

2SC2816

Silicon NPN Triple Diffused

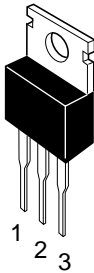
HITACHI

Application

High voltage, high speed and high power switching

Outline

TO-220AB



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

Absolute Maximum Ratings (Ta = 25°C)

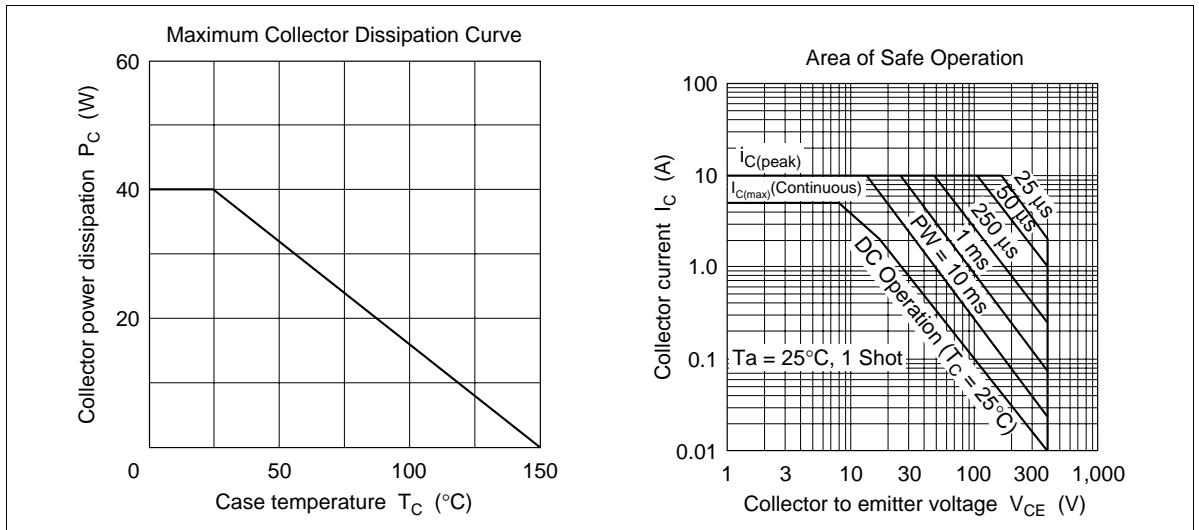
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	500	V
Collector to emitter voltage	V_{CEO}	400	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	5	A
Collector peak current	$I_{C(peak)}$	10	A
Base current	I_B	2.5	A
Collector power dissipation	P_C^{*1}	40	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

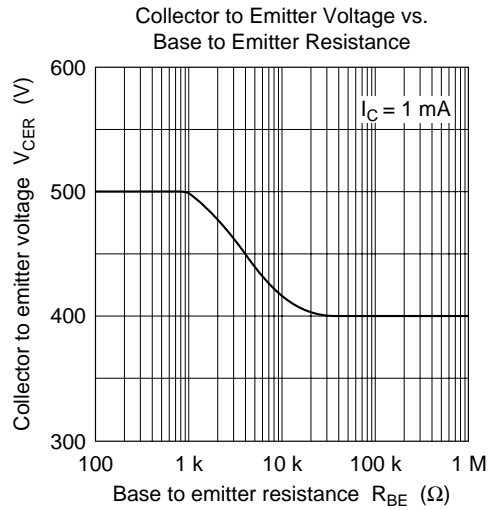
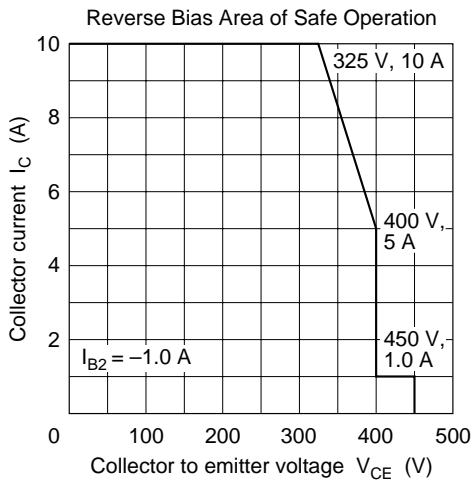
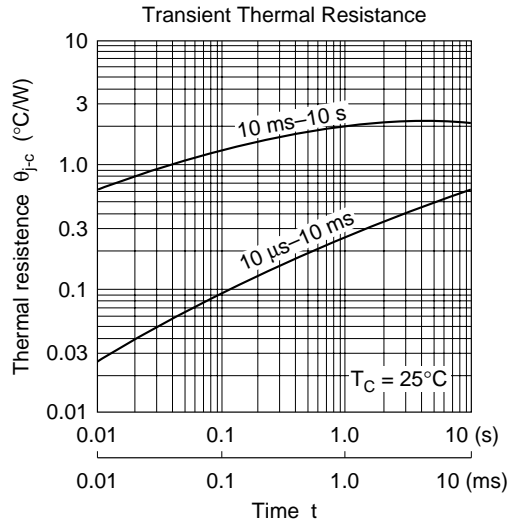
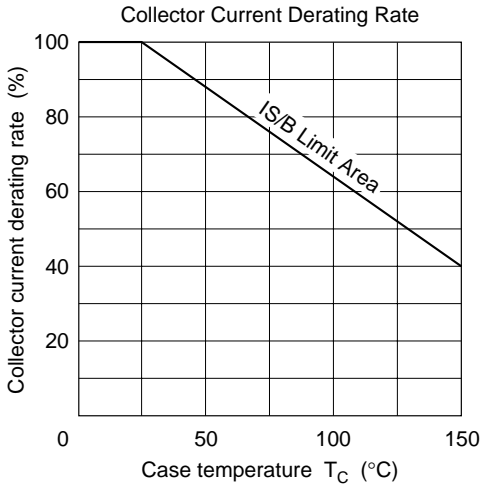
Note: 1. Value at $T_C = 25^\circ\text{C}$.

Electrical Characteristics (Ta = 25°C)

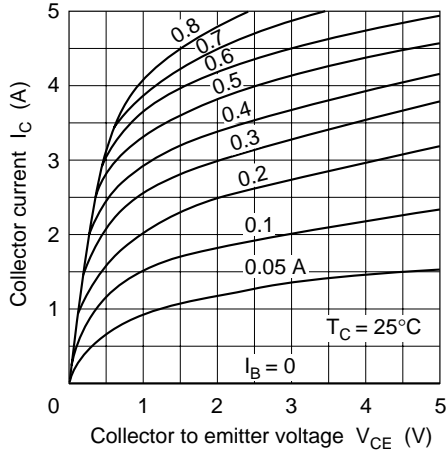
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter sustain voltage	$V_{CEO(sus)}$	400	—	—	V	$I_C = 0.2 \text{ A}$, $R_{BE} = \infty$, $L = 100 \text{ mH}$
	$V_{CEX(sus)}$	400	—	—	V	$I_C = 5 \text{ A}$, $I_{B1} = -I_{B2} = 1.0 \text{ A}$ $V_{BE} = -5.0 \text{ V}$, $L = 180 \mu\text{H}$, Clamped
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	$I_E = 10 \text{ mA}$, $I_C = 0$
Collector cutoff current	I_{CBO}	—	—	50	μA	$V_{CB} = 400 \text{ V}$, $I_E = 0$
	I_{CEO}	—	—	50	μA	$V_{CE} = 350 \text{ V}$, $R_{BE} = \infty$
DC current transfer ratio	h_{FE1}	15	—	—		$V_{CE} = 5.0 \text{ V}$, $I_C = 2.5 \text{ A}^{*1}$
	h_{FE2}	7	—	—		$V_{CE} = 5.0 \text{ V}$, $I_C = 5 \text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.0	V	$I_C = 2.5 \text{ A}$, $I_B = 0.5 \text{ A}^{*1}$
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	1.5	V	$I_C = 2.5 \text{ A}$, $I_B = 0.5 \text{ A}^{*1}$
Turn on time	t_{on}	—	—	0.5	μs	$I_C = 5 \text{ A}$, $I_{B1} = -I_{B2} = 1.0 \text{ A}$,
Storage time	t_{stg}	—	—	1.5	μs	$V_{CC} \cong 150 \text{ V}$
Fall time	t_f	—	0.3	0.5	μs	

Note: 1. Pulse test.

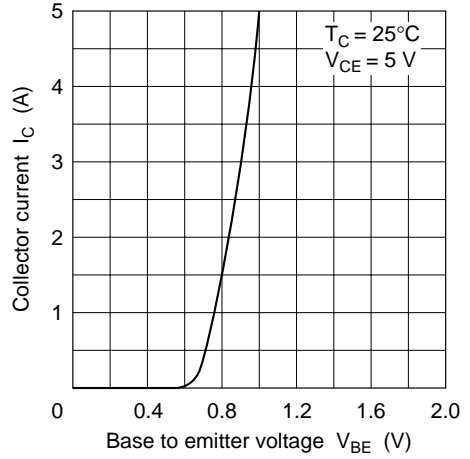




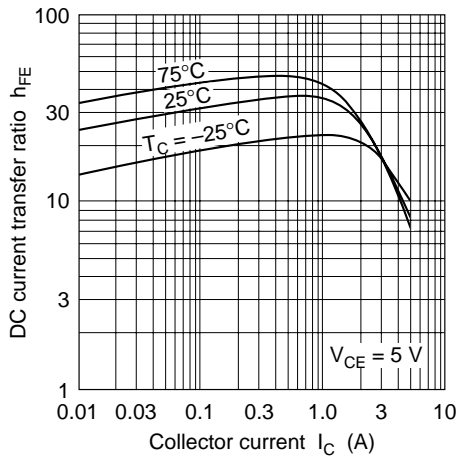
Typical Output Characteristics



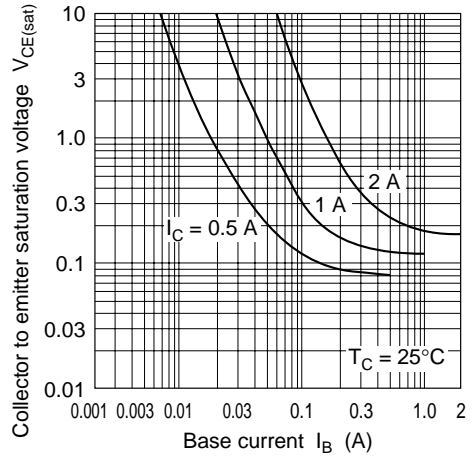
Typical Transfer Characteristics

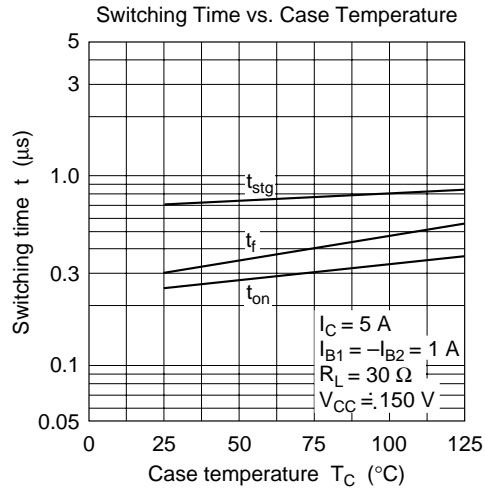
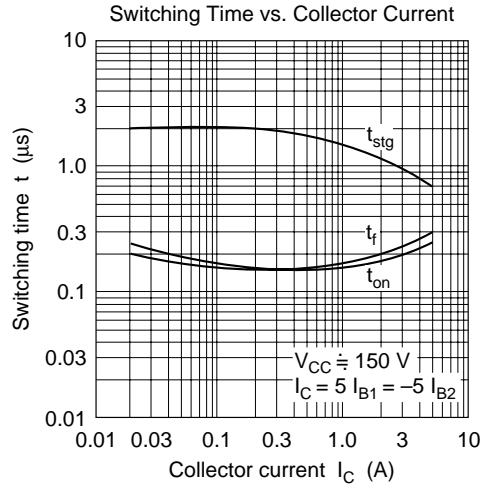
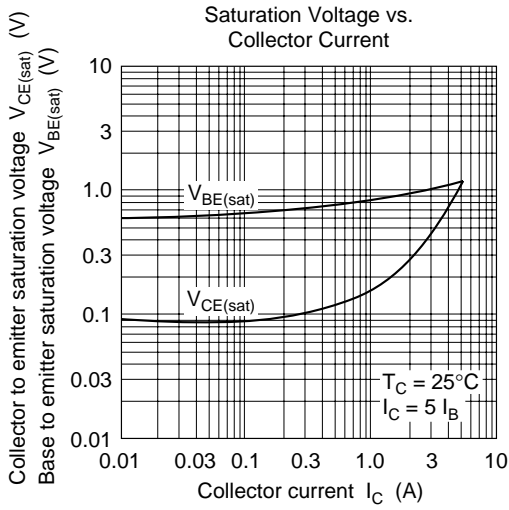


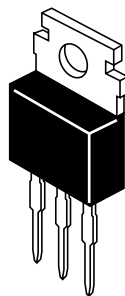
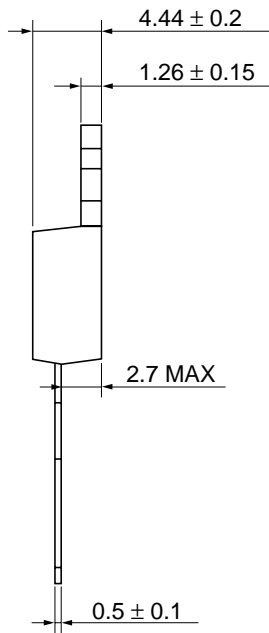
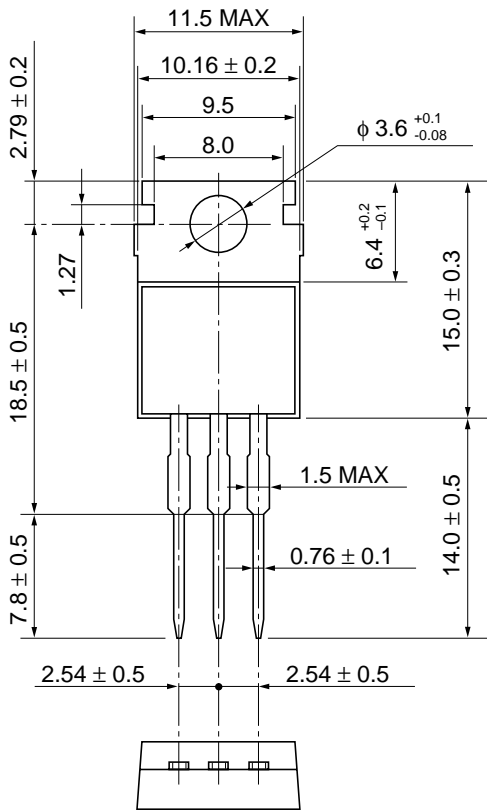
DC Current Transfer Ratio vs. Collector Current



Collector to Emitter Saturation Voltage vs. Base Current







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

Cautions

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