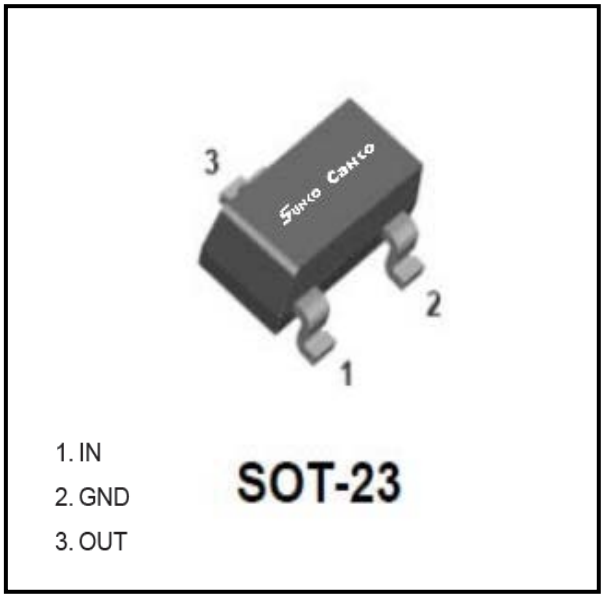
Digital Transistors (Built-in Resistors)



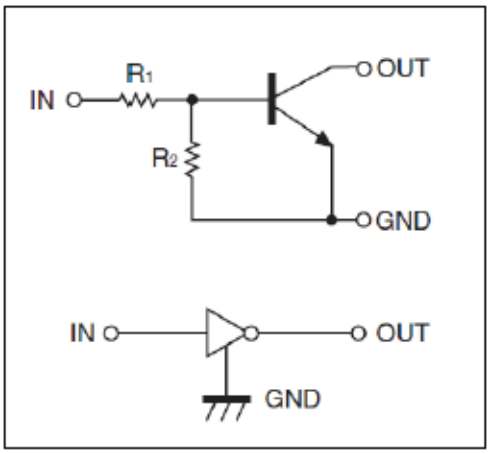
Features

●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-23
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 24

■Equivalent circuit



■Maximum Ratings (Ta=25℃ Unless otherwise specified)

ITEM	SYMBOL	UNIT	CONDITIONS	VALUE
Supply Voltage	VCC	V		50
Input Voltage	VIN	V		-10 to +40
Output Current	IO	mA		100
Power Dissipation	PD	mW		200
Thermal Resistance, Junction to Ambient	R_{thJA}	℃/W		625
Junction Temperature	Tj	℃		150
Storage Temperature	TSTG	℃		-55 to +150

■**Electrical Characteristics** (Ta=25℃ unless otherwise specified)

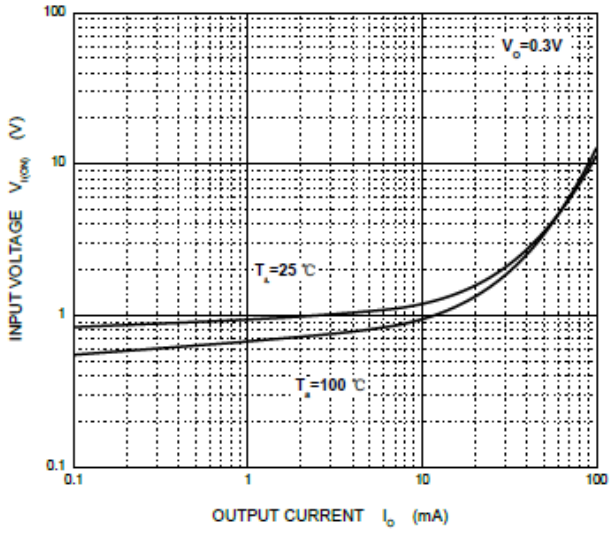
ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$VI_{(off)}$	V	V_{CC}=5V,I_C=100uA V_0=0.3V,I_C=10mA	0.5		
	$VI_{(on)}$	V				3
Output voltage	$Vo_{(on)}$	V	I_o /I_i =10mA/0.5 mA			0.3
Output current	$I_{O(off)}$	uA	V_{CC}=50V, V_i=0			0.1
DC current gain	GI		V_o=5V, I_o =5mA	30		
Input resistance	R_1	kΩ		7	10	13
Resistance ratio	R_2/R_1			0.8	1	1.2
Transition frequency	fT	MHz	V_o=10V,I_O=5mA,f=100MHz		250	

■ **Ordering Information** (Example)

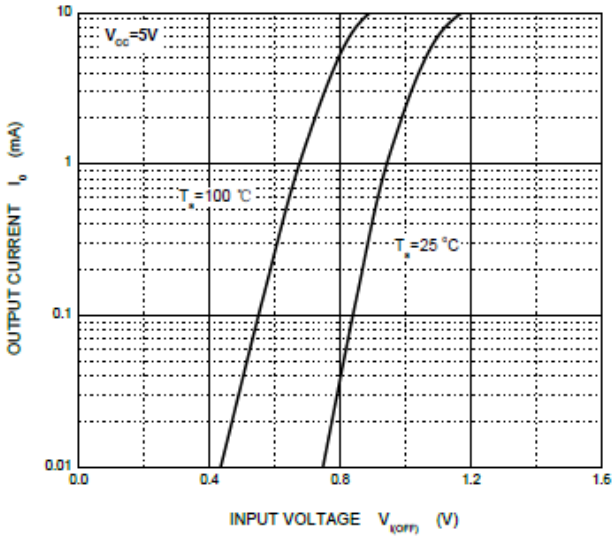
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
DTC114ECA	F2	Approximate 0.009	3000	30000	120000	7” reel

■ Characteristics (Typical)

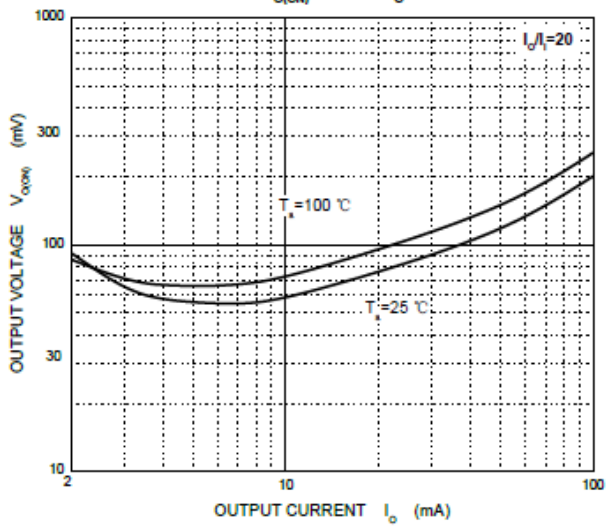
ON Characteristics



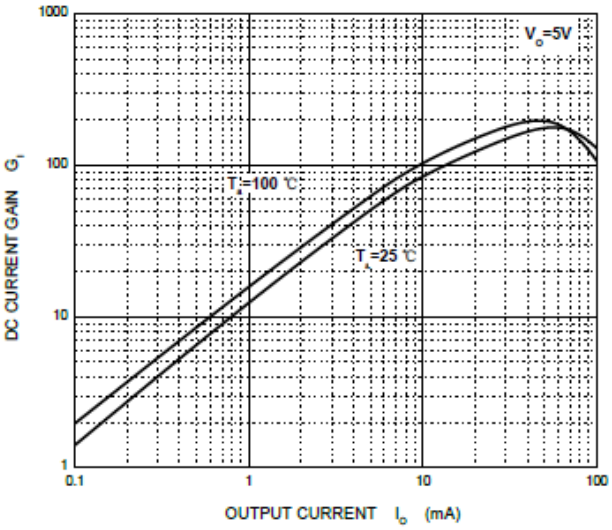
OFF Characteristics



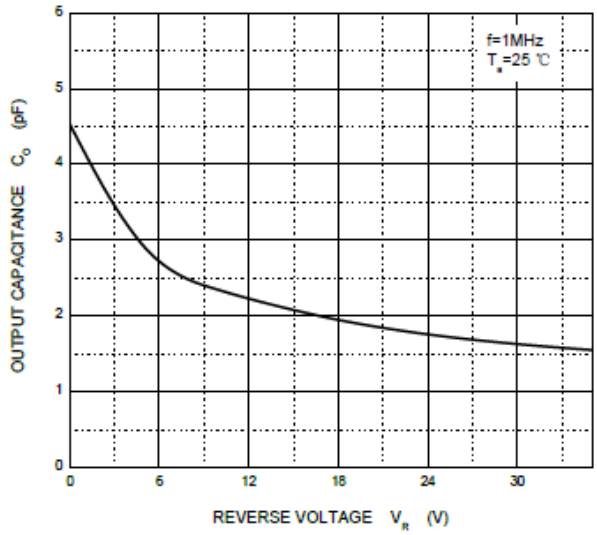
$V_{O(ON)}$ — I_O



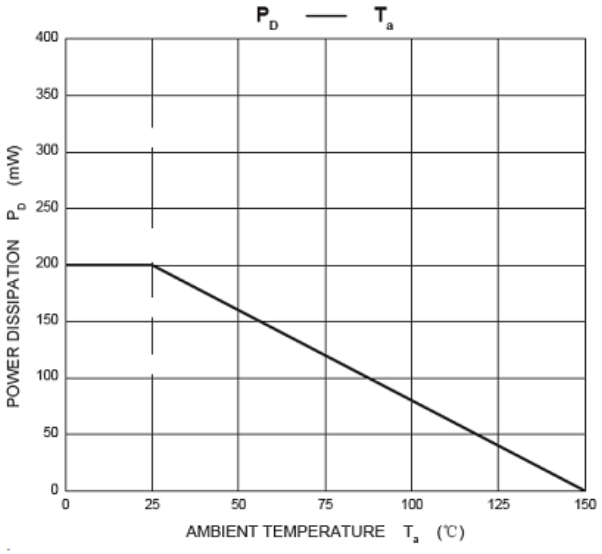
G_I — I_O



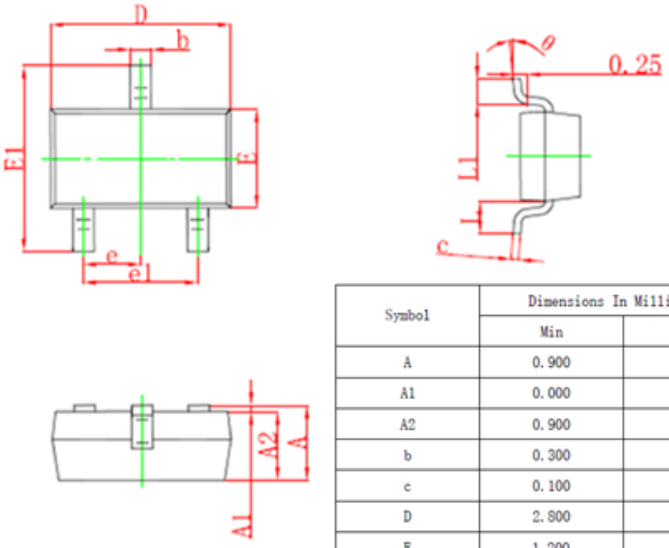
C_O — V_R



P_D — T_a

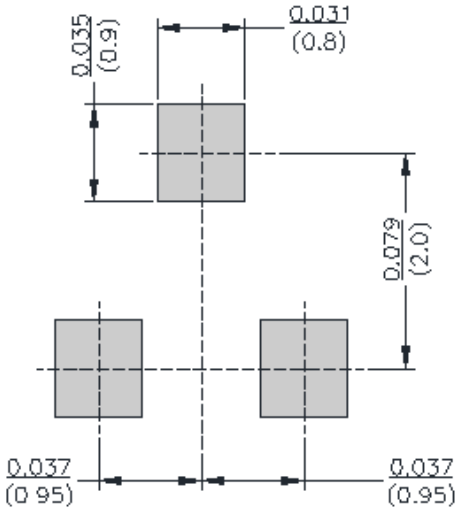


■SOT-23 Package Outline Dimensions



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



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