NEC

PNP SILICON POWER TRANSISTOR
2SB1151

DESCRIPTION   The 2SB1151 is a Low $V_{CE(sat)}$ transistor which has a large current capability and wide SOA.

It is suitable for DC-DC converter, or driver of solenoid or motor.

FEATURES
- Low Collector Saturation Voltage.
  $V_{CE(sat)} = -0.14$ V TYP. (@ $I_C/I_B = -2.0$ A/-0.2 A)
- Large Current.
  $I_{C(DC)} = -5.0$ A, $I_{C(pulse)} = -8.0$ A
- High Total Power Dissipation. : $P_T = 1.3$ W
- Complementary to 2SD1691.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature . . . . −55 to +150 °C

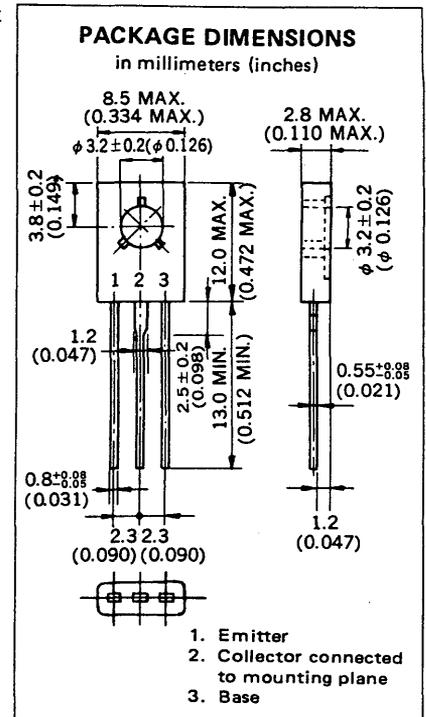Junction Temperature . . . . +150 °C Maximum

Maximum Power Dissipations

Total Power Dissipation ($T_a = 25$ °C) . . . . 1.3 W

Total Power Dissipation ($T_c = 25$ °C) . . . . 20 W

Maximum Voltages and Currents ($T_a = 25$ °C)

V_{CBO}	Collector to Base Voltage	−60	V
V_{CEO}	Collector to Emitter Voltage	−60	V
V_{EBO}	Emitter to Base Voltage	−7.0	V
$I_{C(DC)}$	Collector Current	−5.0	A
$I_{C(pulse)}$*	Collector Current	−8.0	A
$I_{B(DC)}$	Base Current	−1.0	A

* PW ≦ 10 ms, Duty Cycle ≦ 50 %

PACKAGE DIMENSIONS
in millimeters (inches)

1. Emitter
2. Collector connected to mounting plane
3. Base

ELECTRICAL CHARACTERISTICS ($T_a = 25$ °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$V_{CE(sat)}$**	Collector Saturation Voltage		−0.14	−0.3	V	$I_C = -2.0$ A, $I_B = -0.2$ A
$V_{BE(sat)}$**	Base Saturation Voltage		−0.9	−1.2	V	$I_C = -2.0$ A, $I_B = -0.2$ A
h_{FE1}**	DC Current Gain	60			−	$V_{CE} = -1.0$ V, $I_C = -0.1$ A
h_{FE2}**	DC Current Gain	100	200	400	−	$V_{CE} = -1.0$ V, $I_C = -2.0$ A
h_{FE3}**	DC Current Gain	50			−	$V_{CE} = -2.0$ V, $I_C = -5.0$ A
I_{CBO}	Collector Cutoff Current			−10	μA	$V_{CB} = -50$ V, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			−10	μA	$V_{EB} = -7.0$ V, $I_C = 0$
t_{on}	Turn On Time		0.15	1.0	μs	$I_C = -2.0$ A, $I_{B1} = -I_{B2} = 0.2$ A
t_{stg}	Storage Time		0.78	2.5	μs	$R_L = 5.0$ Ω, $V_{CC} = -10$ V
t_f	Fall Time		0.18	1.0	μs	

** PW ≦ 350 μs, Duty Cycle ≦ 2 %

Classification of h_{FE2}

Rank	M	L	K
Range	100 to 200	160 to 320	200 to 400

Test Conditions: $V_{CE} = -1.0$ V, $I_C = -2.0$ A