2SD2299

Silicon NPN Triple Diffused

HITACHI

Application

CTV horizontal deflection output

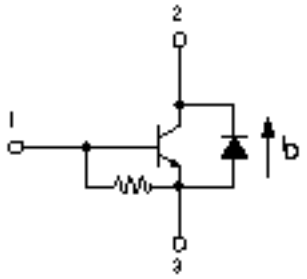
Features

- High breakdown voltage
  V_{CBO} = 1500 V
- Built-in damper diode type

Outline

TO-3PFM

1. Base
2. Collector
3. Emitter



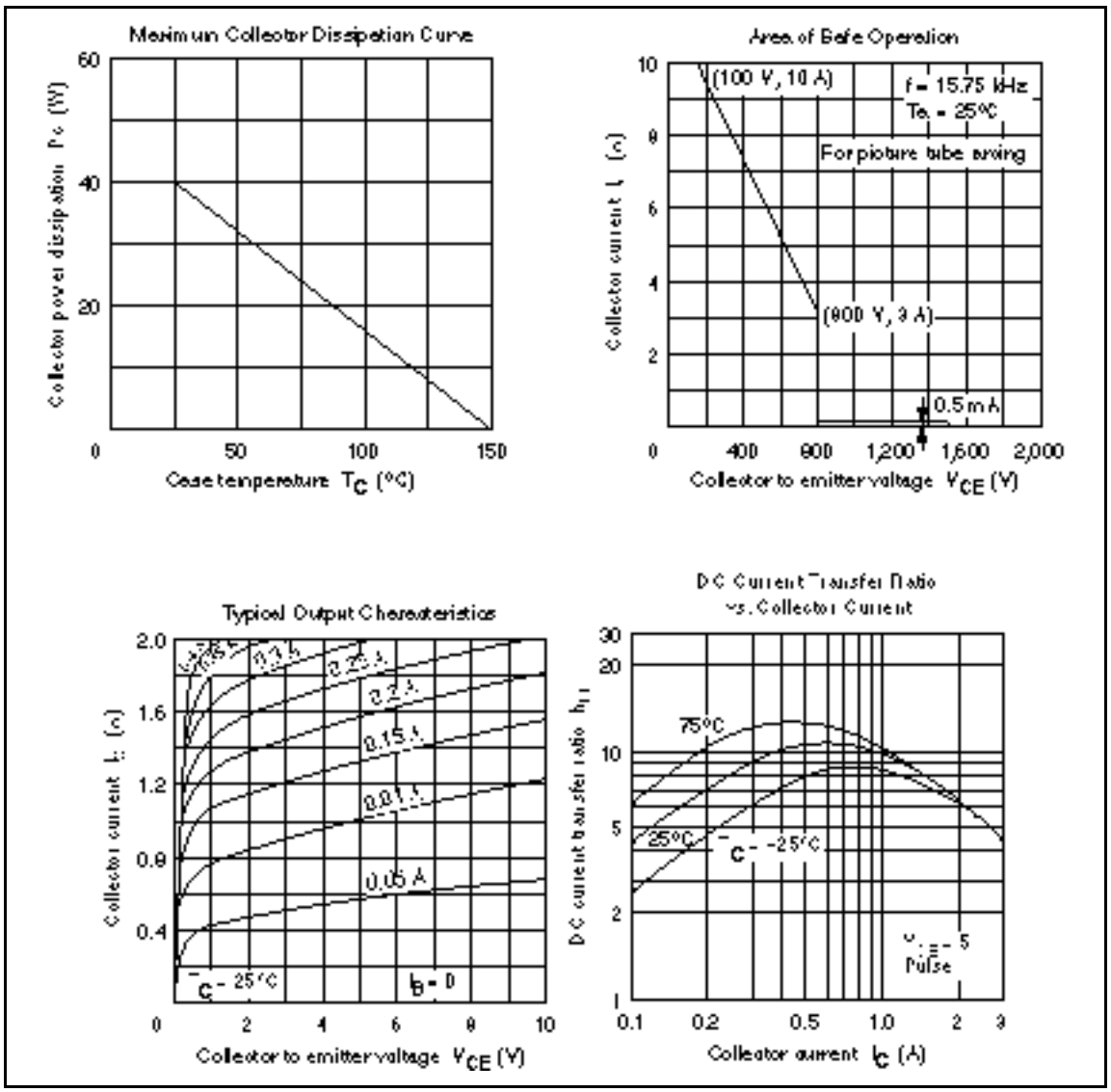
Absolute Maximum Ratings (Ta = 25°C)

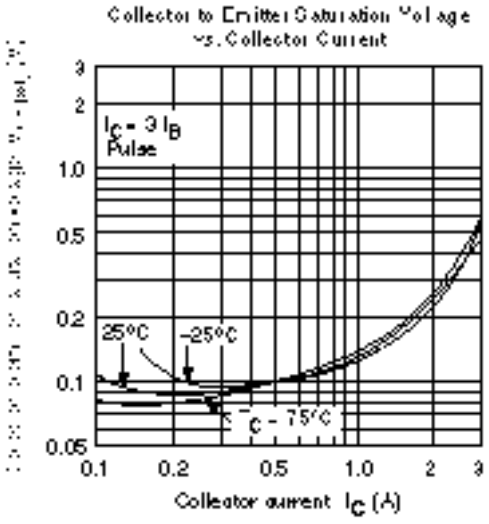
Item	Symbol	Ratings	Unit
Collector to emitter voltage	V_{CES}	1500	V
Emitter to base voltage	V_{EBO}	6	V
Collector current	I_C	3	A
Collector peak current	$I_{C(peak)}$	3.5	A
Collector surge current	$I_{C(surge)}$	10	A
Collector power dissipation	P_C*[1]	40	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C
C to E diode forward current	I_D	3.5	A

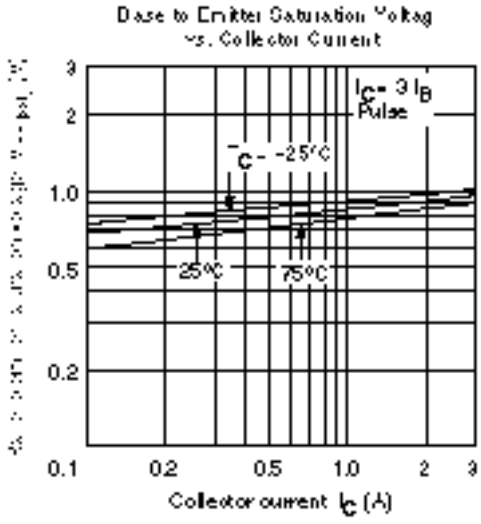
Note: 1. Value at T_C = 25°C.

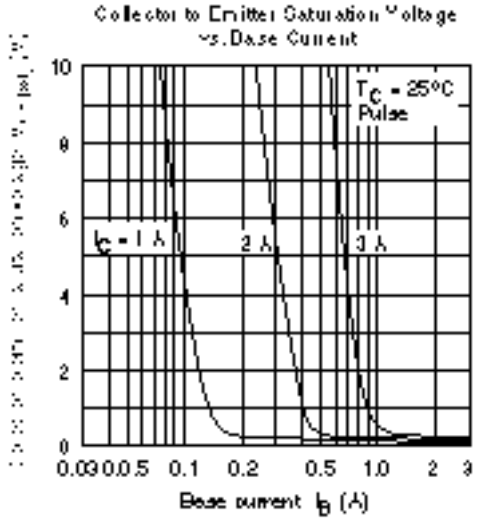
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Emitter to base breakdown voltage	$V_{(BR)EBO}$	6	—	—	V	I_E = 300 mA, I_C = 0
Collector cutoff current	I_{CES}	—	—	500	µA	V_{CE} = 1500 V, R_{BE} = 0
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	5	V	I_C = 2.5 A, I_B = 0.8 A
Base to emitter saturation voltage	$V_{BE(sat)}$	—	—	1.5	V	I_C = 2.5 A, I_B = 0.8 A
C to E diode forward voltage	V_{ECF}	—	—	2.2	V	I_F = 3 A
Fall time	t_f	—	—	0.8	µs	I_{CP} = 2.75 A, I_{B1} = 0.6 A, f_H = 15.75 kHz


Maximum Collector Dissipation Curve
Collector power dissipation Pc (W)
60
40
20
0
50
100
150
Case temperature T_C (°C)
Area of Safe Operation
Collector current I_C (A)
10
8
6
4
2
(100 V, 10 A)
f = 15.75 kHz
T_C = 25°C
For picture tube saving
(900 V, 3 A)
0.5 mA
0
400
800
1,200
1,600
2,000
Collector to emitter voltage V_{CE} (V)
Typical Output Characteristics
Collector current I_C (A)
2.0
1.6
1.2
0.8
0.4
0.25 A
0.2 A
0.15 A
0.1 A
0.05 A
T_C = 25°C
I_B = 0
0
2
4
6
8
10
Collector to emitter voltage V_{CE} (V)
DC Current Transfer Ratio
vs. Collector Current
DC current transfer ratio h_{FE}
30
20
10
5
2
1
75°C
25°C
T_C = −25°C
V_{CE} = 5 V
Pulse
0.1
0.2
0.5
1.0
2
3
Collector current I_C (A)


Collector to Emitter Saturation Voltage
vs. Collector Current
I_C = 3 I_B
Pulse
25°C
–25°C
T_C = 75°C
Collector current I_C (A)


Base to Emitter Saturation Voltage
vs. Collector Current
I_C = 3 I_B
Pulse
T_C = –25°C
25°C
75°C
Collector current I_C (A)


Collector to Emitter Saturation Voltage
vs. Base Current
T_C = 25°C
Pulse
I_C = 1 A
2 A
3 A
Base current I_B (A)

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