

DTA114EE

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DTA114EE

150mW Bias Resistor PNP Transistor

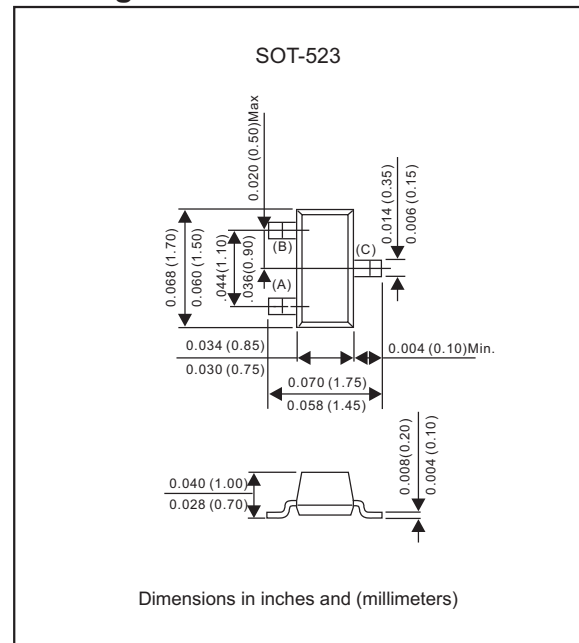
Features

- Built-in bias resistors enable the configuration of an inverter circuit without external input resistors (see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow negative bias of the input. There is also the advantage of almost completely eliminating parasitic effects..
- Only the on/off conditions need to be set for operation, it makes the device designed easily.
- Suffix "-H" indicates Halogen free parts, ex. DTA114EE-H.

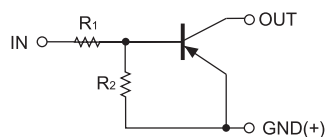
Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-523
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.003 gram

Package outline



Equivalent Circuit

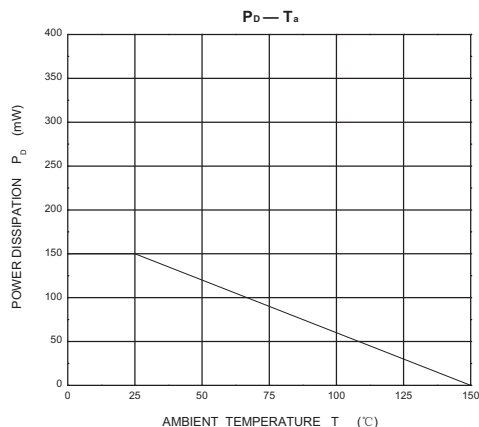
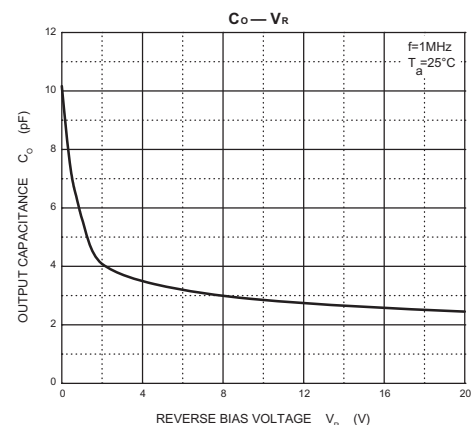
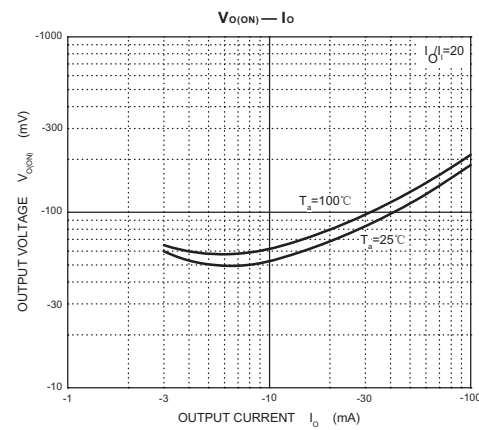
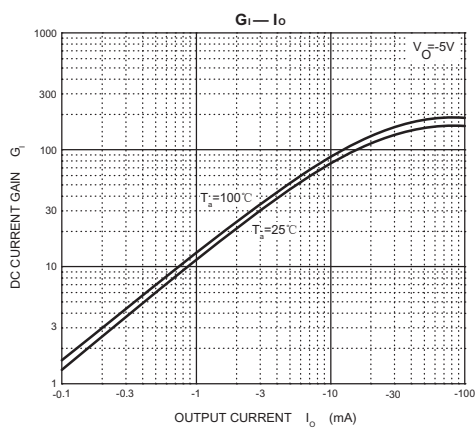
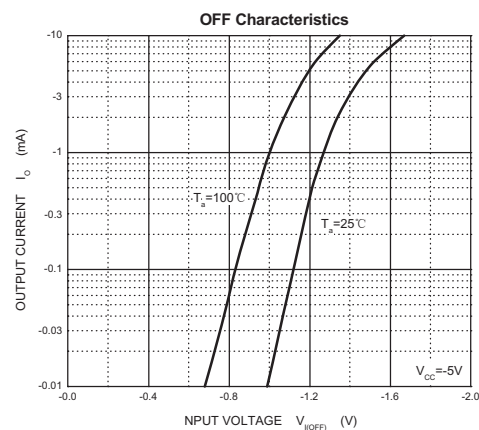
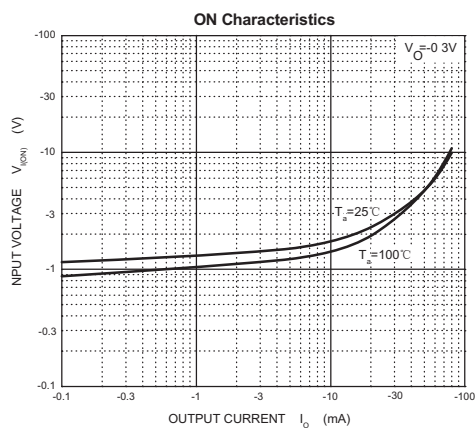


Maximum ratings (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	Symbol	Limits	UNIT
Supply Voltage	V_{CC}	-50	V
Input Voltage	V_{IN}	-40~+10	V
Output Current	I_O	-50	mA
Peak Collector Current	I_{CM}	-100	mA
Power Dissipation	P_D	150	mW
Operating junction temperature range	T_J	-55 to +150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

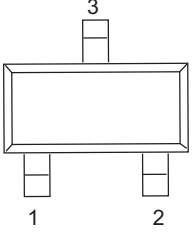
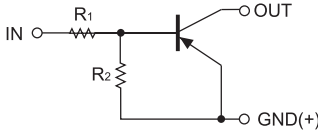
Electrical characteristics (AT $T_a=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Input Voltage	$V_{CC}=-5\text{V}, I_o=-100\mu\text{A}$	$V_{I(off)}$	-0.5			V
	$V_o=-0.3\text{V}, I_o=-10\text{mA}$	$V_{I(on)}$			-3.0	V
Output Voltage	$I_o/I_i=-10\text{mA}/-0.5\text{mA}$	$V_{O(on)}$			-0.3	V
Input Current	$V_i=-5\text{V}$	I_i			-0.88	mA
Output Current	$V_{CC}=-50\text{V}, V_i=0$	$I_{O(off)}$			-0.5	μA
DC Current Gain	$V_o=-5\text{V}, I_o=-5\text{mA}$	G_i	30			—
Input Resistance		R_i	7	10	13	$\text{K}\Omega$
Resistance Ratio		R_2/R_1	0.8	1	1.2	—
Transition Frequency	$V_o=-10\text{V}, I_o=-5\text{mA}, f=100\text{MHz}$	f_t		250		MHz

Rating and characteristic curves (DTA114EE)

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Pinning information

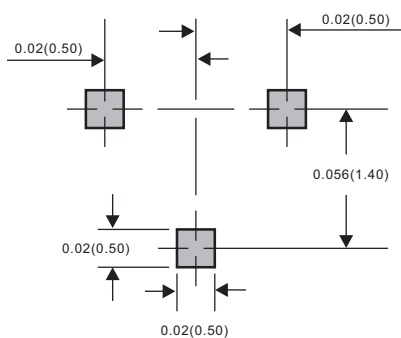
Pin	Simplified outline	Symbol
Pin1 IN Pin2 GND Pin3 OUT		

Marking

Type number	Marking code
DTA114EE	14

Suggested solder pad layout

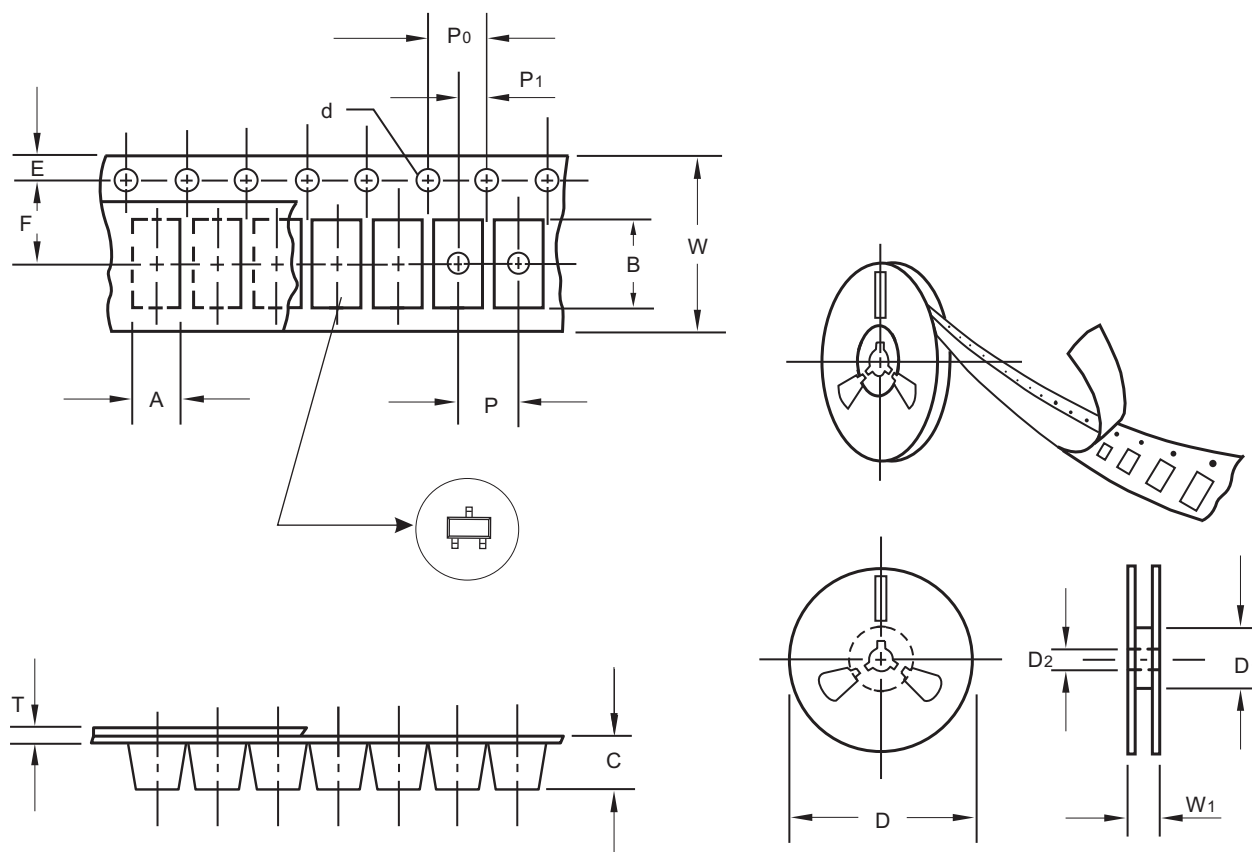
SOT-523



Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-523
Carrier width	A	0.1	1.85
Carrier length	B	0.1	1.85
Carrier depth	C	0.1	0.875
Sprocket hole	d	0.1	1.5
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	60.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	9.50

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

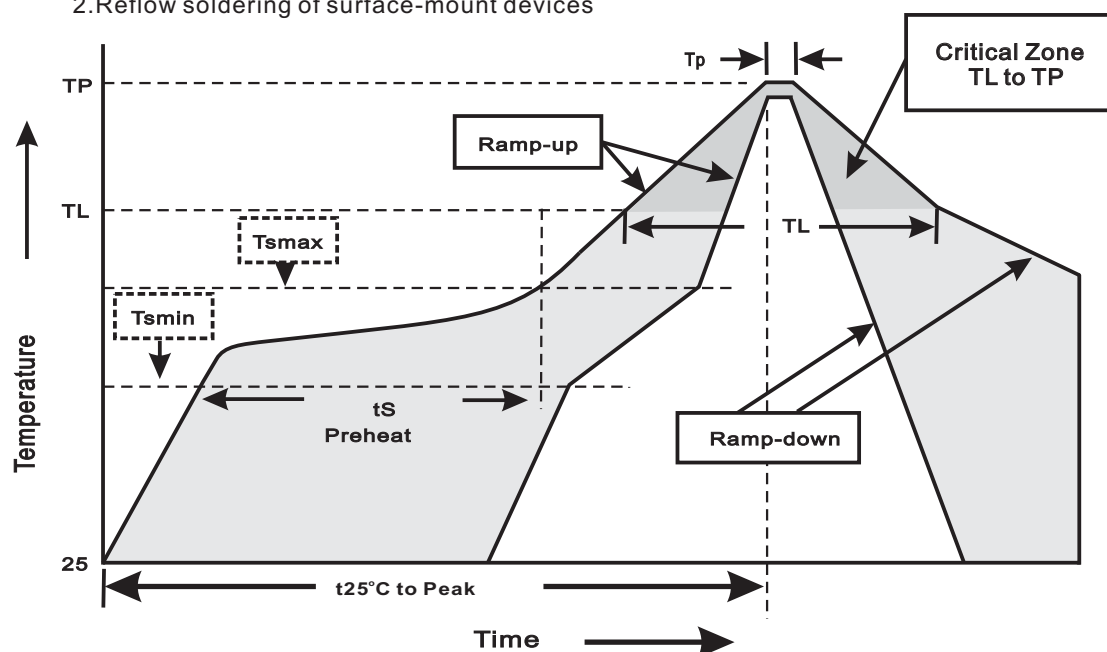
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-523	7"	3,000	4.0	30,000	183*183*123	178	382*262*387	240,000	9.5

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(T_{smin}) -Temperature Max(T_{smax}) -Time(min to max)(t_s)	150°C 200°C 60~120sec
T_{smax} to T_L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes