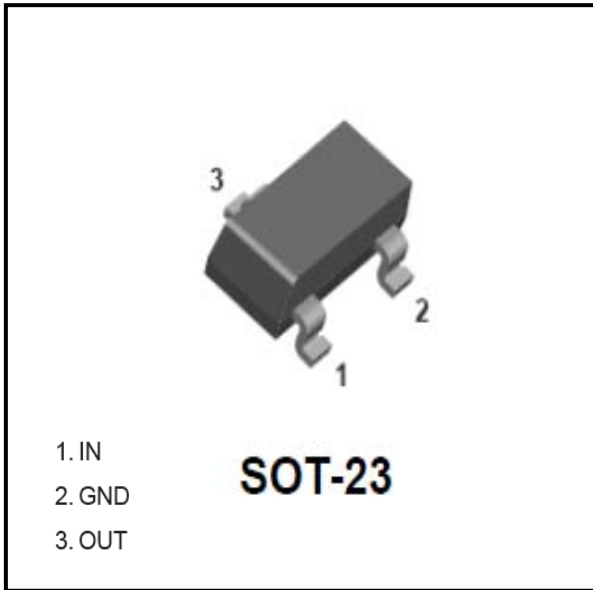


Digital Transistors (Built-in Resistors)



Features

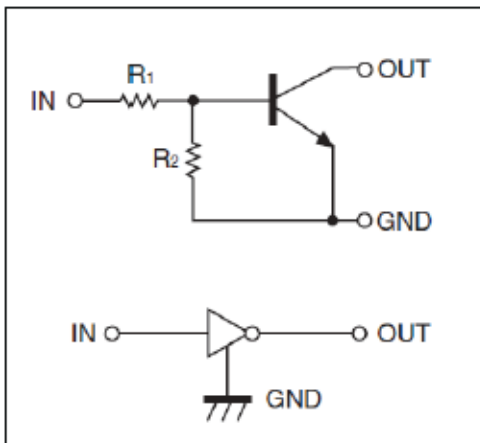
- Epoxy meets UL-94 V-0 flammability rating
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors
- Surface mount package ideally Suited for Automatic Insertion

- NPN

Mechanical Data

- **Package:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 22

■Equivalent circuit



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

ITEM	SYMBOL	UNIT	CONDITIONS	VALUE
Supply Voltage	VCC	V		50
Input Voltage	VIN	V		-10 to +12
Output Current	IO	mA		100
Power Dissipation	PD	mW		200
Junction Temperature	Tj	°C		150
Storage Temperature	TSTG	°C		-55 to +150



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

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$V_{I(off)}$	V	VCC=5V, Ic=100uA	0.5		
	$V_{I(on)}$	V	V0=0.3V, Ic=20mA			3
Output voltage	$V_{O(on)}$	V	I _o / I _i = 10mA/0.5mA			0.3
Input current	I _i	mA	V _i =5V			3.8
Output current	I _{O(off)}	uA	VCC=50V, V _i =0			0.5
DC current gain	G _I		V _o =5V, I _o =20mA	20		
Input resistance	R ₁	kΩ		1.54	2.2	2.86
Resistance ratio	R ₂ /R ₁			0.8	1	1.2
Transition frequency	f _T	MHz	VCE=10V, IE=-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
DTC123ECA	F2	Approximate 0.009	3000	30000	120000	7" reel

■ Characteristics (Typical)

Fig. 1 - DC Current Gain Characteristics

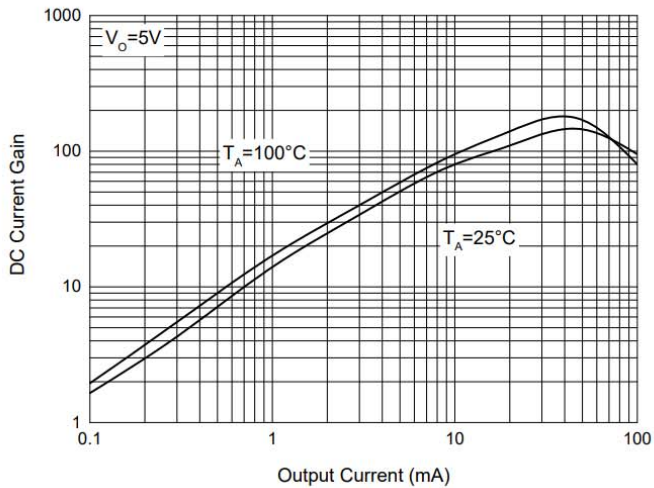
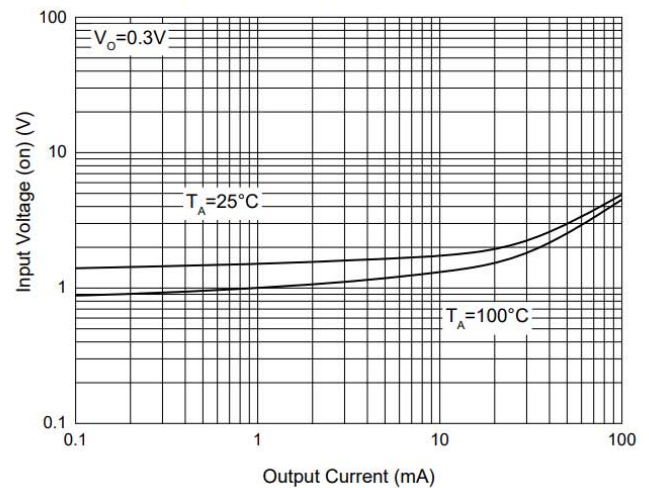


Fig. 2 - Input Voltage (on) Characteristics





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Fig. 3 - Input Voltage (off) Characteristics

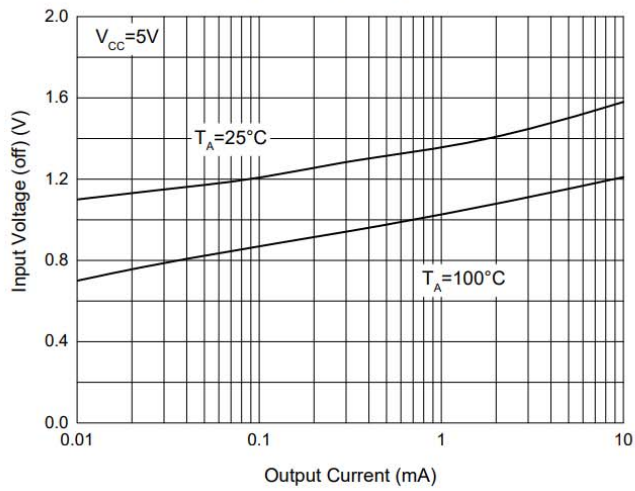


Fig. 4 - Output Voltage Characteristics

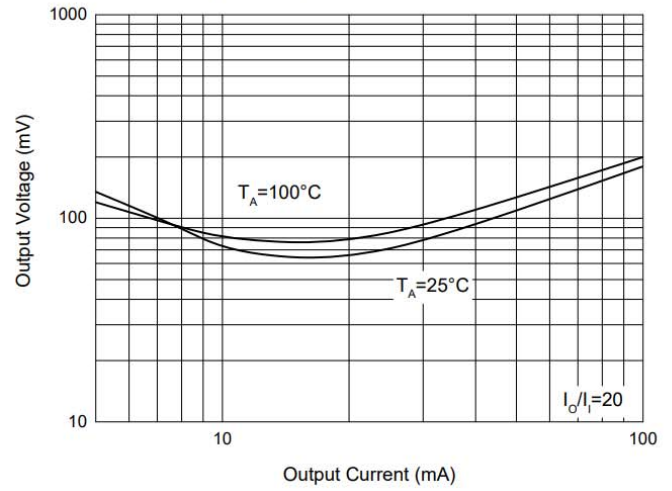
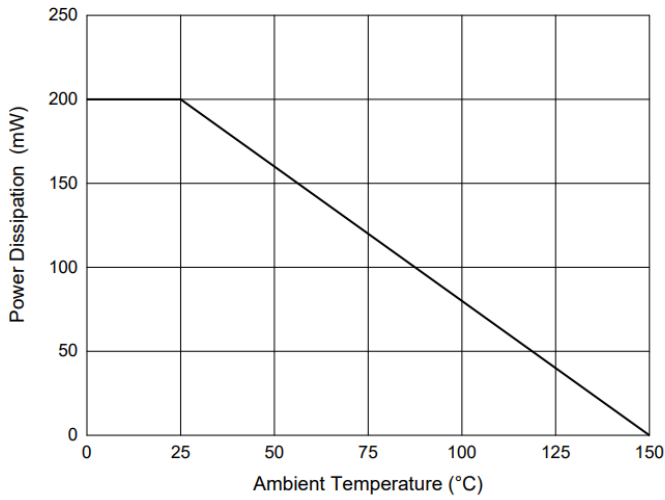


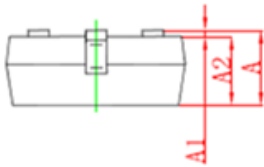
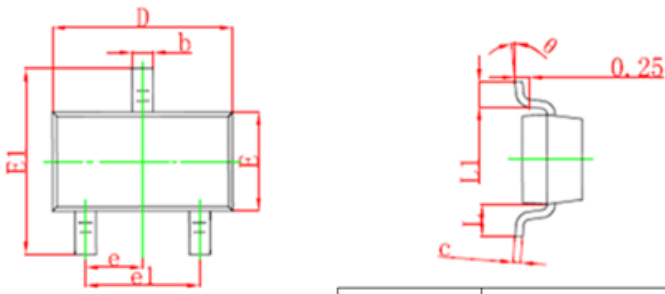
Fig. 5 - Power Derating Curve





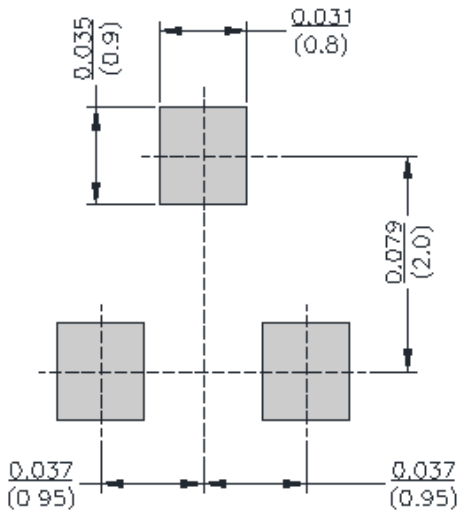
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■SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

■SOT-23Suggested Pad Layout





DTC123ECA

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