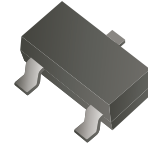


## DTC114ECA-HF Thru. DTC144ECA-HF

RoHS Device  
Halogen Free



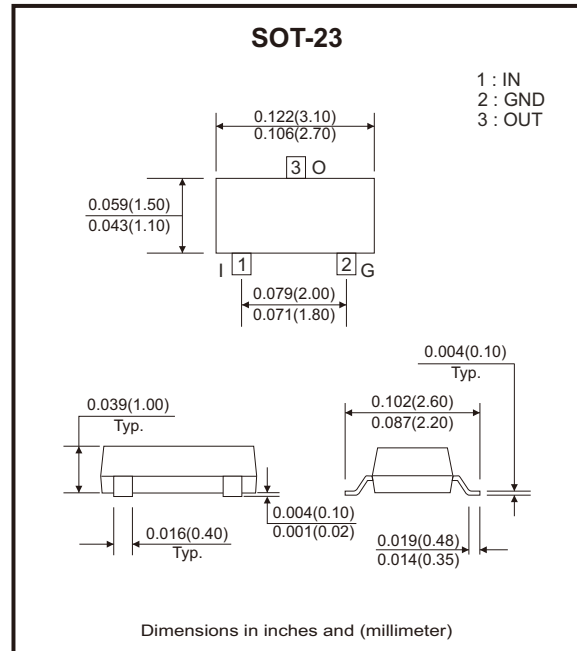
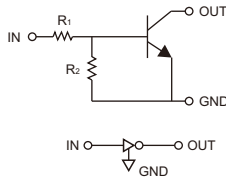
### Features

- Epitaxial planar die construction.
- Built-in biasing resistors,  $R_1=R_2$ .

### Mechanical data

- Case: SOT-23, molded plastic.

### Circuit Diagram



### Maximum Ratings (at $T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Units
Supply voltage	$V_{CC}$	50	V
Input voltage	$V_{IN}$	-10 to +40 -10 to +40 -10 to +30 -10 to +40	V
Output current	$I_o$	50 30 100 100	mA
Output current	$I_c$ (Max.)	100	mA
Power dissipation	$P_D$	200	mW
Thermal resistance, junction to ambient air	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Operating and storage and temperature range	$T_j, T_{STG}$	-55 to +150	$^\circ\text{C}$

## Electrical Characteristics (at Ta=25°C unless otherwise noted)

Parameter	Symbol	Test conditions	Min	Typ	Max	Units
Input voltage	$V_{I(off)}$	$V_{CC} = 5V, I_o = 100\mu A$	0.5	1.1		
Input voltage	$V_{I(on)}$	$V_o = 0.3V, I_o = 10mA$ $V_o = 0.2V, I_o = 5mA$ $V_o = 0.3V, I_o = 20mA$ $V_o = 0.3V, I_o = 2mA$		1.9	3	V
Output voltage	$V_{O(on)}$	$I_o / I_i = 10mA / 0.5mA$		0.1	0.3	V
Input current	$I_i$	$V_i = 5V$			0.88 0.36 1.8 0.18	mA
Output current	$I_{O(off)}$	$V_{CC} = 50V, V_i = 0V$			0.5	$\mu A$
DC current gain	$G_i$	$V_o = 5V, I_o = 5mA$ $V_o = 5V, I_o = 5mA$ $V_o = 5V, I_o = 10mA$ $V_o = 5V, I_o = 5mA$	30 56 20 68			
Input resistor	$R_1(R_2)$		7 15.4 3.29 32.9	10 22 4.7 47	13 28.6 6.11 61.1	k $\Omega$
Resistance ratio	$R_2/R_1$		0.8	1	1.2	
Gain-bandwidth product	$f_r$	$V_{CE} = 10V, I_E = -5mA, f = 100MHz$		250		MHz

## Rating and Characteristic Curves (DTC114ECA-HF Thru. DTC144ECA-HF)

Fig.1 - Input Voltage vs. Output Current (On Characteristics)

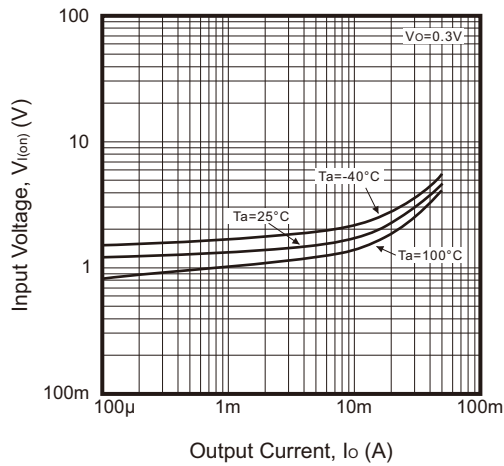


Fig.2 - Output Current vs. Input Voltage (Off Characteristics)

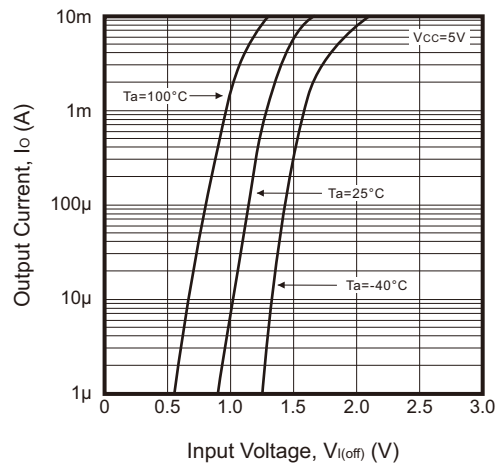
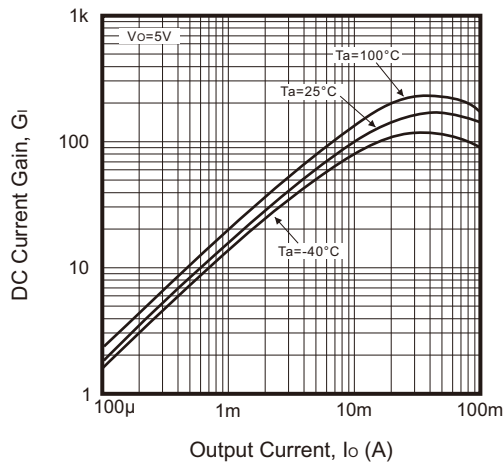
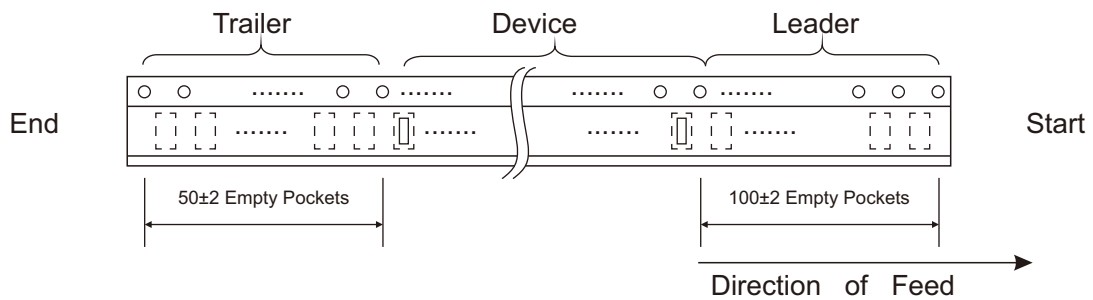
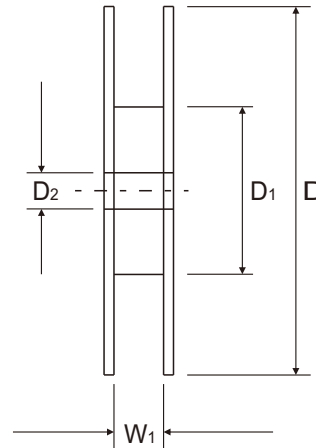
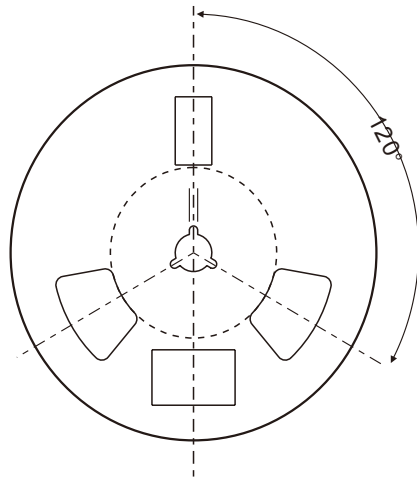
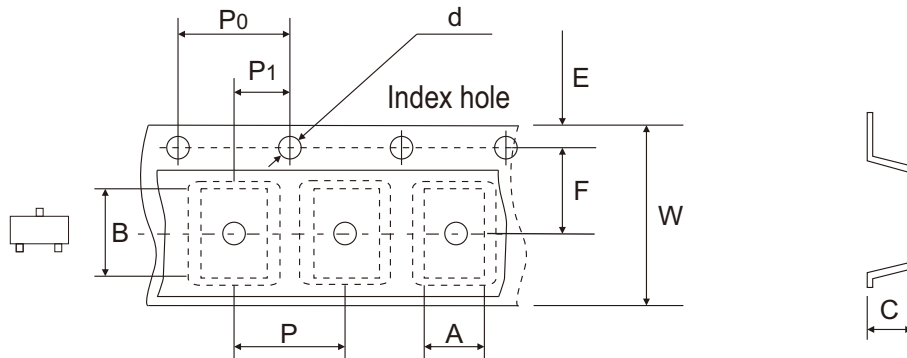


Fig.3 - DC Current Gain vs. Output Current



## Reel Taping Specification



SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	$3.15 \pm 0.10$	$2.77 \pm 0.10$	$1.22 \pm 0.10$	$1.50 \pm 0.10$	$178.00 \pm 1.00$	$54.00 \pm 0.50$	$13.00 \pm 0.50$
	(inch)	$0.124 \pm 0.004$	$0.109 \pm 0.004$	$0.048 \pm 0.004$	$0.059 \pm 0.004$	$7.008 \pm 0.039$	$2.126 \pm 0.020$	$0.512 \pm 0.020$

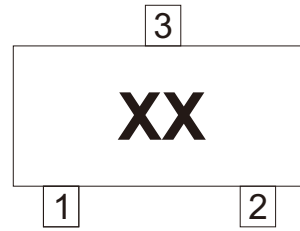
SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	$1.75 \pm 0.10$	$3.50 \pm 0.05$	$4.00 \pm 0.10$	$4.00 \pm 0.10$	$2.00 \pm 0.05$	$8.00 + 0.30 - 0.10$	$9.50 \pm 1.00$
	(inch)	$0.069 \pm 0.004$	$0.138 \pm 0.002$	$0.157 \pm 0.004$	$0.157 \pm 0.004$	$0.079 \pm 0.002$	$0.315 + 0.012 - 0.004$	$0.374 \pm 0.039$

Company reserves the right to improve product design, functions and reliability without notice.

REV:B

## Marking Code

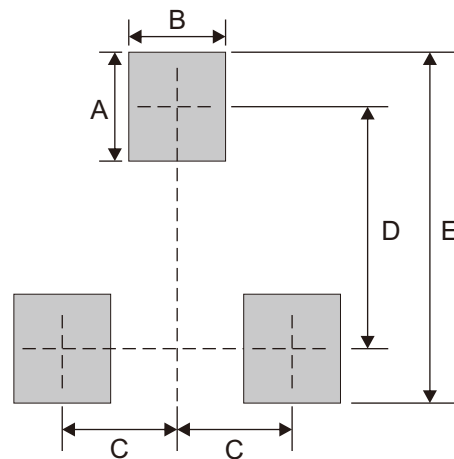
Part Number	Marking Code
DTC114ECA-HF	24
DTC124ECA-HF	25
DTC143ECA-HF	23
DTC144ECA-HF	26



xx = Product type marking code

## Suggested PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	0.95	0.037
D	2.00	0.079
E	2.90	0.114



Note: 1. The pad layout is for reference purposes only.

## Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7