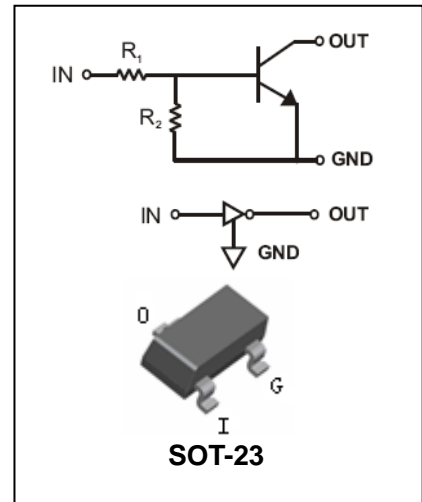


## Digital Transistor

## DTC(R<sub>1</sub>=R<sub>2</sub> SERIES)CA

### FEATURES

- Epitaxial planar die construction.
- Complementary PNP types available(DTA).
- Built-in biasing resistors,R<sub>1</sub>=R<sub>2</sub>.
- Also available in lead free version.



### APPLICATIONS

- The NPN style digital transistor.

### ORDERING INFORMATION

Type No.	Marking	Package Code
DTC114ECA	24	SOT-23
DTC124ECA	25	SOT-23
DTC143ECA	23	SOT-23
DTC144ECA	26	SOT-23

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units	
V <sub>CC</sub>	Supply Voltage	50	V	
V <sub>IN</sub>	Input Voltage	DTC114ECA DTC124ECA DTC143ECA DTC144ECA	-10 to+40 -10 to+40 -10 to+30 -10 to+40	V
I <sub>O</sub>	Output Current	DTC114ECA DTC124ECA DTC143ECA DTC144ECA	50 30 100 100	mA
I <sub>C</sub> (Max.)	Output current	ALL	100	mA
P <sub>D</sub>	Power Dissipation		200	mW
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient Air		625	°C/W
T <sub>J</sub> , T <sub>stg</sub>	Operating and Storage and Temperature Range		-55 to +150	°C

## ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(off)}$	$V_{CC}=5V, I_O=100\mu A$	0.5	1.1	-	V
Input Voltage	$V_{I(on)}$	DTC114ECA DTC124ECA DTC143ECA DTC144ECA	-	1.9	3	
		$V_O=0.3V, I_O=10mA$				
		$V_O=0.2V, I_O=5mA$				
		$V_O=0.3V, I_O=20mA$ $V_O=0.3V, I_O=2mA$				
Output Voltage	$V_{O(on)}$	$I_O/I_I=10mA/0.5mA,$	-	0.1	0.3	V
Input Current	$I_I$	DTC114ECA DTC124ECA DTC143ECA DTC144ECA	$V_I=5V$	-	-	0.88
		0.36				
		1.8				
		0.18				
Output Current	$I_{O(off)}$	$V_{CC}=50V, V_I=0V$	-	-	0.5	$\mu A$
DC Current Gain	$G_I$	DTC114ECA DTC124ECA DTC143ECA DTC144ECA	$V_O=5V, I_O=5mA$ $V_O=5V, I_O=5mA$ $V_O=5V, I_O=10mA$ $V_O=5V, I_O=5mA$	-	-	30
		56				
		20				
		68				
Input Resistor	$R_1(R_2)$	DTC114ECA DTC124ECA DTC143ECA DTC144ECA				7
		15.4				
		3.29				
		32.9				
	47					
Resistance Ratio	$R_2/R_1$	-	0.8	1	1.2	
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_E=-5mA,$ $f=100MHz$	-	250	-	MHz

## TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

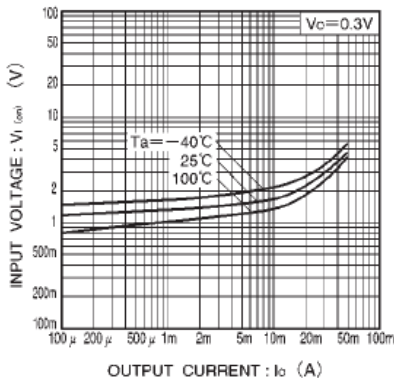


Fig.1 Input voltage vs. output current (ON characteristics)

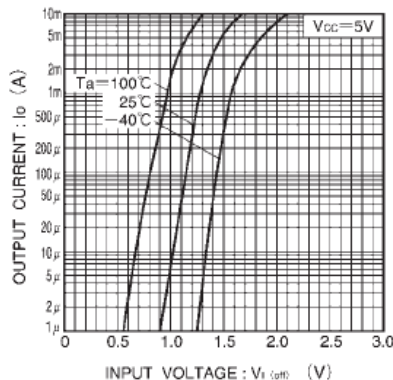


Fig.2 Output current vs. input voltage (OFF characteristics)

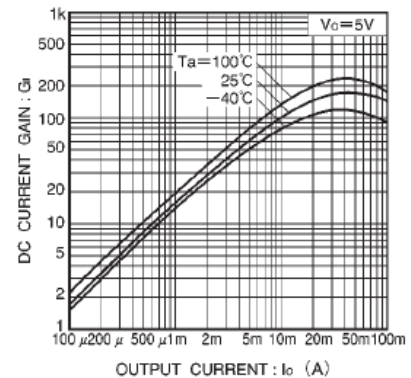
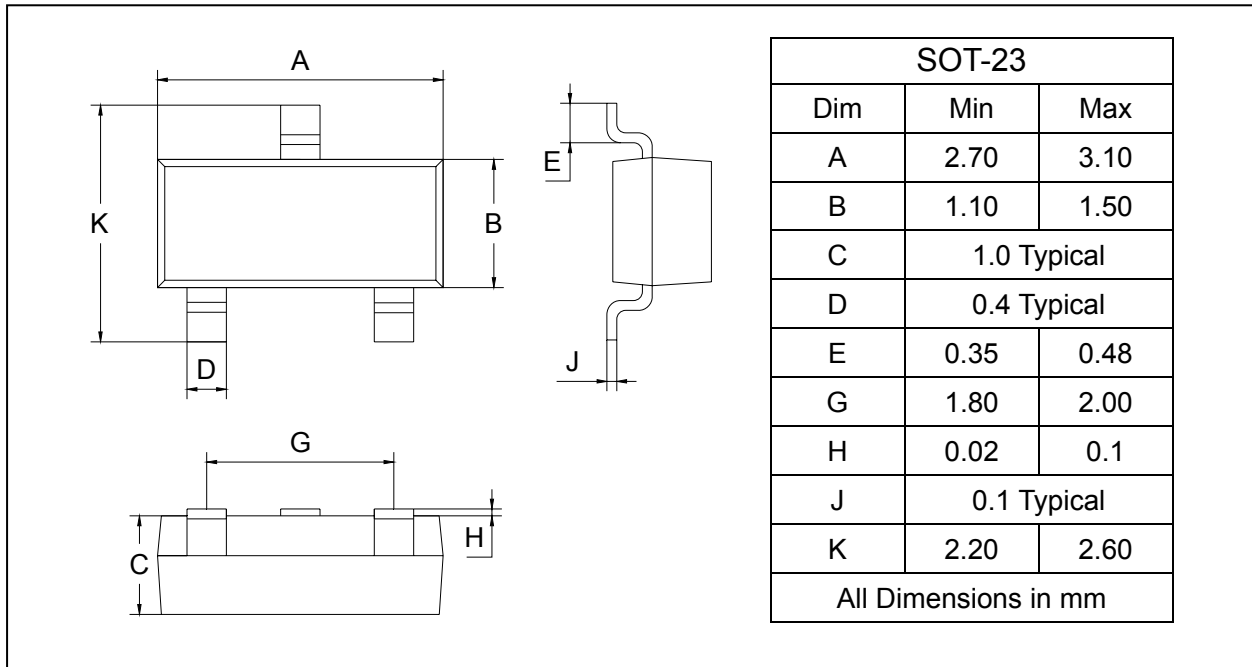


Fig.3 DC current gain vs. output current

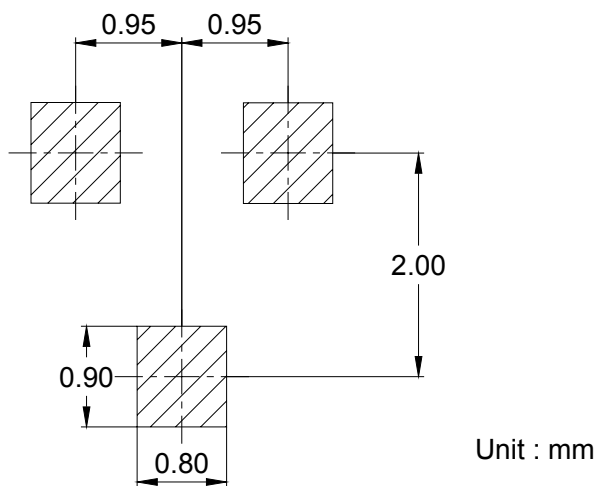
## PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



## SOLDERING FOOTPRINT



## PACKAGE INFORMATION

Device	Package	Shipping
DTC114ECA/124ECA/143ECA/144ECA	SOT-23	3000/Tape&Reel