD2143 (CPT)

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