DTA143EUA

List

DTA143EUA

PNP Silicon Epitaxial Planar Digital Transistor

Features

- Built-in bias resistors that implies easy ON/OFF applications.
- The bias resistors are thin-film resistors with complete isolation to allow positive input.
- We declare that the material of product compliance with RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. DTA143EUA-H.

Applications

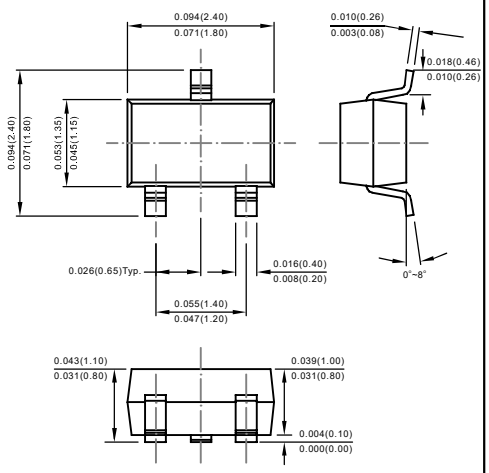
- Inverter, Interface, Driver

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-323
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any

Package outline

SOT-323



Dimensions in inches and (millimeters)

Maximum ratings (At T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector to emitter voltage	$-V_{CC}$	50	V
Input voltage	V_{IN}	-30 to +10	V
Output current	$-I_{OUT}$	100	mA
Peak collector current	$-I_{C(MAX)}$	100	mA
Power dissipation	P_D	200	mW
Junction temperature	T_j	150	℃
Storage temperature range	T_{stg}	-55 to +150	℃

Electrical characteristics (At T_A=25°C unless otherwise noted)

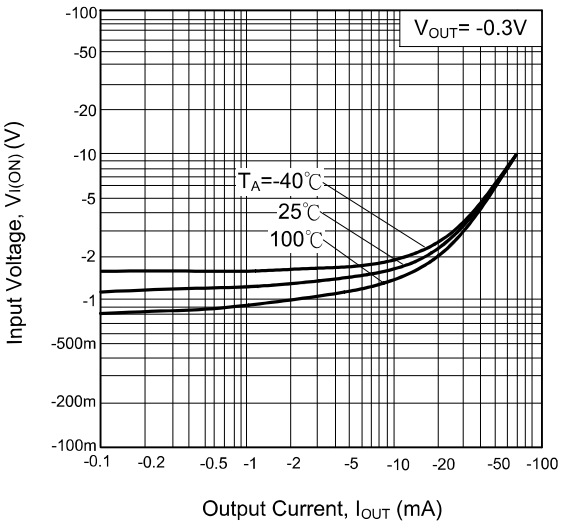
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Input voltage	$-V_{CC}$=5V, $-I_{OUT}$=100μA	$-V_{IN(OFF)}$			0.5	V
	$-V_{OUT}$=0.3V, $-I_{OUT}$=20mA	$-V_{IN(ON)}$	3			V
Output voltage	$-I_{OUT}$ / $-I_{IN}$=10mA/0.5mA	$-V_{OUT(ON)}$		0.1	0.3	V
Input current	$-V_{IN}$=5V	$-I_{IN}$			1.8	mA
Output current	$-V_{CC}$=50V, V_{IN}=0V	$-I_{OUT(OFF)}$			0.5	μA
DC current gain	$-V_{OUT}$=5V, $-I_{OUT}$=10mA	h_{FE}	20			
Transition frequency	$-V_{CE}$=10V, $-I_E$=5mA, f=100MHz (Note 2)	f_T		250		MHz
Input resistance		R_1	3.29	4.7	6.11	KΩ
Resistance ratio		R_2 / R_1	0.8	1	1.2	

Note :

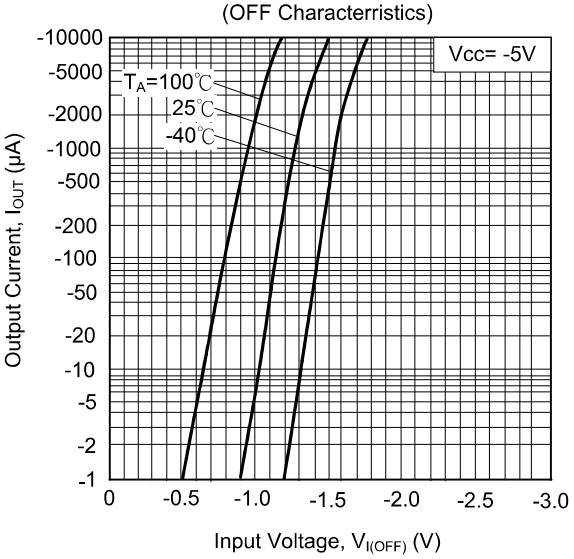
1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. Transition frequency of the device.

Rating and characteristic curves (DTA143EUA)

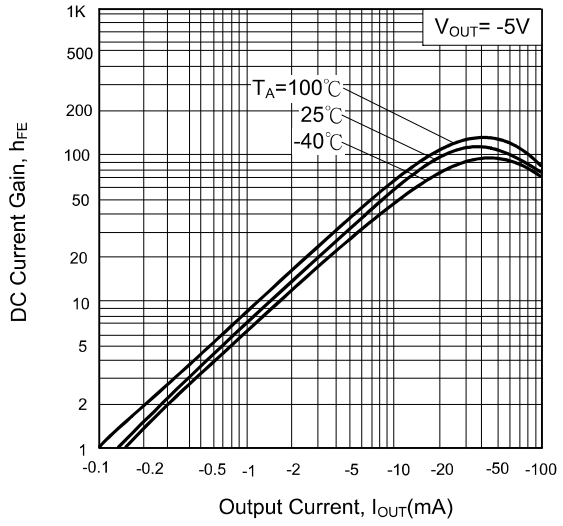
Input Voltage vs. Output Current
(ON Characterristics)



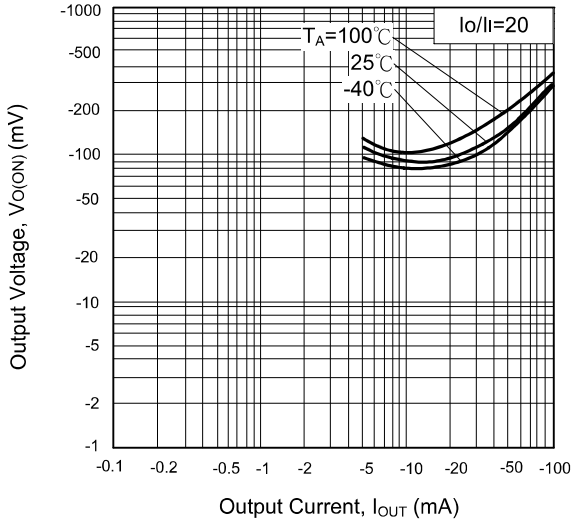
Output Current vs. Input Voltage
(OFF Characterristics)



DC Current Gain vs. Output Current



Output Voltage vs. Output Current



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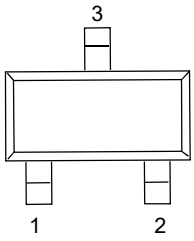
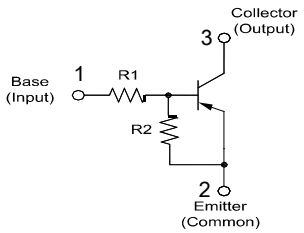
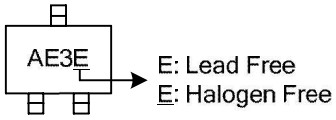
Pinning information

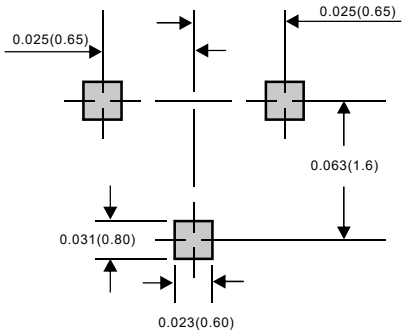
Pin	Simplified outline	Symbol
Pin1 BASE Pin2 EMITTER Pin3 COLLECTOR		

Marking and resistor values



Suggested solder pad layout

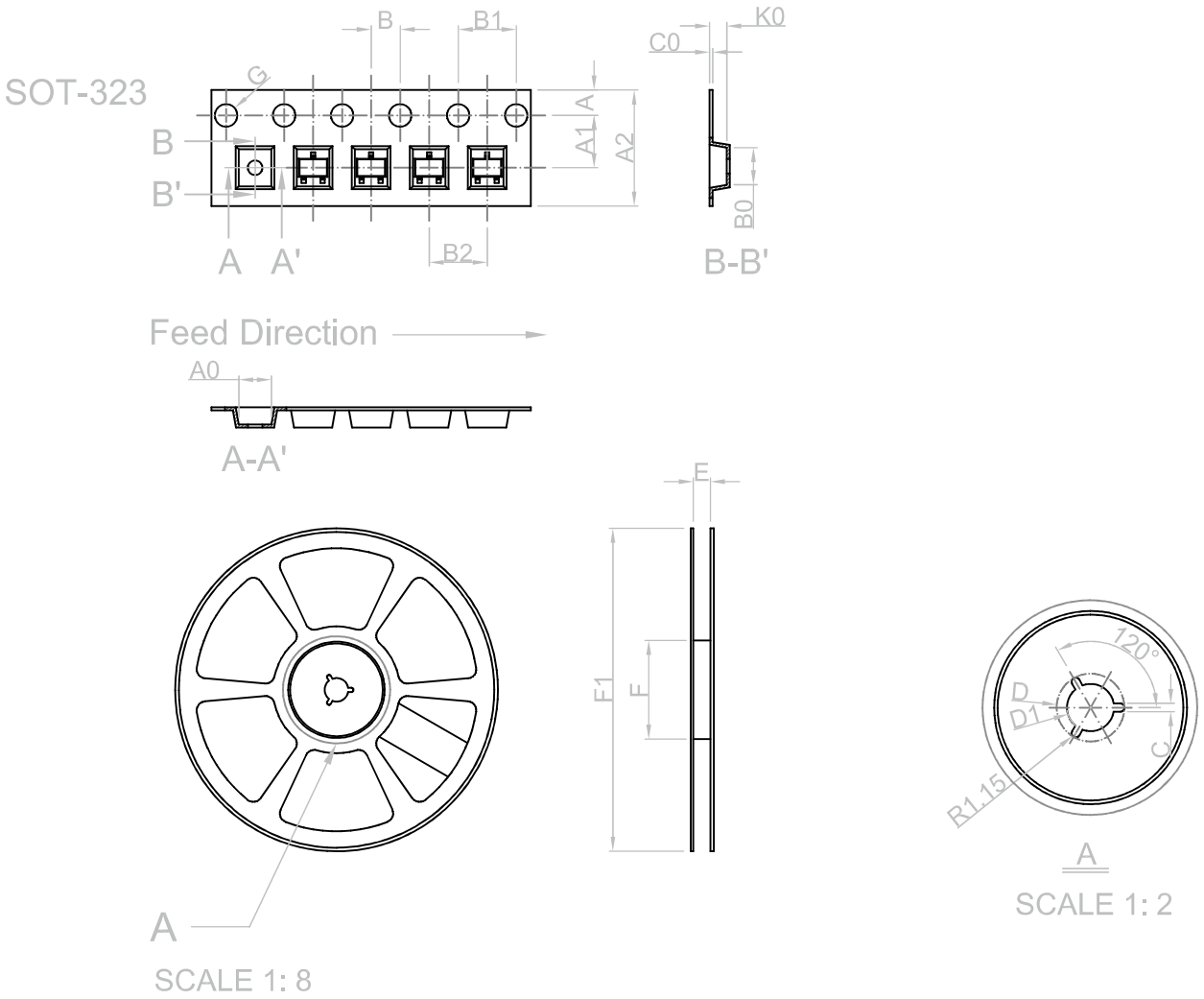
SOT-323



Dimensions in inches and (millimeters)

DTA143EUA

Packing information



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	1.65	1.85	0.065	0.073
A1	3.40	3.60	0.134	0.142
A2	7.90	8.30	---	0.327
B	1.95	2.05	0.077	0.081
B1	3.90	4.10	0.154	0.161
B2	3.90	4.10	0.154	0.161
C	2.20	2.40	0.087	0.094
D	18.30	19.10	0.720	0.752
D1	12.80	13.40	0.504	0.528
E	9.30	9.70	0.366	0.382
F	53.90	54.90	2.122	2.161
F1	177.00	179.00	6.969	7.047
G	1.50	1.60	0.059	0.063
A0	2.20	2.40	0.087	0.094
B0 (SOT-323)	2.45	2.65	0.096	0.104
B0 (SOT-353,363)	2.50	2.70	0.098	0.106
C0	0.20	0.30	0.008	0.012
K0	1.10	1.30	0.043	0.051

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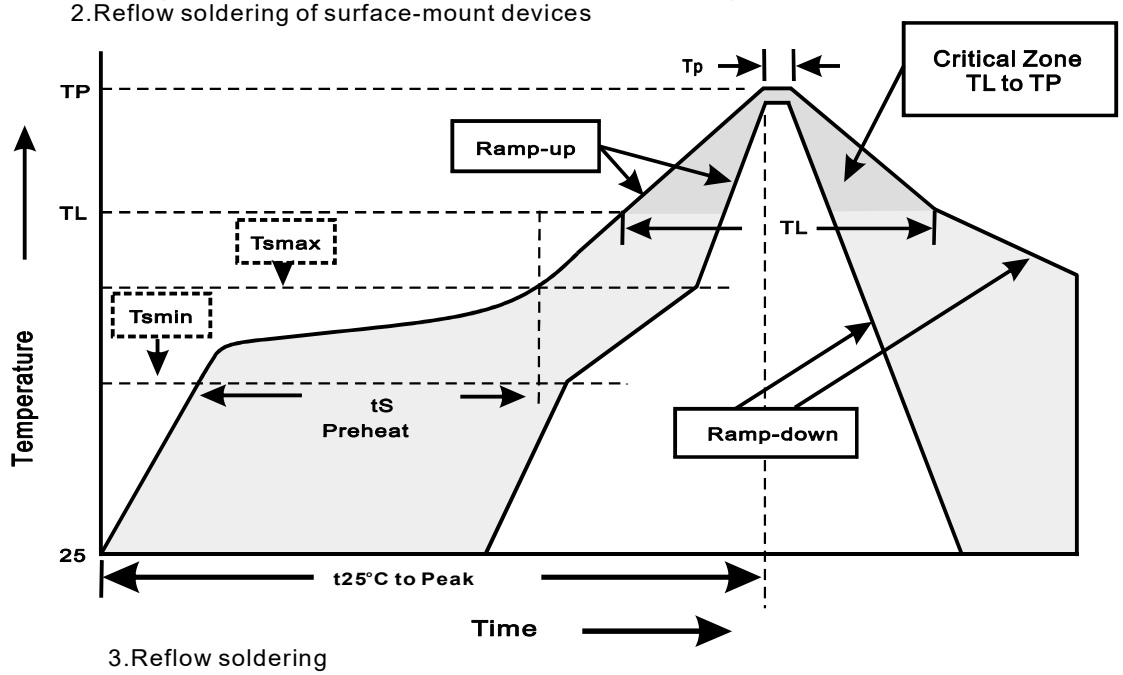
Reel packing

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-323	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(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax 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