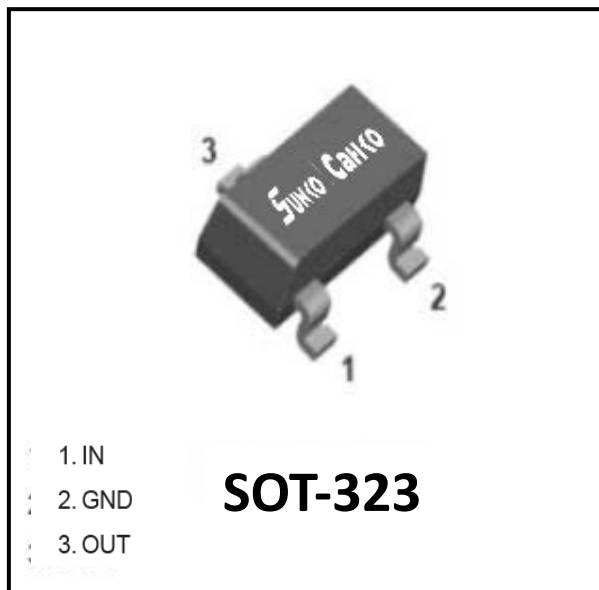


Digital Transistors (Built-in Resistors)



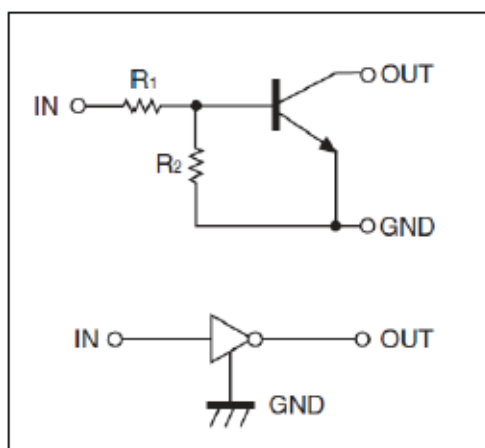
Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors
- Surface mount package ideally Suited for Automatic Insertion
- NPN

Mechanical Data

- **Package:** SOT-323
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** E42

■Equivalent circuit



■Maximum Ratings (Ta=25°C Unless otherwise specified)

ITEM	SYMBOL	UNIT	CONDITIONS	VALUE
Supply Voltage	V_{CC}	V		50
Input Voltage	V_{IN}	V		-5 to +12
Collector Current	I_C	mA		100
Power Dissipation	P_D	mW		200
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	°C/W		625
Junction Temperature	T_J	°C		150
Storage Temperature	T_{stg}	°C		-55 to +150

■ Electrical Characteristics (Ta=25°C unless otherwise specified)

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$V_{I(off)}$	V	VCC=5V, $I_o=100\mu A$	0.5		
	$V_{I(on)}$	V	$V_o=0.3V$, $I_o=5mA$			1.1
Output voltage	$V_{O(on)}$	V	$I_o/I_i=5mA/0.25mA$			0.3
Input current	I_i	mA	$V_i=5V$			3.6
Output current	$I_{O(off)}$	μA	VCC=50V, $V_i=0$			0.5
DC current gain	G_i		$V_o=5V$, $I_o=10mA$	80		
Input resistance	R_i	k Ω		1.54	2.2	2.86
Resistance ratio	R_2/R_1			17	21	26
Transition frequency	f_T	MHz	$V_o=10V$, $I_o=5mA$, $f=100MHz$		250	

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
DTC123JUA	F2	Approximate 0.005	3000	30000	120000	7" reel

■ Characteristics (Typical)

Fig. 1 - DC Current Gain Characteristics

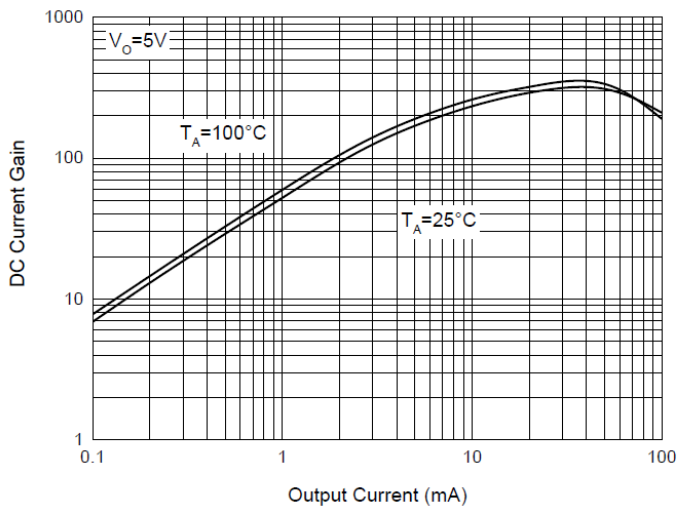


Fig. 2 - Input Voltage (on) Characteristics

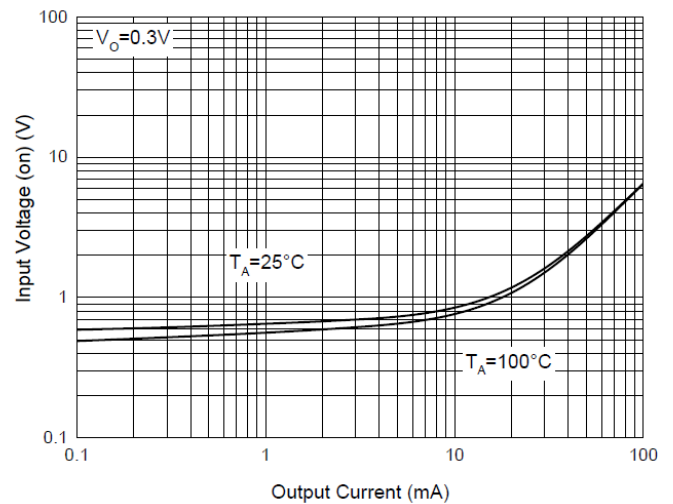


Fig. 3 - Input Voltage (off) Characteristics

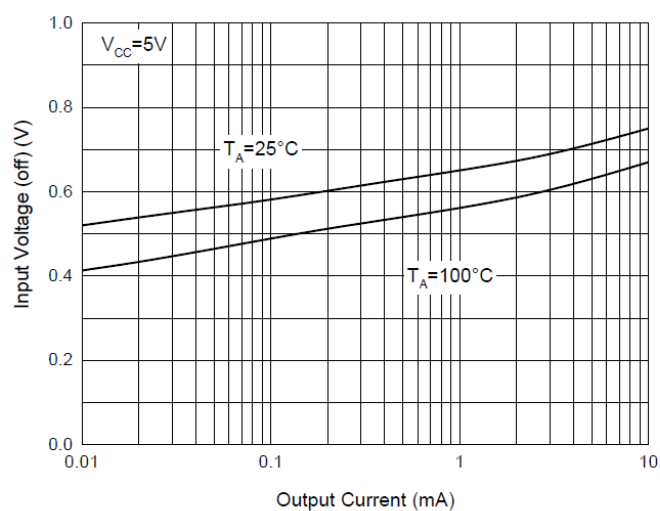


Fig. 4 - Output Voltage Characteristics

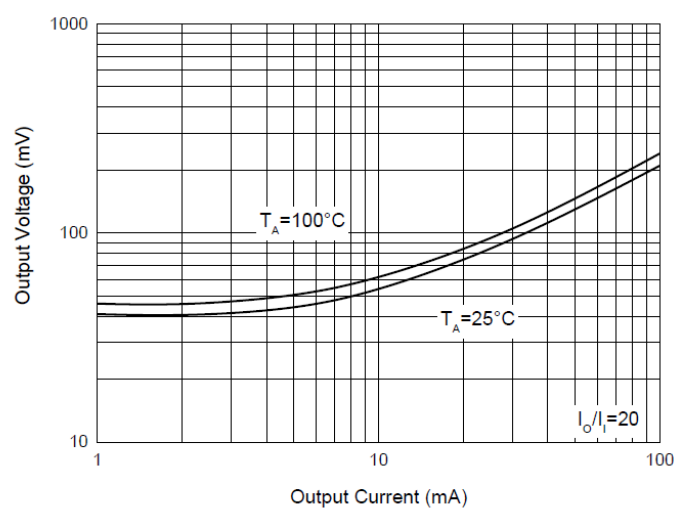
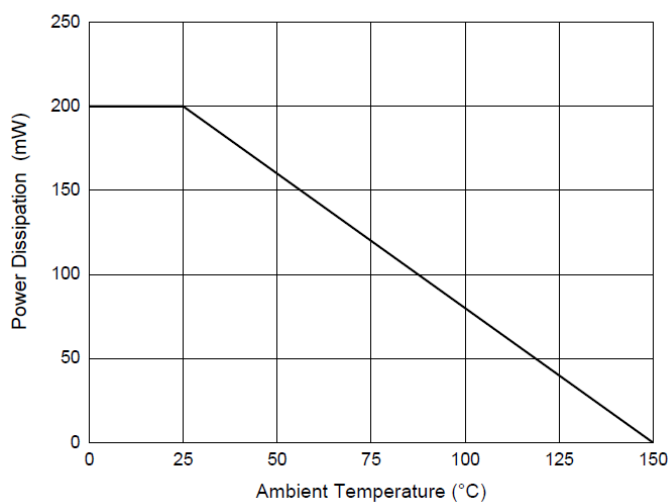
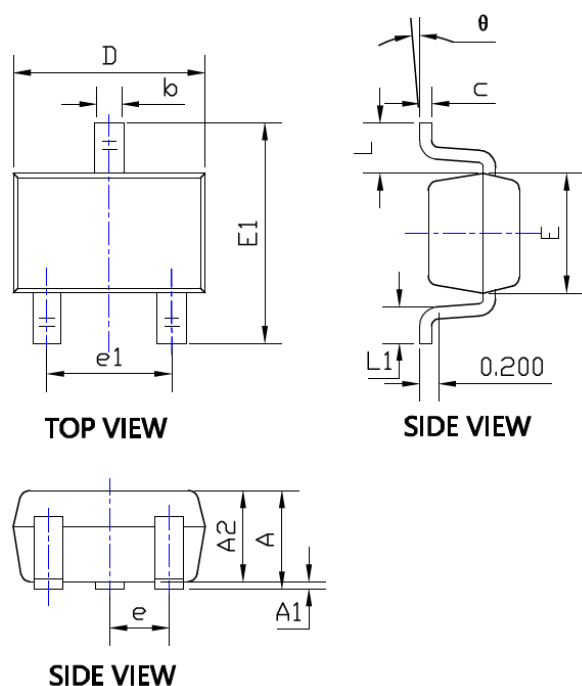


Fig. 5 - Power Derating Curve

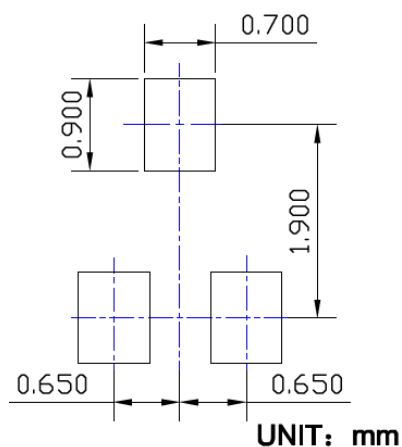


■ SOT-323 Package Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.016	0.150	0.400
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
θ	0°	8°	0°	8°

■ SOT-323 Soldering Footprint



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