2SC2898

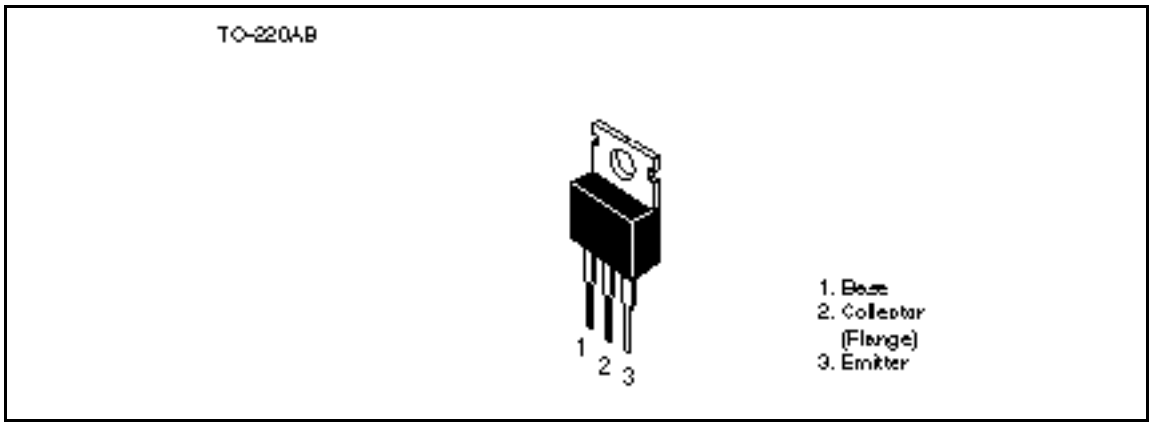
Silicon NPN Triple Diffused

HITACHI

Application

High voltage, high speed and high power switching

Outline



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	8	A
Collector peak current	$I_{C(peak)}$	16	A
Base current	I_B	4	A
Collector power dissipation	P_C*[1]	50	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. Value at T_C = 25°C.

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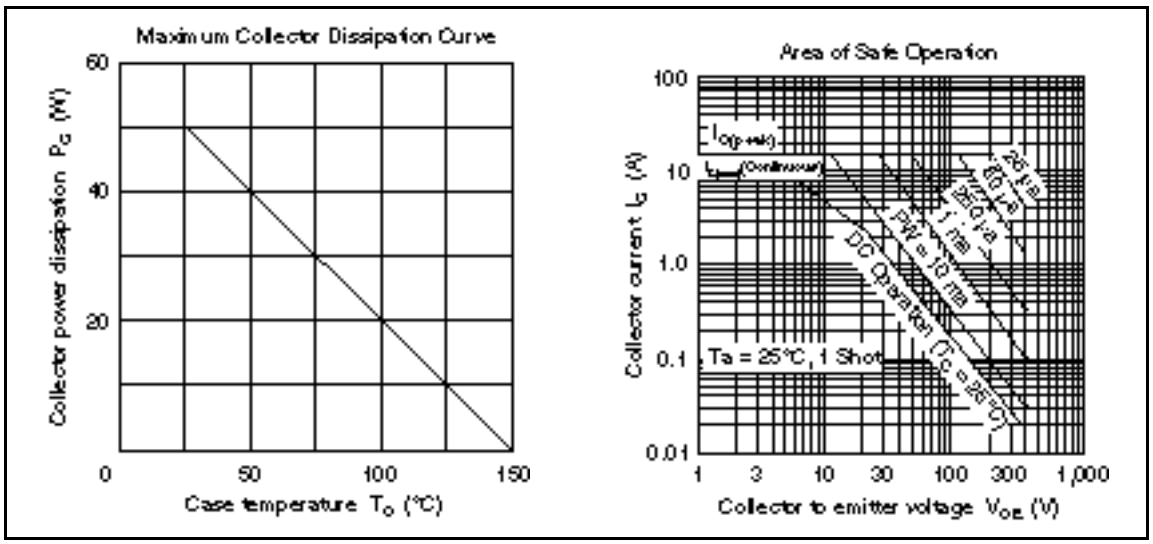
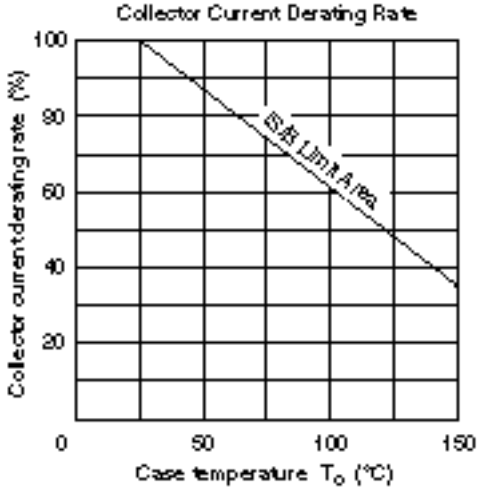
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to emitter sustain voltage	$V_{CEO(sus)}$	400	—	—	V	I_C = 0.2 A, R_{BE} = ∞, L = 100 mH
Collector to emitter sustain voltage	$V_{CEX(sus)}$	400	—	—	V	I_C = 8 A, I_{B1} = 1.6 A, I_{B2} = –0.8 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}	—	—	50	µA	V_{CB} = 400 V, I_E = 0
	I_{CEO}	—	—	50	µA	V_{CE} = 350 V, R_{BE} = ∞
DC current transfer ratio	h_{FE1}	15	—	—		V_{CE} = 5 V, I_C = 4 A*[1]
	h_{FE2}	7	—	—		V_{CE} = 5 V, I_C = 8 A*[1]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.0	V	I_C = 4 A, I_B = 0.8 A*[1]
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	1.5	V	
Turn on time	t_{on}	—	—	0.8	µs	I_C = 8 A, I_{B1} = $-I_{B2}$ = 1.6 A,
Storage time	t_{stg}	—	—	2.0	µs	V_{CC} 150 V
Fall time	t_f	—	—	0.8	µs	

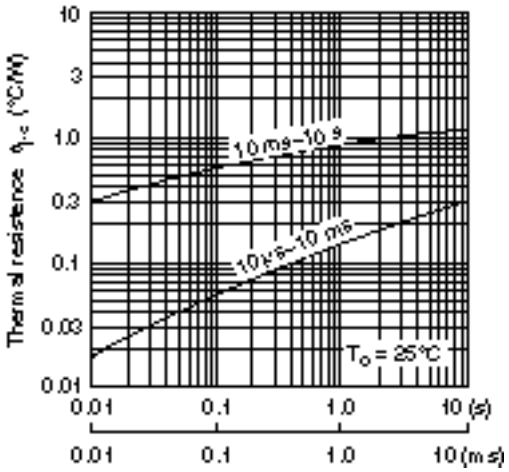
Note: 1. Pulse test



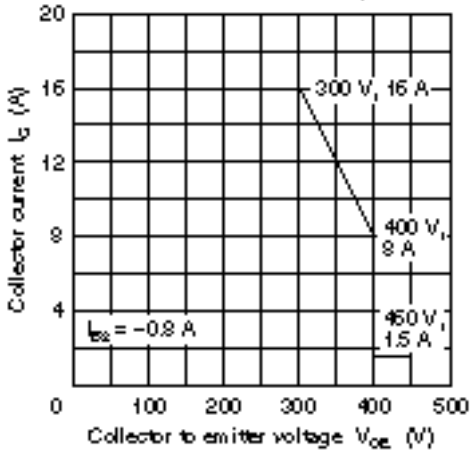
Collector Current Derating Rate



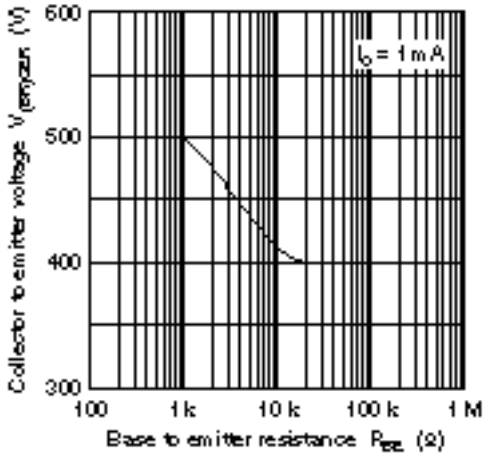
Transient Thermal Resistance

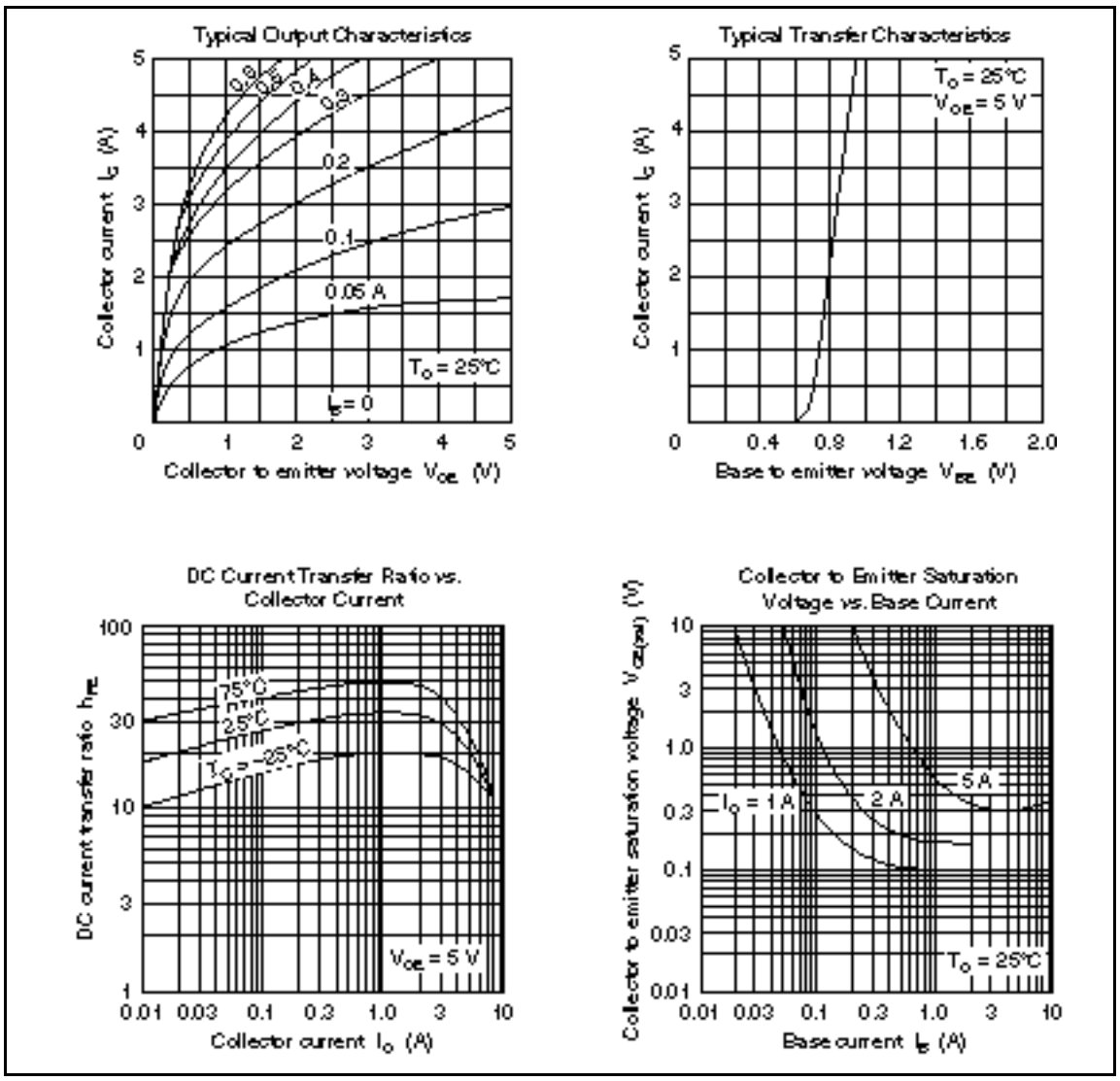


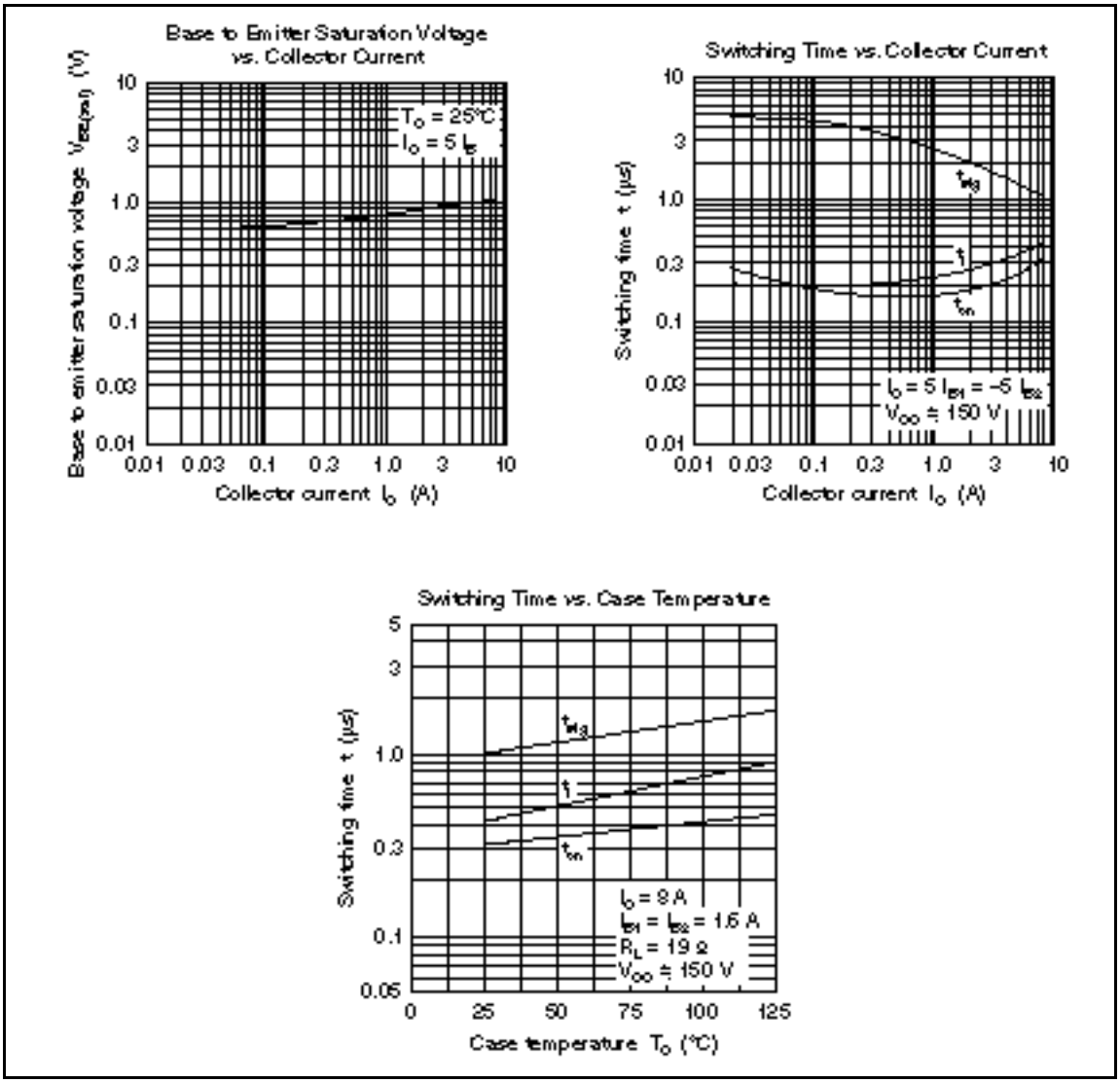
Reverse Bias Area of Safe Operation



Collector to Emitter Voltage vs. Base to Emitter Resistance




Typical Output Characteristics
Collector current I_C (A)
Collector to emitter voltage V_{CE} (V)
0.8
0.6
0.4
0.2
0.1
0.05 A
T_C = 25°C
I_B = 0
Typical Transfer Characteristics
Collector current I_C (A)
Base to emitter voltage V_{BE} (V)
T_C = 25°C
V_{CE} = 5 V
DC Current Transfer Ratio vs. Collector Current
DC current transfer ratio h_{FE}
Collector current I_C (A)
75°C
25°C
–25°C
T_C =
V_{CE} = 5 V
Collector to Emitter Saturation Voltage vs. Base Current
Collector to emitter saturation voltage $V_{CE(sat)}$ (V)
Base current I_B (A)
I_C = 1 A
2 A
5 A
T_C = 25°C


Base to Emitter Saturation Voltage vs. Collector Current
Base to emitter saturation voltage $V_{BE(sat)}$ (V)
T_C = 25°C
I_C = 5 I_B
Collector current I_C (A)
Switching Time vs. Collector Current
Switching time t (µs)
t_{stg}
t_f
t_{on}
I_C = 5 I_{B1} = –5 I_{B2}
V_{CC} ≒ 150 V
Collector current I_C (A)
Switching Time vs. Case Temperature
Switching time t (µs)
t_{stg}
t_f
t_{on}
I_C = 8 A
I_{B1} = I_{B2} = 1.6 A
R_L = 19 Ω
V_{CC} ≒ 150 V
Case temperature T_C (°C)

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