
2SD1085(K)

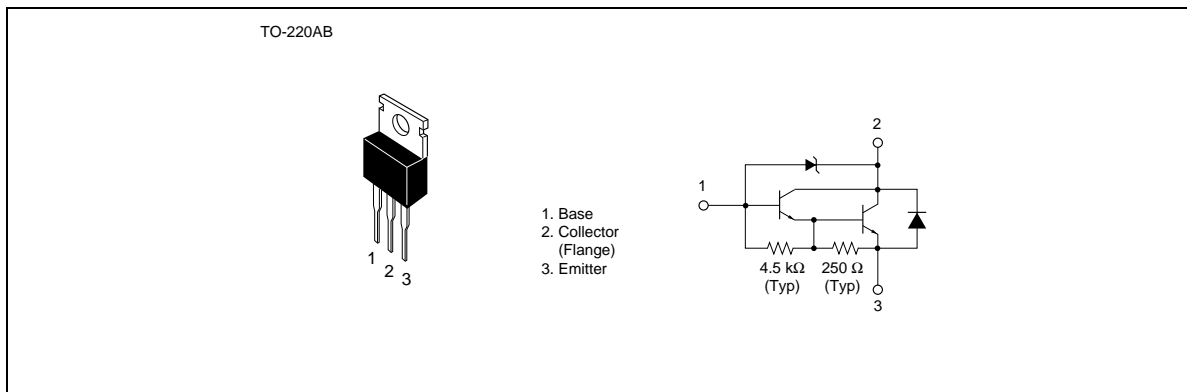
Silicon NPN Triple Diffused

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Application

High voltage switching, igniter

Outline



Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	300	V
Collector to emitter voltage	V_{CEO}	300	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	3	A
Collector peak current	$I_{C(\text{peak})}$	6	A
Collector power dissipation	P_C^{*1}	40	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

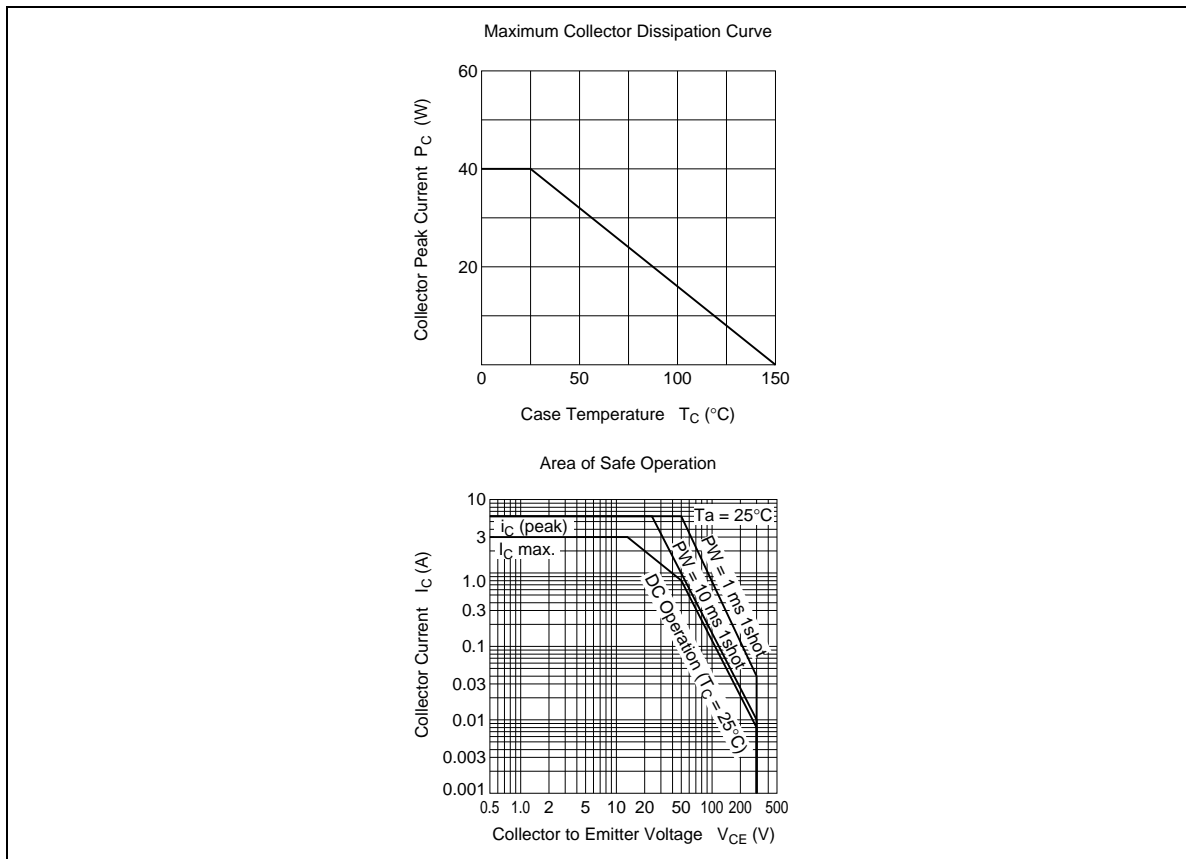
Note: 1. Value at $T_c = 25^\circ\text{C}$.

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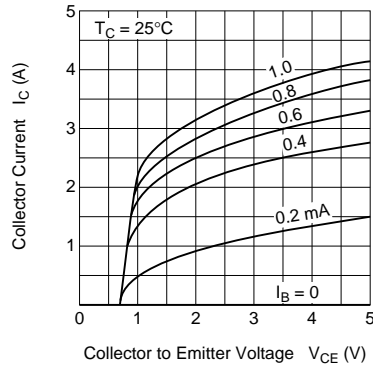
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	300	—	500	V	$I_C = 0.1 \text{ mA}, I_E = 0$
Collector to emitter sustain voltage	$V_{CEO(sus)}$	300	—	—	V	$I_C = 2 \text{ A}, PW = 50 \mu\text{s}, f = 50 \text{ Hz}, L = 10 \text{ mH}$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	$I_E = 50 \text{ mA}, I_C = 0$
Collector cutoff current	I_{CEO}	—	—	100	μA	$V_{CE} = 300 \text{ V}, R_{BE} = \infty$
DC current transfer ratio	h_{FE}	500	—	—		$V_{CE} = 2 \text{ V}, I_C = 2 \text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.5	V	$I_C = 2 \text{ A}, I_B = 20 \text{ mA}^{*1}$
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	2.0	V	
Turn on time	t_{on}	—	1.0	—	μs	$I_C = 2 \text{ A}, I_{B1} = -I_{B2} = 20 \text{ mA}$
Turn off time	t_{off}	—	22	—	μs	

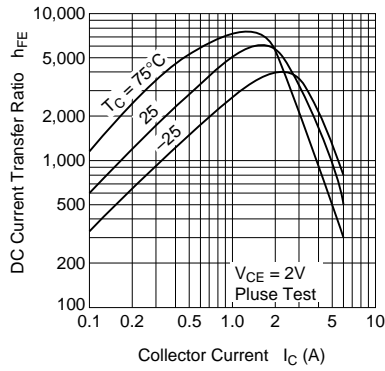
Note: 1. Pulse test.



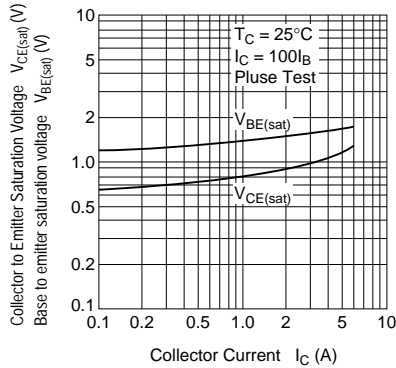
Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current



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