

DTA144EE

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DTA144EE

PNP Silicon Epitaxial Planar Digital Transistor

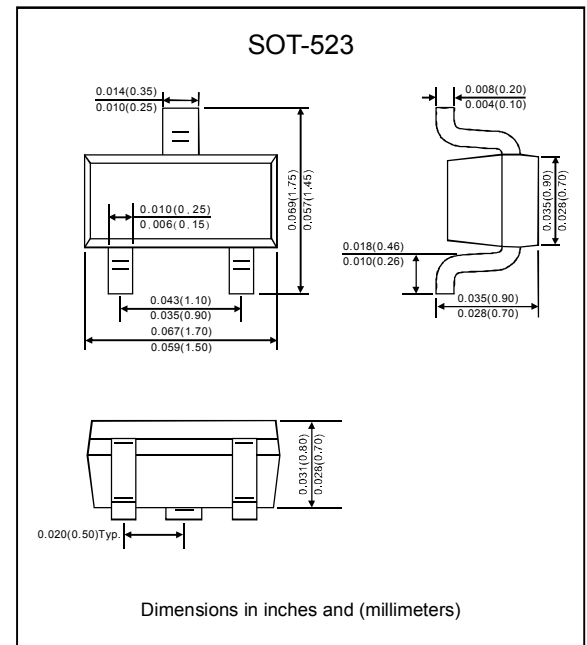
Features

- Built-In bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- Only the on/off conditions need to be set for operation, making device design easy.
- We declare that the material of product compliance with RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. DTA144EE-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

Package outline



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

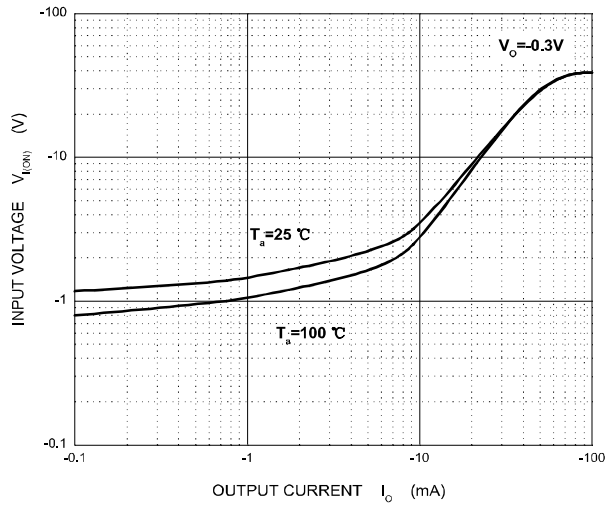
Parameter	Symbol	Value	Unit
Supply voltage	$-V_{CC}$	50	V
Input voltage	V_{IN}	-40 to +10	V
Output current	$-I_O$	30	mA
Peak collector current	$-I_{CM}$	100	mA
Power dissipation	P_D	150	mW
Junction temperature	T_J	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to +150	$^\circ\text{C}$

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

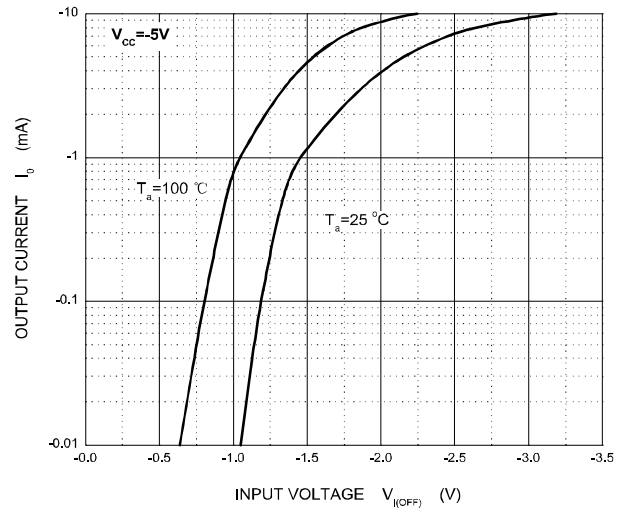
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
DC current gain	$-V_O=5V, -I_O=5mA$	G_I	68			
Input current	$-V_i=5V$	$-I_i$			0.18	mA
Output current	$-V_{CC}=50V, V_i=0V$	$-I_{O(off)}$			0.5	μA
Output voltage	$-I_O=5mA / -I_i=0.25mA$	$-V_{O(on)}$			0.3	V
Input off voltage	$-V_O=0.3V, -I_O=2mA$	$-V_{I(on)}$			3	V
	$-V_{CC}=5V, -I_O=100\mu A$	$-V_{I(off)}$	0.5			V
Transition frequency	$-V_O=10V, -I_O=5mA, f=100MHz$	f_T		250		MHZ
Input resistance		R_1	32.9	47	61.1	K Ω
Resistance ratio		R_2 / R_1	0.8	1	1.2	

Rating and characteristic curves (DTA144EE)

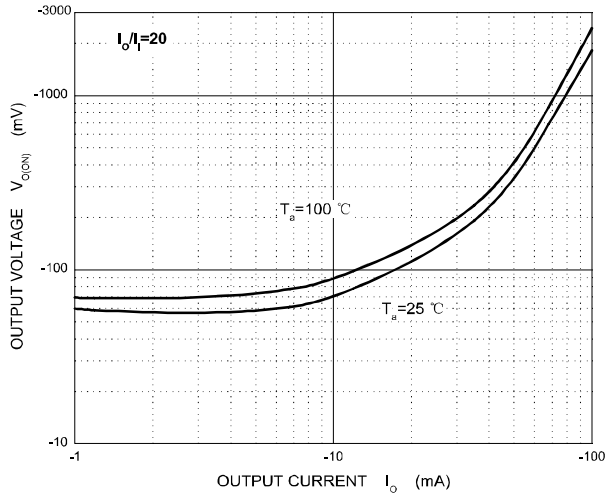
ON Characteristics



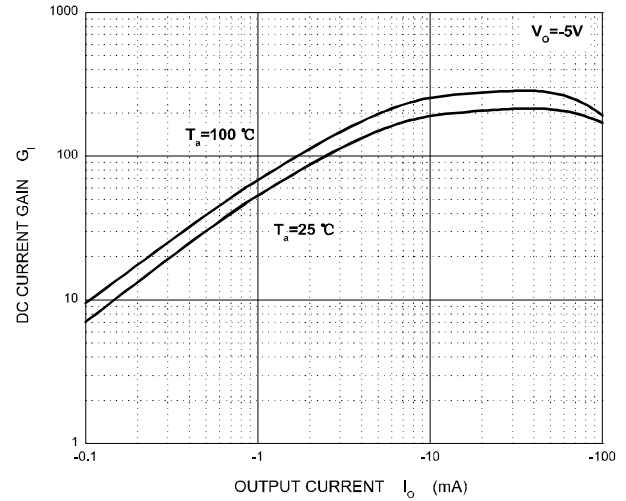
OFF Characteristics



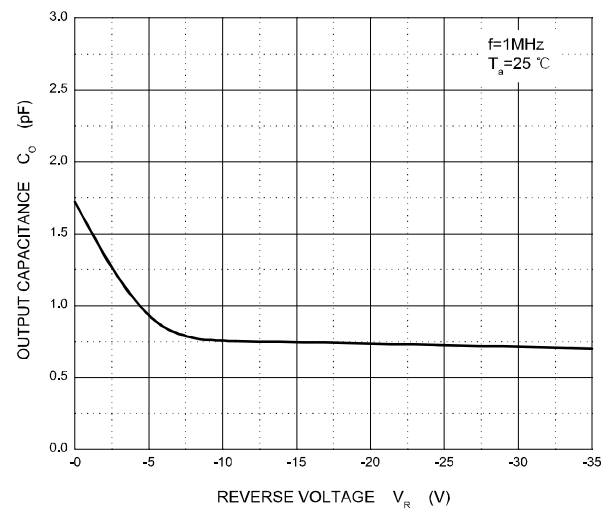
$V_{O(ON)} - I_O$



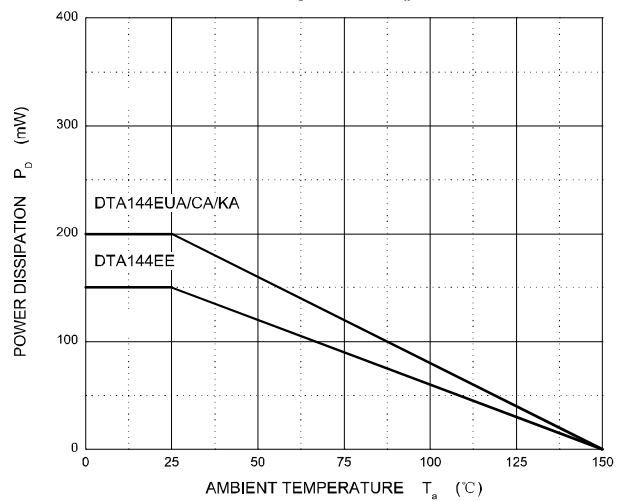
$G_I - I_O$



$C_O - V_R$

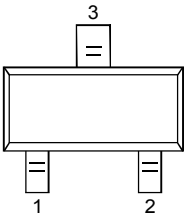
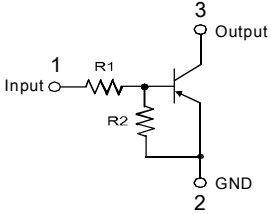


$P_D - T_a$



DTA144EE

Pinning information

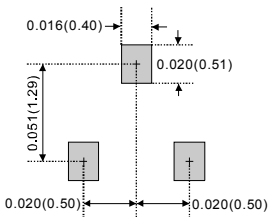
Pin	Simplified outline	Symbol
Pin1 BASE Pin2 EMITTER Pin3 COLLECTOR		

Marking and resistor values

Type number	Marking code
DTA144EE	16

Suggested solder pad layout

SOT-523

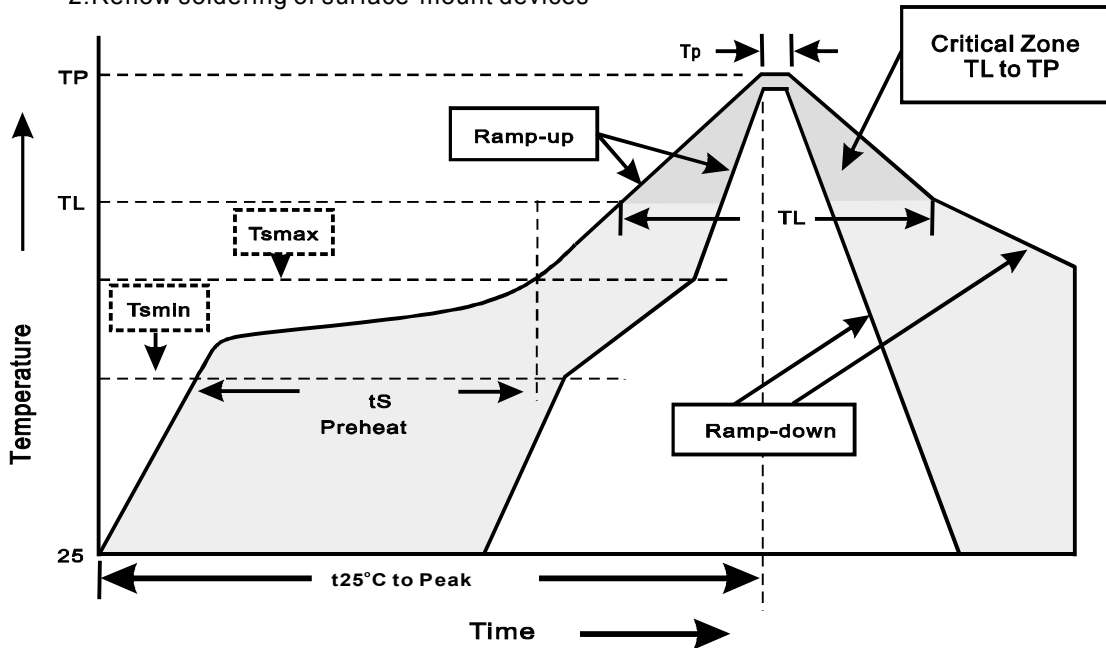


Dimensions in inches and (millimeters)

DTA144EE

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