2SC4499(L)/(S)

Silicon NPN Triple Diffused

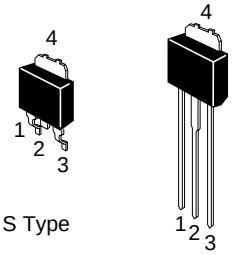
HITACHI

Application

High speed and high voltage switching

Outline

DPAK



S Type

L Type

1. Base
2. Collector
3. Emitter
4. Collector

Hitachi semiconductor

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	0.5	A
Collector peak current	$I_{C(peak)}$	1.0	A
Collector power dissipation	P_C	0.75	W
	P_C*[1]	10	
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

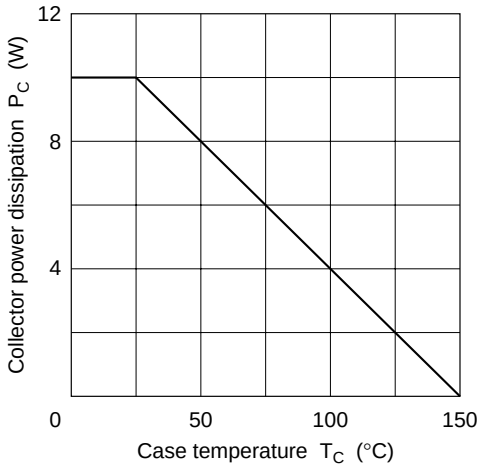
Note: 1. Value at T_C = 25°C.

Electrical Characteristics (Ta = 25°C)

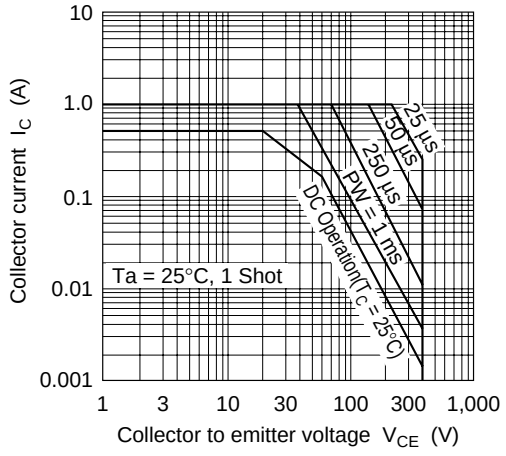
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter sustain voltage	$V_{CEO(sus)}$	400	—	—	V	I_C = 0.1 A, R_{BE} = ∞ L = 100 mH
Emitter to base breakdown voltage	$V_{(BR)EBO}$	10	—	—	V	I_E = 10 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	20	µA	V_{CB} = 400 V, I_E = 0
	I_{CEO}	—	—	50		V_{CE} = 350 V, R_{BE} = ∞
DC current transfer ratio	h_{FE1}	12	—	—		V_{CE} = 5 V, I_C = 0.25 A*[1]
	h_{FE2}	5	—	—		V_{CE} = 5 V, I_C = 0.5 A*[1]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.0	V	I_C = 0.25 A, I_B = 0.05 A*[1]
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	1.5	V	I_C = 0.25 A, I_B = 0.05 A*[1]
Turn on time	t_{on}	—	—	1.0	µs	I_C = 0.5 A, I_{B1} = $-I_{B2}$ = 0.1 A,
Storage time	t_{stg}	—	—	2.0	µs	V_{CC} ≅ 150 V
Fall time	t_f	—	—	1.0	µs	

Note: 1. Pulse test.

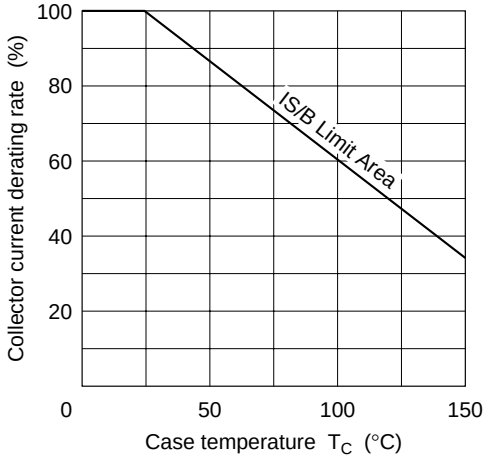
Maximum Collector Dissipation Curve



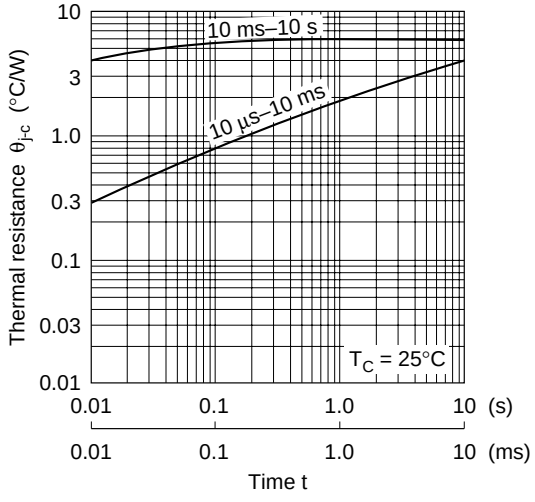
Area of Safe Operation



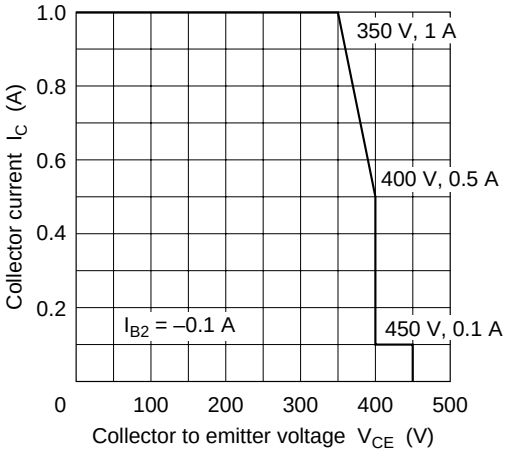
Collector Current Derating Rate



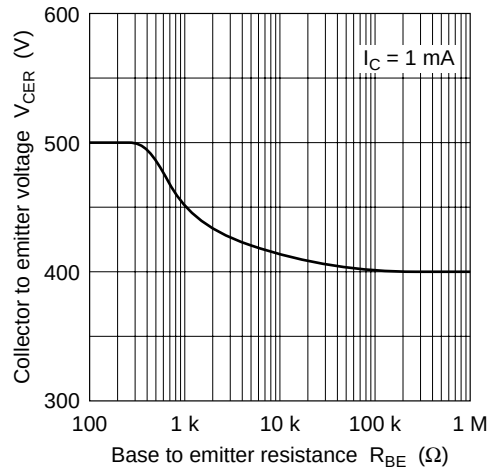
Transient Thermal Resistance



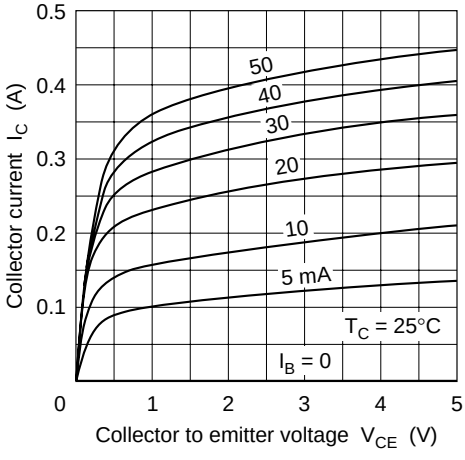
Reverse Bias Area of Safe Operation



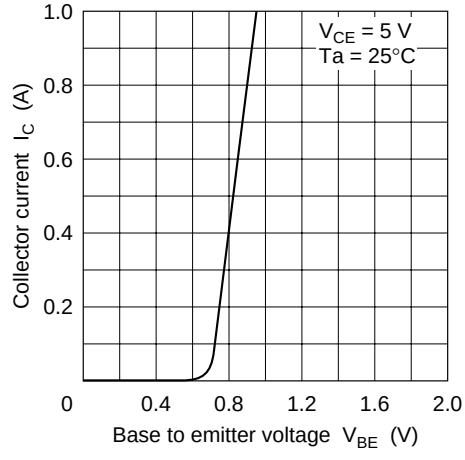
Collector to Emitter Voltage vs. Base to Emitter Resistance



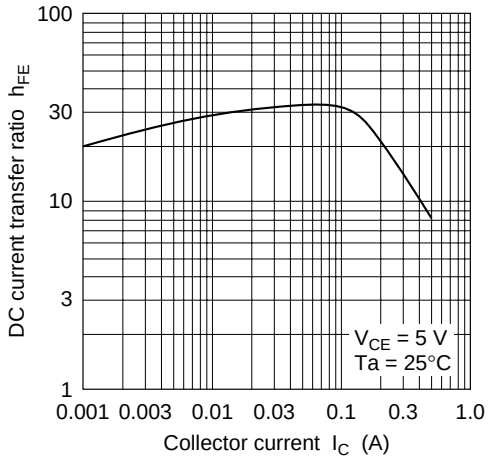
Typical Output Characteristics



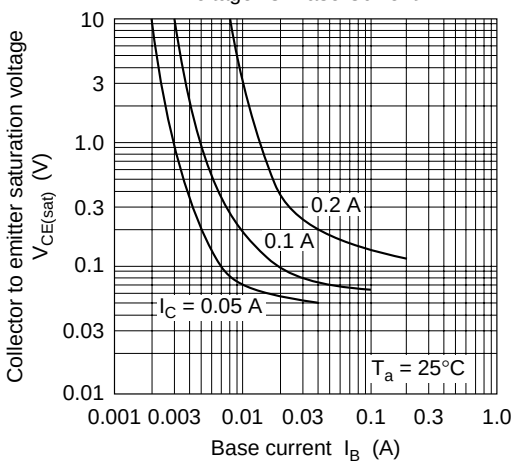
Typical Transfer Characteristics



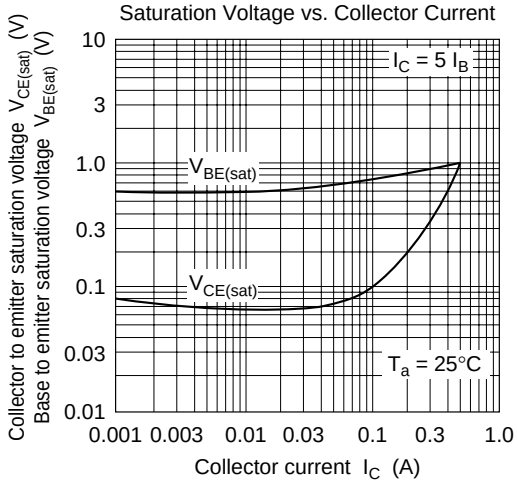
DC Current Transfer Ratio vs. Collector Current



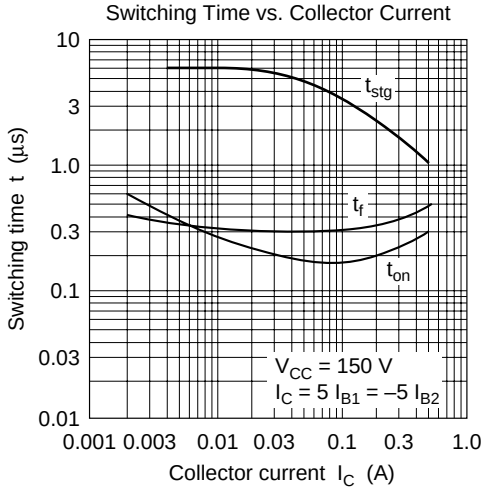
Collector to Emitter Saturation Voltage vs. Base Current

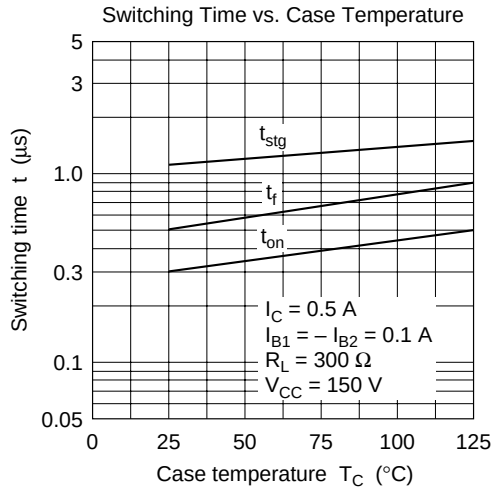


Saturation Voltage vs. Collector Current

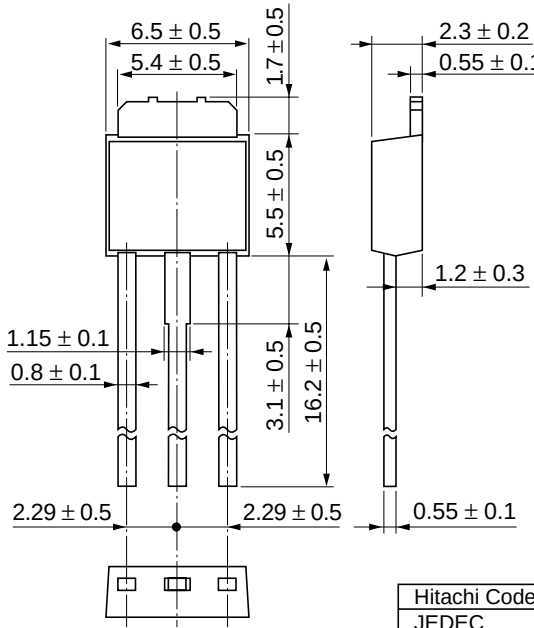


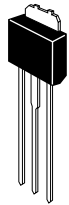
Switching Time vs. Collector Current




Switching Time vs. Case Temperature
Switching time t (µs)
5
3
1.0
0.3
0.1
0.05
0
25
50
75
100
125
Case temperature T_C (°C)
t_{stg}
t_f
t_{on}
I_C = 0.5 A
I_{B1} = – I_{B2} = 0.1 A
R_L = 300 Ω
V_{CC} = 150 V

Unit: mm





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EIAJ	Conforms
Weight (reference value)	0.42 g

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HITACHI

Hitachi, Ltd.
Semiconductor & Integrated Circuits.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

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For further information write to:

Hitachi Semiconductor
(America) Inc.
179 East Tasman Drive,
San Jose,CA 95134
Tel: <1> (408) 433-1990
Fax: <1>(408) 433-0223

Hitachi Europe GmbH
Electronic components Group
Dornacher Straße 3
D-85622 Feldkirchen, Munich
Germany
Tel: <49> (89) 9 9180-0
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.
Electronic Components Group.
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA, United Kingdom
Tel: <44> (1628) 585000
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 049318
Tel: 535-2100
Fax: 535-1533

Hitachi Asia Ltd.
Taipei Branch Office
3F, Hung Kuo Building. No.167,
Tun-Hwa North Road, Taipei (105)
Tel: <886> (2) 2718-3666
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower, World Finance Centre,
Harbour City, Canton Road, Tsim Sha Tsui,
Kowloon, Hong Kong
Tel: <852> (2) 735 9218
Fax: <852> (2) 730 0281
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