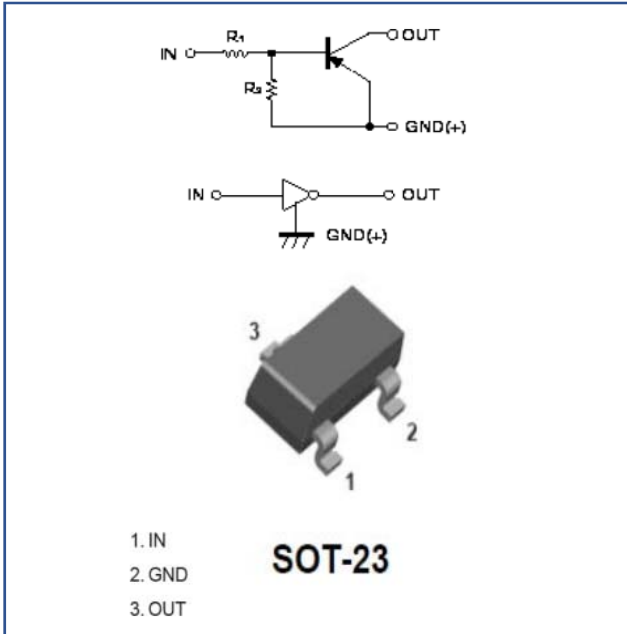


Digital Transistors (Built-in Resistors)



Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic Insertion

Application

- Signal amplification
- Switching circuit

Mechanical data

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

■ Maximum Ratings ($T_a=25^\circ\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				52
Collector-base voltage	V_{CC}	V		-50
Collector-emitter voltage	V_{IN}	V		-12 to +5
Collector current	I_o	mA		-100
Power dissipation	P_D	mW		200
Operation junction temperature	T_J	$^\circ\text{C}$		-55 to +150
Storage temperature	T_{STG}	$^\circ\text{C}$		-55 to +150



DTA123YCA

RoHS
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■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Input voltage	V _{I(off)}	V	V _{CC} =-5V, I _C =-100μA	-0.3		
	V _{I(on)}	V	V _O =-0.3V, I _C =-20mA			-3
Output voltage	V _{O(on)}	V	I _O / I _I = -10mA / -0.5 mA			-0.3
Input current	I _I	mA	V _I =5V			-3.8
Output current	I _{O(off)}	μA	V _{CC} =-50V, V _I =0			-0.5
DC current gain	G _I		V _O =-5V, I _O = -10mA	33		
Input resistance	R ₁	kΩ		1.54	2.2	2.86
Resistance ratio	R ₂ /R ₁			3.6	4.5	5.5
Transition frequency	f _T	MHz	V _O =-10V, I _O =-5mA, f=100MHz		250	

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R _{θJ-A} ⁽¹⁾	°C/W	625
Thermal resistance, junction-to-case	R _{θJ-C} ⁽¹⁾	°C/W	500

Note:

(1) Device mounted on PCB, single-sided copper, with standard footprint



■ Characteristics

Fig 1: Input Voltage (On) Characteristics

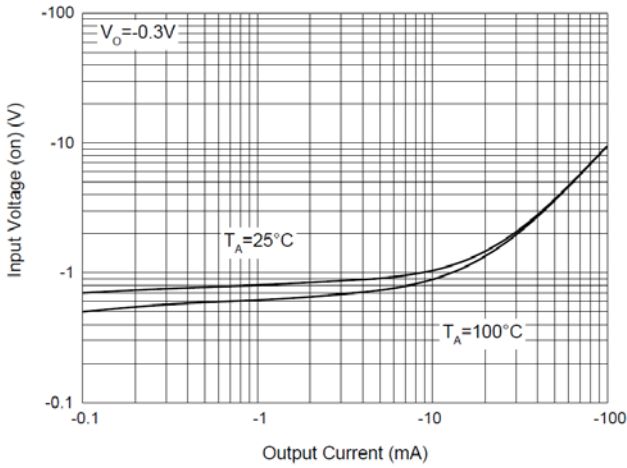


Fig 2: Input Voltage (Off) Characteristic

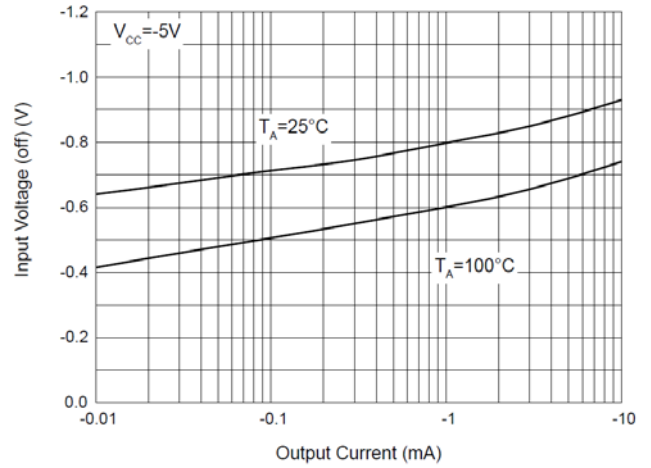


Fig 3: DC Current Gain Characteristics

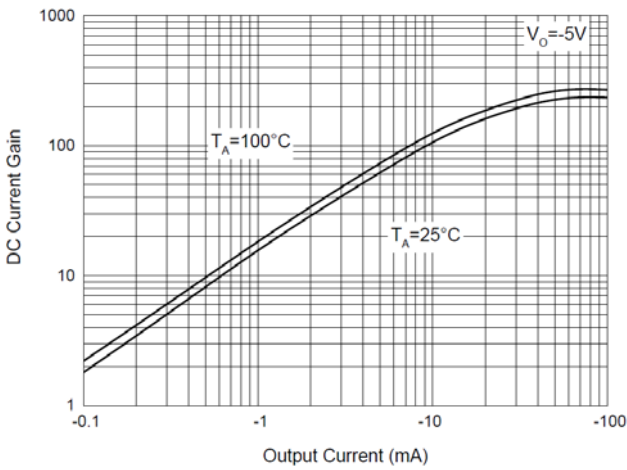


Fig 4: Output Voltage Characteristics

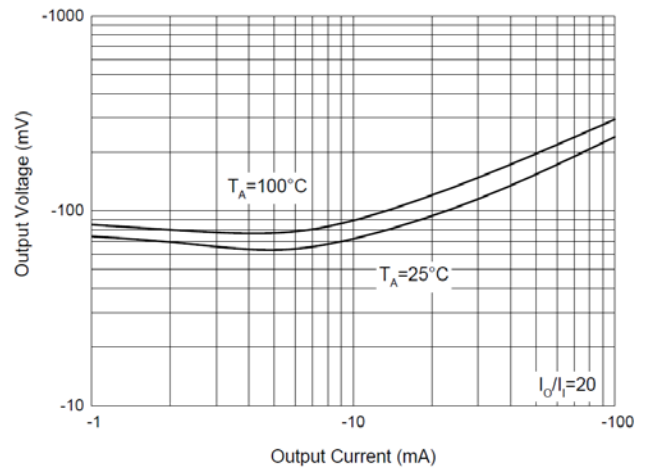
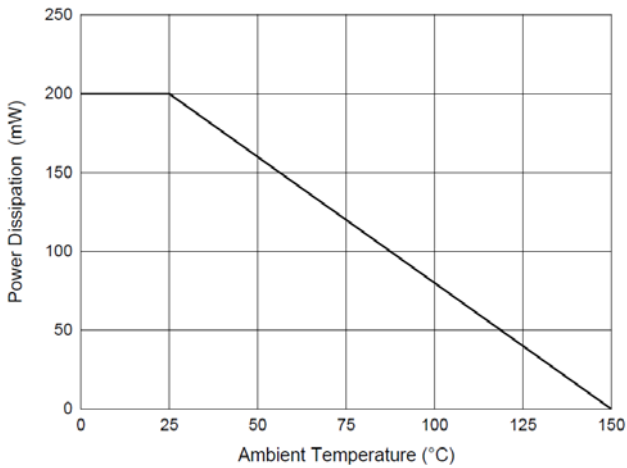


Fig 5: P_D-T_a Curve





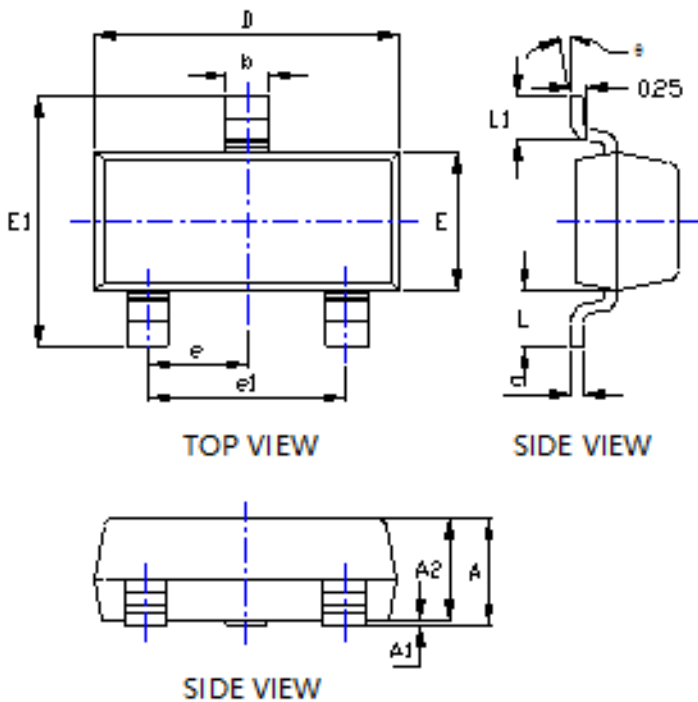
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Ordering Information

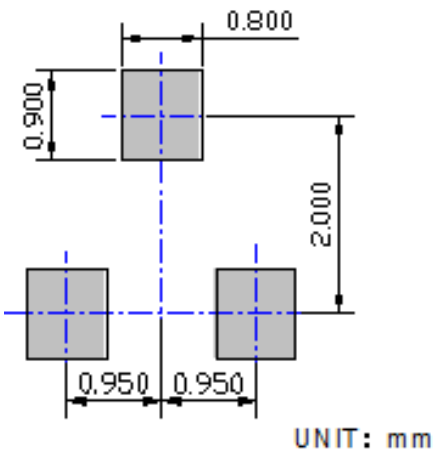
Prefered P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
DTA123ECA	F2	Approximate 0.008	3000	30000	120000	7" reel
DTA123ECA	F4	Approximate 0.008	10000	-	210000	13" reel

Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

Suggested Pad Layout





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