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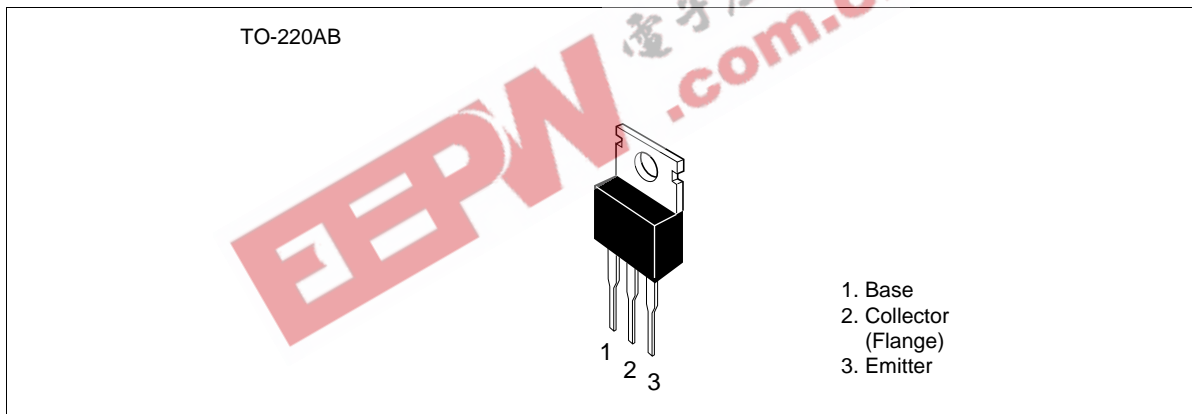
Silicon NPN Triple Diffused

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Application

High voltage, high speed and high power switching

Outline



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

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	500	V
Collector to emitter voltage	V_{CEO}	400	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_{C}	3	A
Collector peak current	$I_{\text{C(peak)}}$	6	A
Base current	I_{B}	1.5	A
Collector power dissipation	P_{C}^{*1}	30	W
Junction temperature	T_{j}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

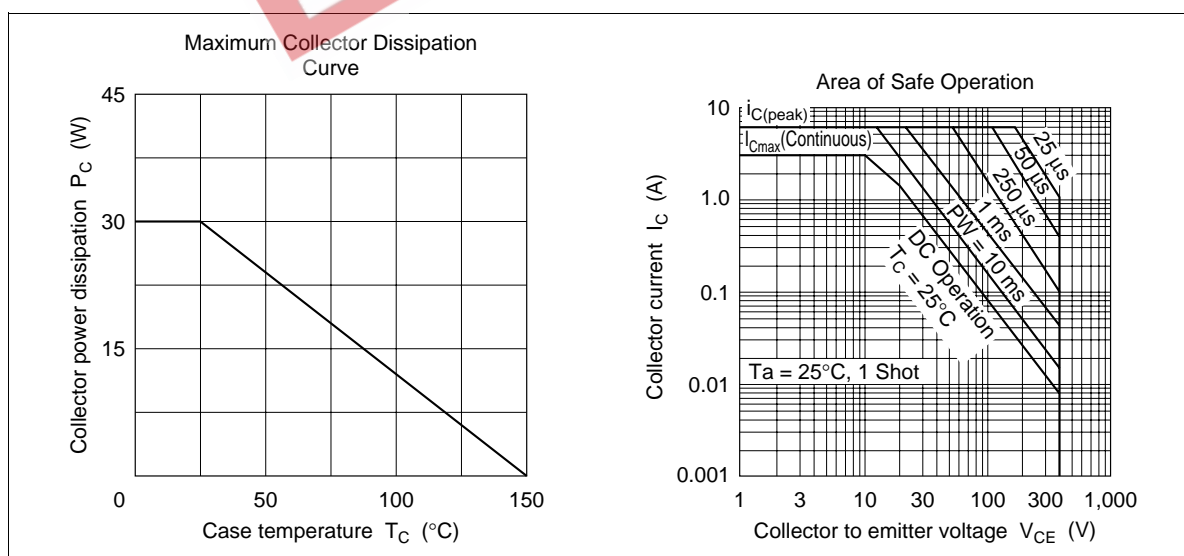
Note: 1. Value at $T_{\text{c}} = 25^\circ\text{C}$.

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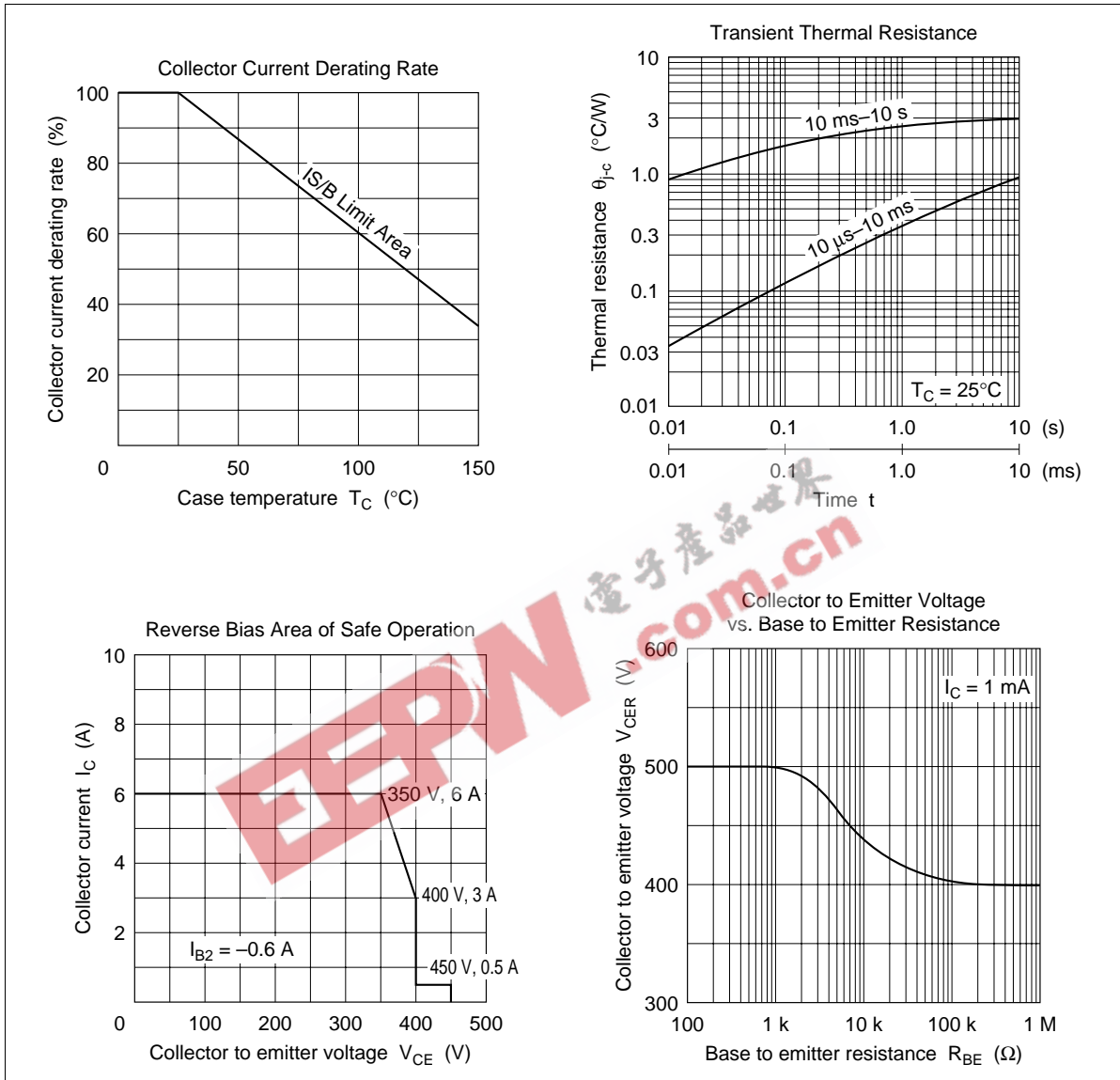
Electrical Characteristics (T_a = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter sustain voltage	V _{CEO(sus)}	400	—	—	V	I _C = 0.2 A, R _{BE} = ∞, L = 100 mH
	V _{CEX(sus)}	400	—	—	V	I _C = 3 A, I _{B1} = -I _{B2} = 0.6 A, V _{BE} = -5 V, L = 180 μH, Clamped
Emitter to base breakdown voltage	V _{(BR)EBO}	7	—	—	V	I _E = 10 mA, I _C = 0
Collector cutoff current	I _{CBO}	—	—	100	μA	V _{CB} = 400 V, I _E = 0
	I _{CEO}	—	—	100	μA	V _{CE} = 350 V, R _{BE} = ∞
DC current transfer ratio	h _{FE1}	15	—	—		V _{CE} = 5 V, I _C = 1.5 A* ¹
	h _{FE2}	7	—	—		V _{CE} = 5 V, I _C = 3.0 A* ¹
Collector to emitter saturation voltage	V _{CE(sat)}	—	—	1.0	V	I _C = 1.5 A, I _B = 0.3 A* ¹
Base to emitter saturation voltage	V _{BE(sat)}	—	—	1.5	V	I _C = 1.5 A, I _B = 0.3 A* ¹
Turn on time	t _{on}	—	—	1.0	μs	I _C = 3 A, I _{B1} = -I _{B2} = 0.6 A,
Storage time	t _{stg}	—	1.2	2.5	μs	V _{CC} ≅ 150 V
Fall time	t _f	—	—	1.0	μs	

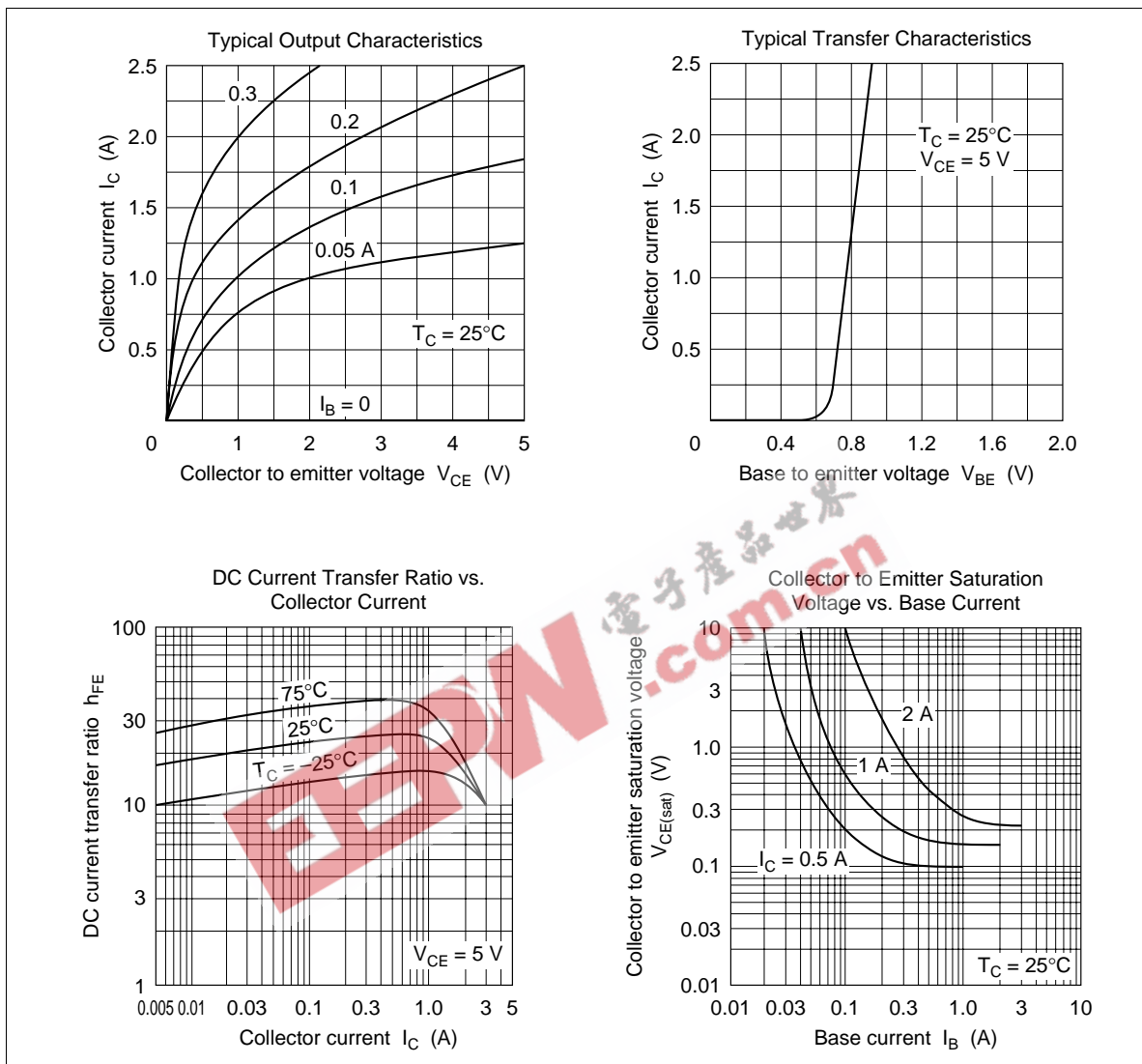
Note: 1. Pulse test



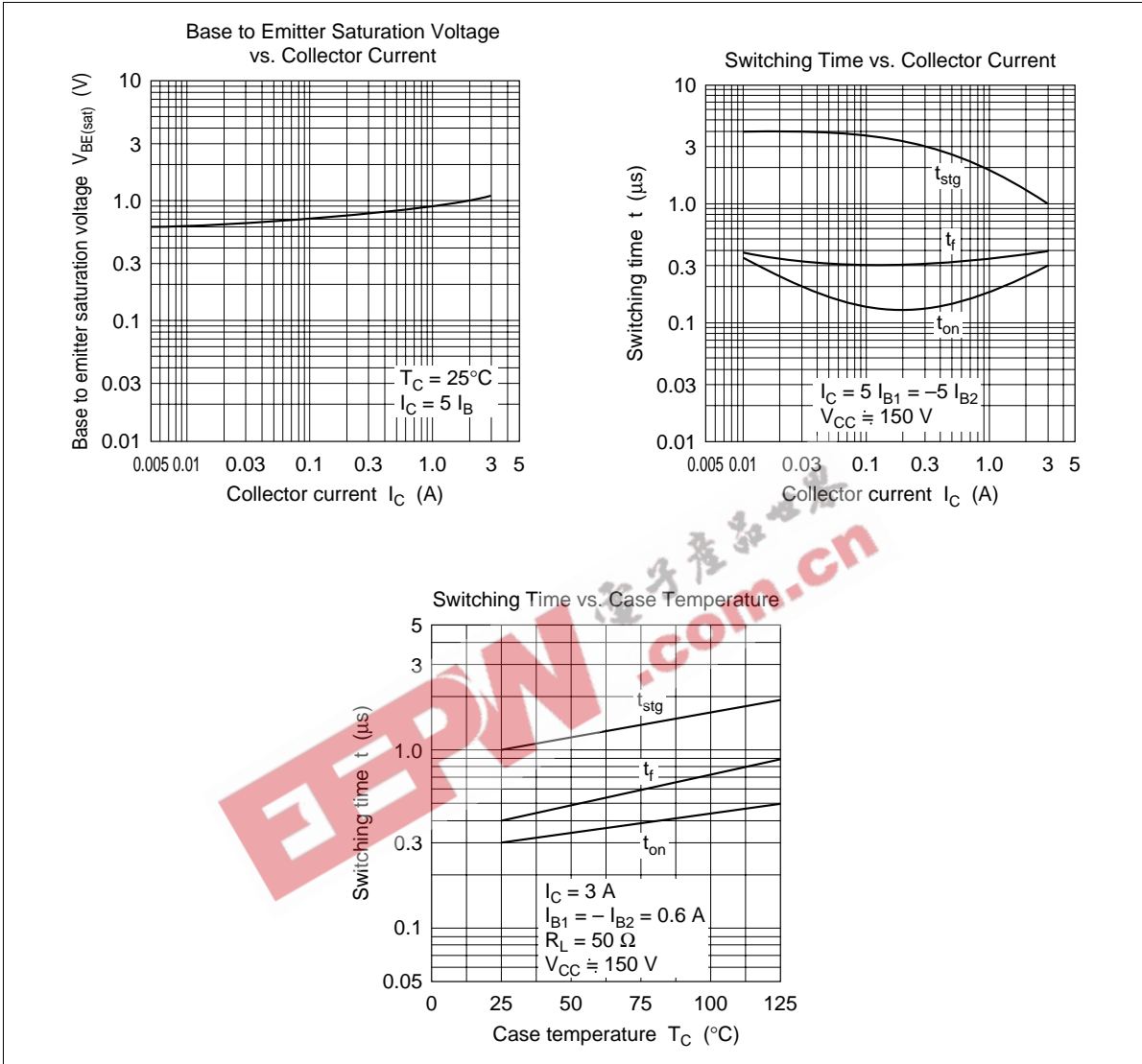
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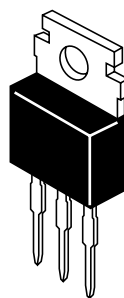
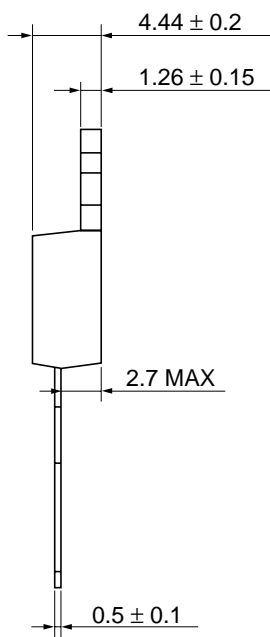
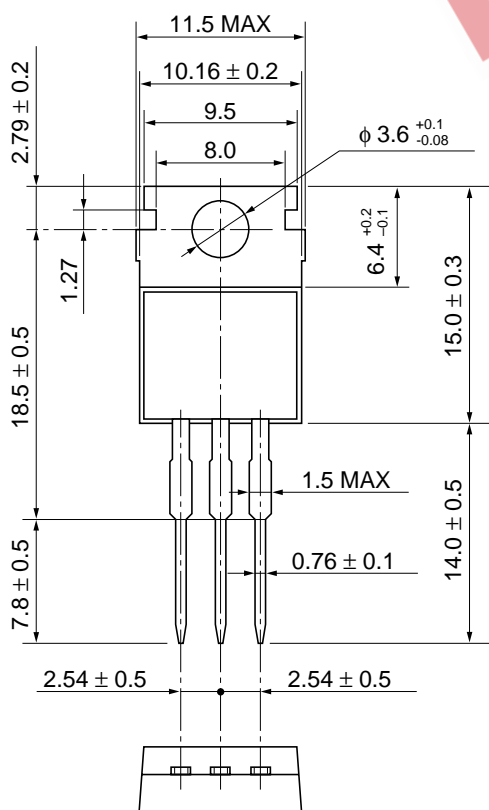


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Unit: mm



Hitachi Code	TO-220AB
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.8 g

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