
2SC3336

Silicon NPN Triple Diffused

HITACHI

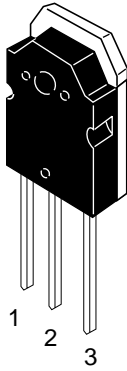
ADE-208-891 (Z)
1st. Edition
Sep. 2000

Application

High voltage, high speed and high power switching

Outline

TO-3P



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}	10	V
Collector current	I_C	15	A
Collector peak current	$I_{C(peak)}$	25	A
Base current	I_B	7.5	A
Collector power dissipation	P_C^{*1}	100	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

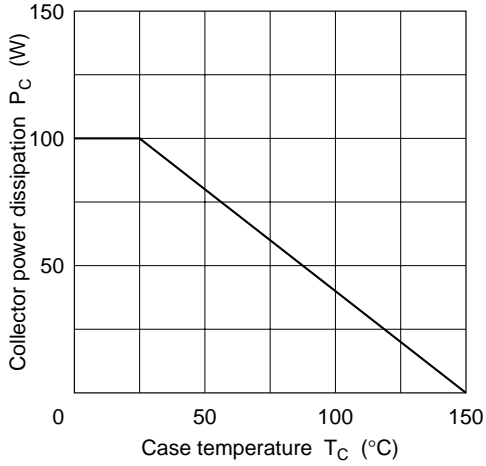
Note: 1. Value at $T_C = 25^\circ\text{C}$

Electrical Characteristics (Ta = 25°C)

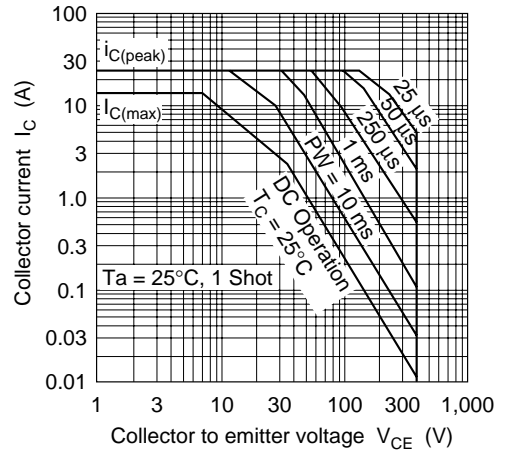
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter sustain voltage	$V_{CEO(sus)}$	400	—	—	V	$I_C = 0.2\text{ A}$, $R_{BE} = \infty$, $L = 100\text{ mH}$
	$V_{CEX(sus)}$	400	—	—	V	$I_C = 15\text{ A}$, $I_{B1} = 3.0\text{ A}$, $I_{B2} = -1\text{ A}$, $V_{BE} = -5.0\text{ V}$, $L = 180\text{ }\mu\text{H}$, Clamped
Emitter to base breakdown voltage	$V_{(BR)EBO}$	10	—	—	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}	12	—	—		$V_{CE} = 5.0\text{ V}$, $I_C = 7.5\text{ A}^{*1}$
	h_{FE2}	5	—	—		$V_{CE} = 5.0\text{ V}$, $I_C = 15\text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.0	V	$I_C = 7.5\text{ A}$, $I_B = 1.5\text{ A}^{*1}$
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	1.5	V	
Turn on time	t_{on}	—	—	0.5	μs	$I_C = 15\text{ A}$, $I_{B1} = -I_{B2} = 3.0\text{ A}$
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

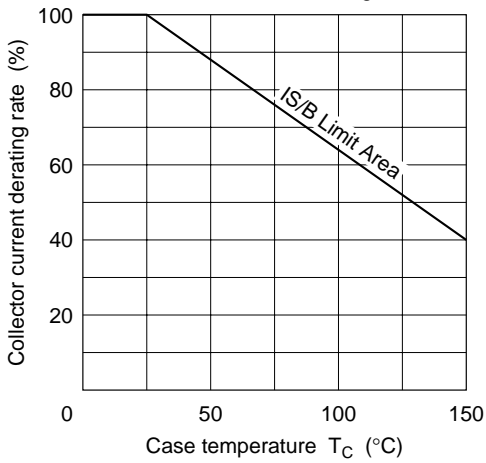
Maximum Collector Dissipation Curve



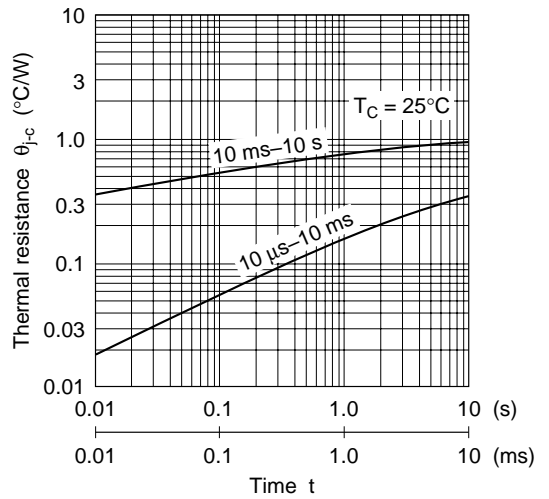
Area of Safe Operation



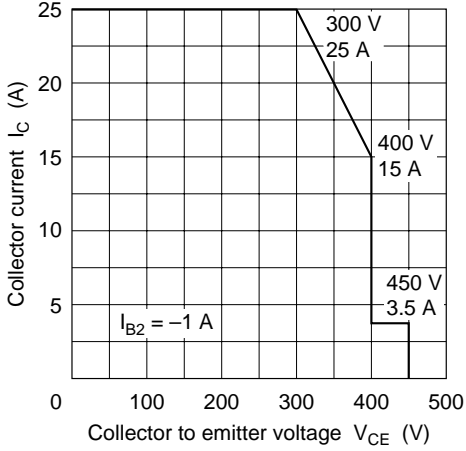
Collector Current Derating Rate



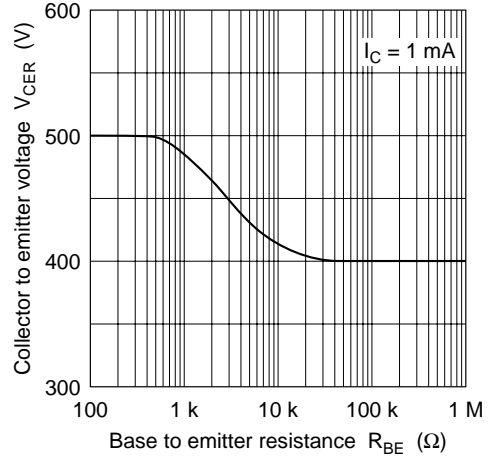
Transient Thermal Resistance



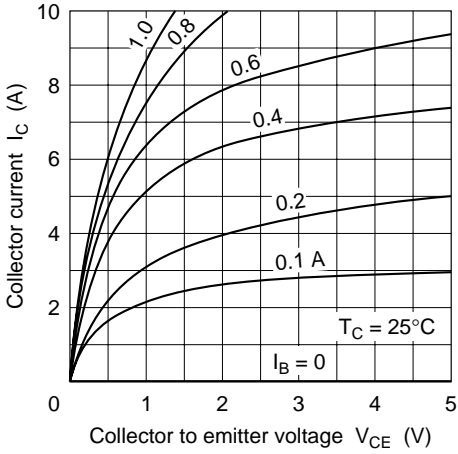
Reverse Bias Area of Safe Operation



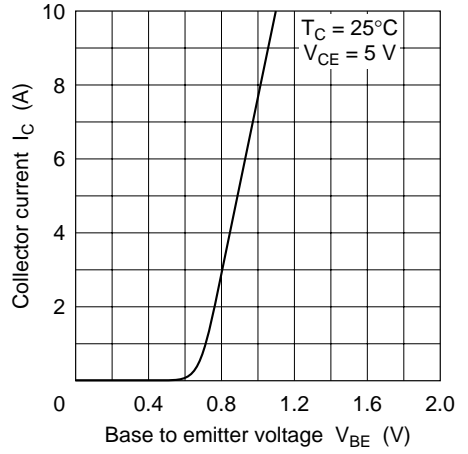
Collector to Emitter Voltage vs. Base to Emitter Resistance



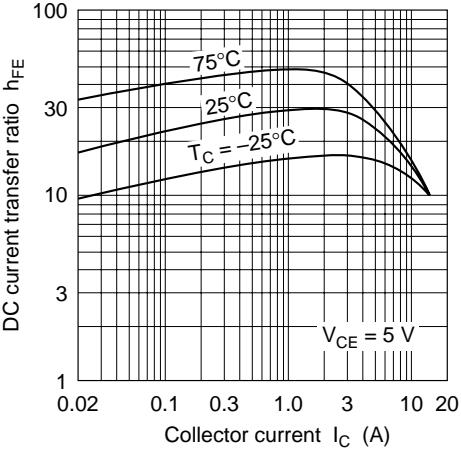
Typical Output Characteristics



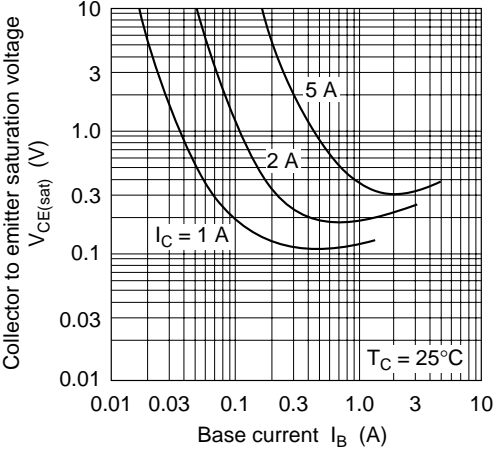
Typical Transfer Characteristics



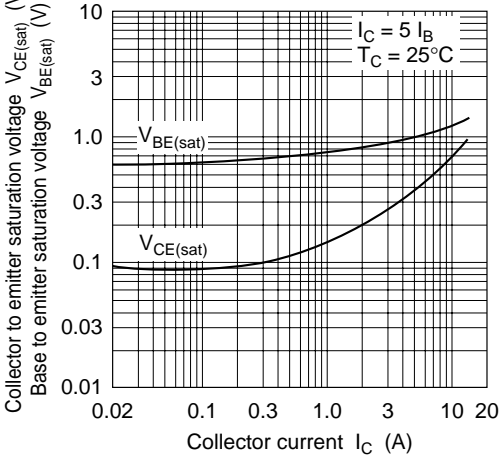
DC Current Transfer Ratio vs. Collector Current



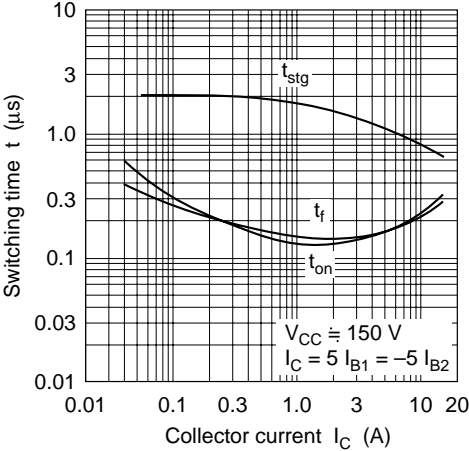
Collector to Emitter Saturation Voltage vs. Base Current

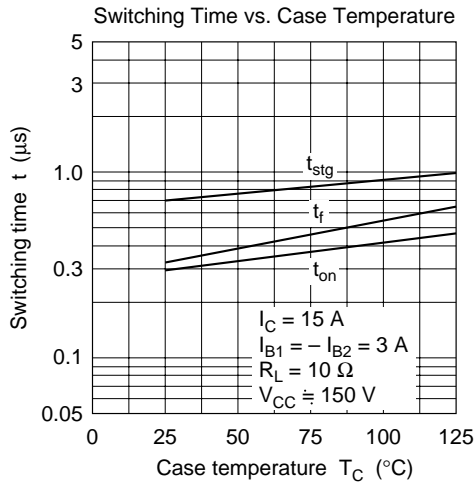


Saturation Voltage vs. Collector Current



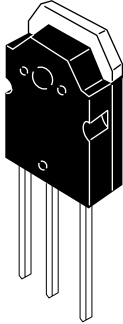
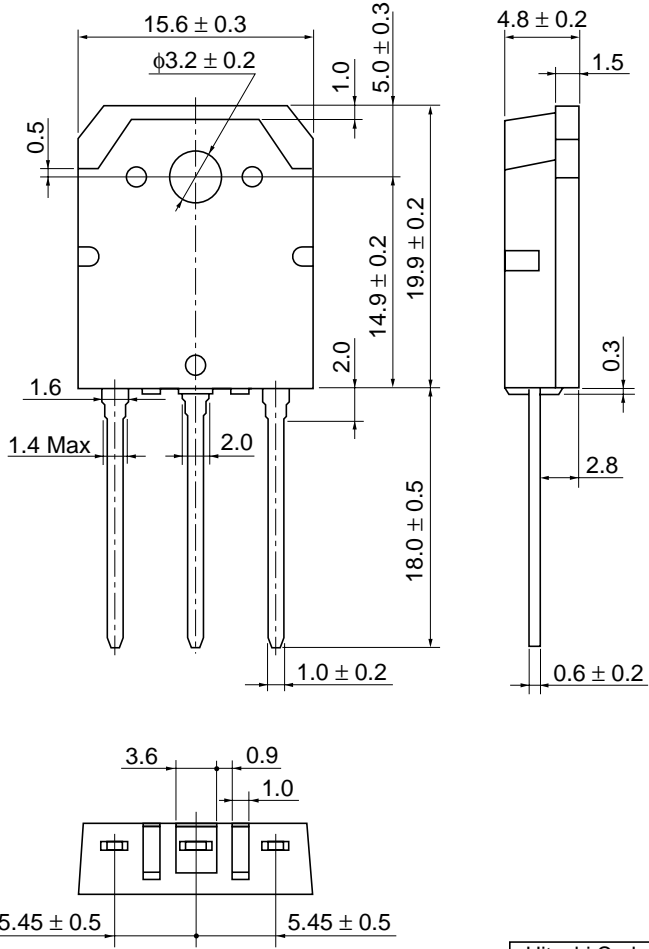
Switching Time vs. Collector Current





Package Dimensions

Unit: mm



Hitachi Code	TO-3P
JEDEC	—
EIAJ	Conforms
Mass (reference value)	5.0 g

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