Bipolar Transistors Silicon PNP Epitaxial Type

TDTA114Y

1. Applications

- Switching
- Inverter Circuits
- Driver Circuits

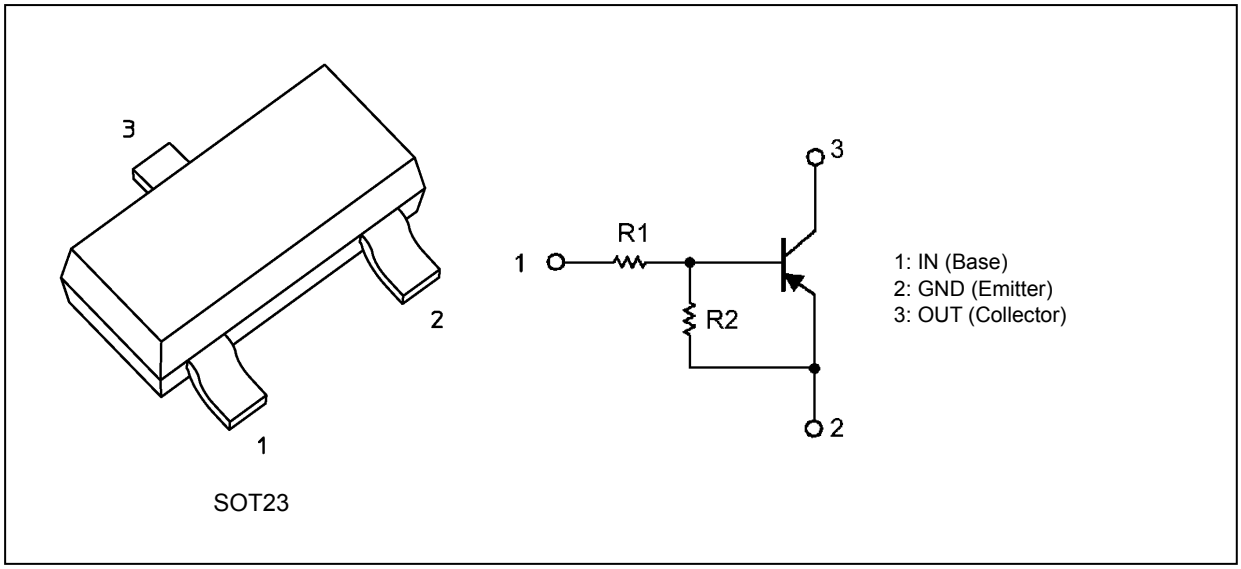
2. Features

(1) The integrated bias resistor reduces the number of external parts required, making it possible to reduce system size and assembly time.

(2) Toshiba offers transistors with a wide range of resistance to accommodate various circuit designs.

(3) Complementary to TDTC114Y

3. Packaging and Internal Circuit



4. Absolute Maximum Ratings (Note) (Unless otherwise specified, T_a = 25 °C)

Characteristics	Symbol	Rating	Unit
Supply voltage	V_{CC}	-50	V
Output current	I_O	-100	mA
Power dissipation	P_D	320	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to 150	°C

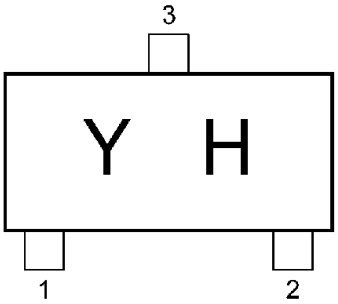
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Start of commercial production
2016-03

5. Electrical Characteristics (Unless otherwise specified, T_a = 25 °C)

Characteristics	Symbol	Note	Test Condition	Min	Typ.	Max	Unit
Input voltage (off)	$V_{I(off)}$		V_{CC} = -5 V, I_O = -0.1 mA	—	—	-0.5	V
Input voltage (on)	$V_{I(on)}$		V_O = -0.3 V, I_O = -1 mA	-1.1	—	—	V
Output voltage	$V_{O(on)}$		I_O = -10 mA, I_I = -0.5 mA	—	-0.1	-0.3	V
Input bias current	I_I		V_I = -5 V	—	—	-0.88	mA
Output current	$I_{O(off)}$		V_{CC} = -50 V, V_I = 0 V	—	—	-500	nA
DC current gain	G_I		V_O = -5 V, I_O = -5 mA	90	—	—	—
Input resistance	R_1		—	7	10	13	kΩ
Resistance ratio	R_2/R_1		—	3.7	4.7	5.7	—
Transition frequency	f_T		V_{CE} = -10 V, I_E = 5 mA, f = 100 MHz	—	250	—	MHz

6. Marking



7. Characteristics Curves (Note)

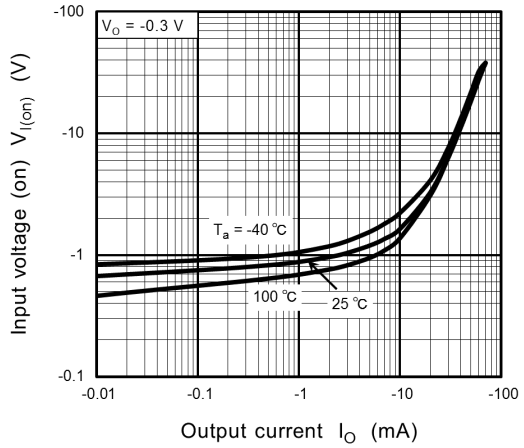


Fig. 7.1 $V_{I(on)}$ - I_O

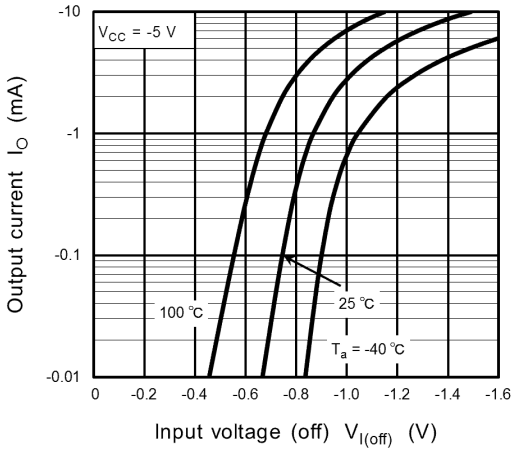


Fig. 7.2 I_O - $V_{I(off)}$

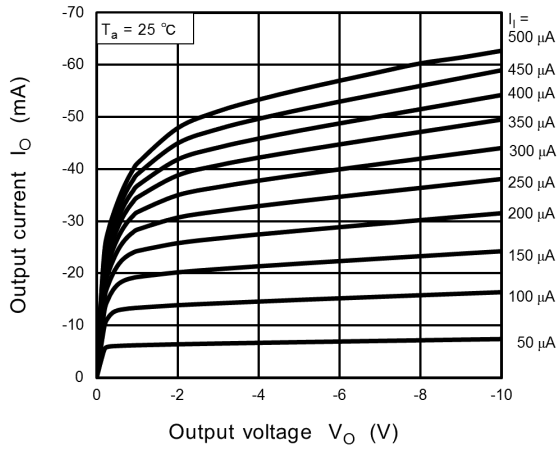


Fig. 7.3 I_O - V_O

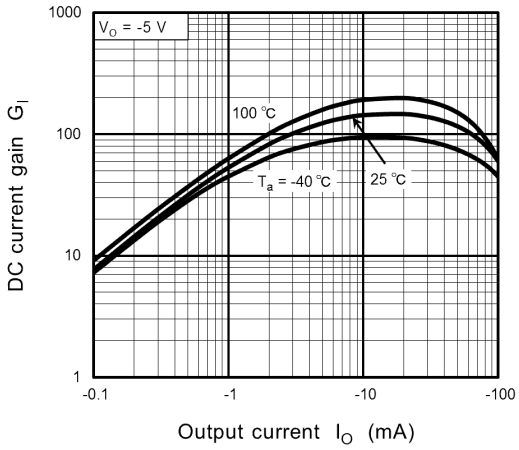


Fig. 7.4 G_I - I_O

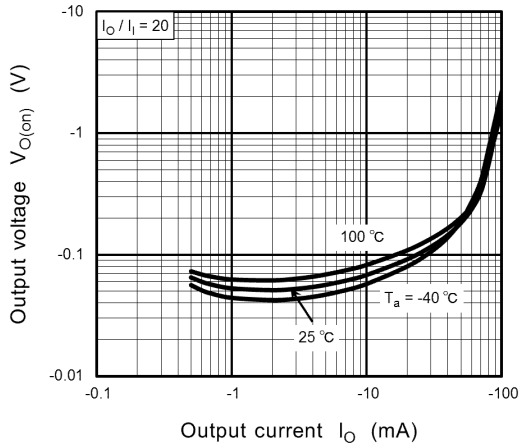
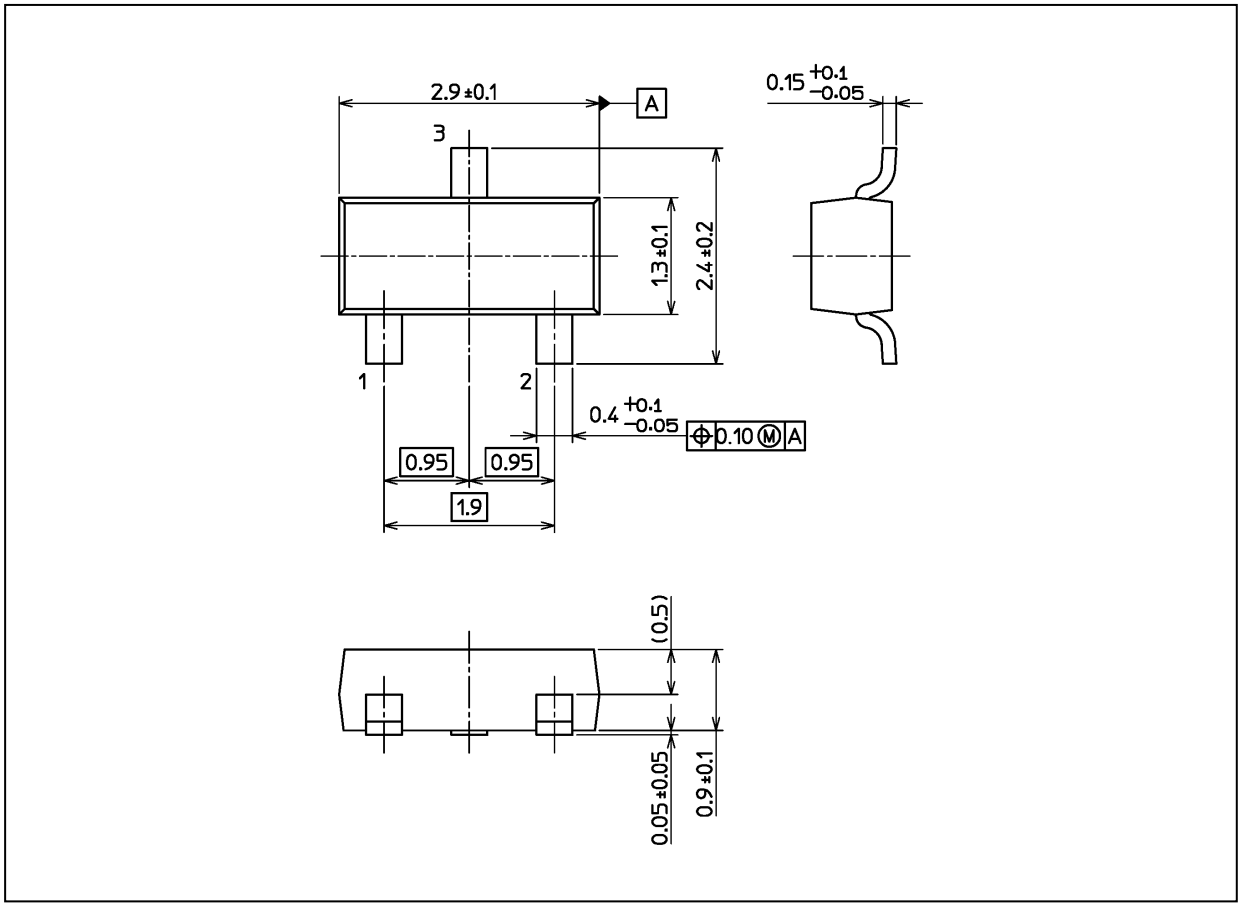


Fig. 7.5 $V_{O(on)}$ - I_O

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

Package Dimensions

Unit: mm



Weight: 9 mg (typ.)

Package Name(s)
Nickname: SOT23

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