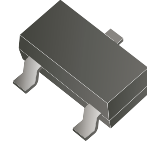


ADTC114ECA-HF (NPN)

RoHS Device
Halogen Free



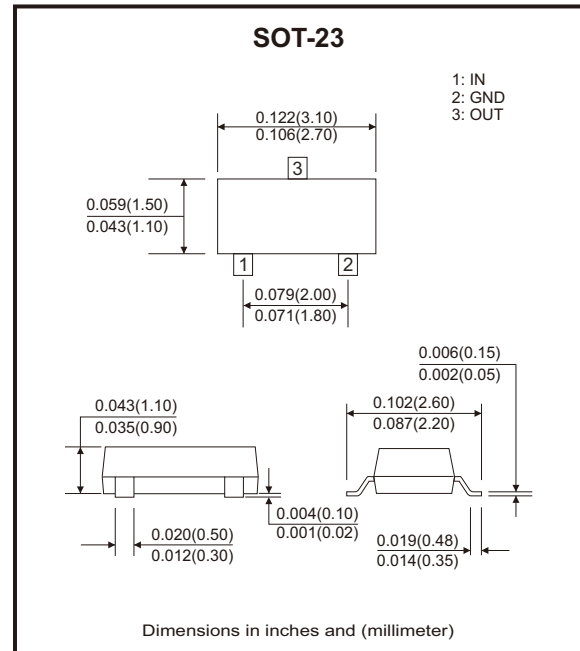
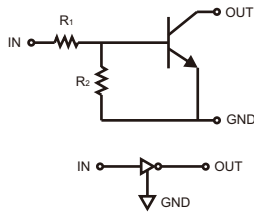
Features

- Built-in biasing resistors, $R_1=R_2$.
- AEC-Q101 Qualified.

Mechanical data

- Case: SOT-23, molded plastic.
- Mounting position: Any.

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	V
Output current	I_o	50	mA
Max. output current	I_c	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			V
Input voltage	$V_{I(on)}$	$V_o = 0.3V, I_o = 10mA$			3	
Output voltage	$V_{O(on)}$	$I_o / I_i = 10mA / 0.5mA$			0.3	V
Input current	I_i	$V_i = 5V$			0.88	mA
Output current	$I_{O(off)}$	$V_{CC} = 50V, V_i = 0V$			0.5	μA
DC current gain	G_i	$V_o = 5V, I_o = 5mA$	30			
Input resistor	$R_1(R_2)$		7	10	13	k Ω
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 (ADTC114ECA-HF)

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

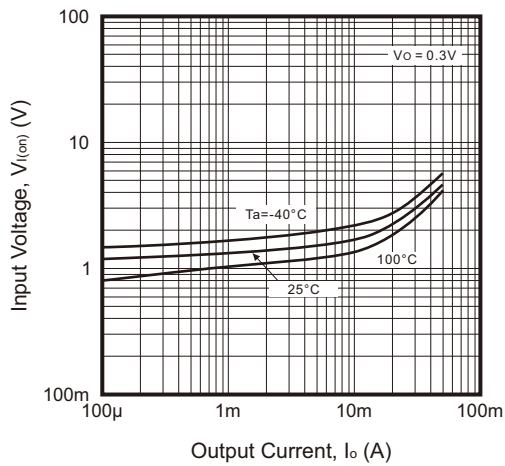


Fig.2 - Output Current vs. Input Voltage (OFF Characteristics)

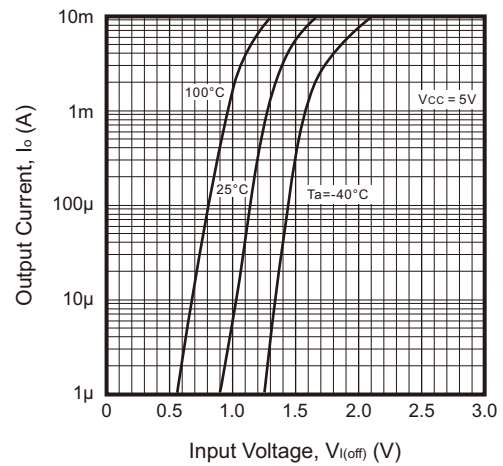
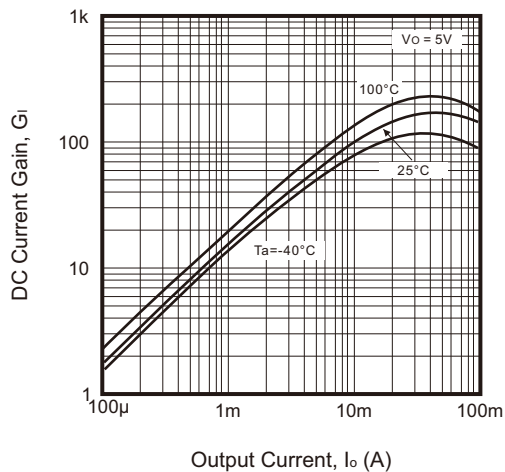
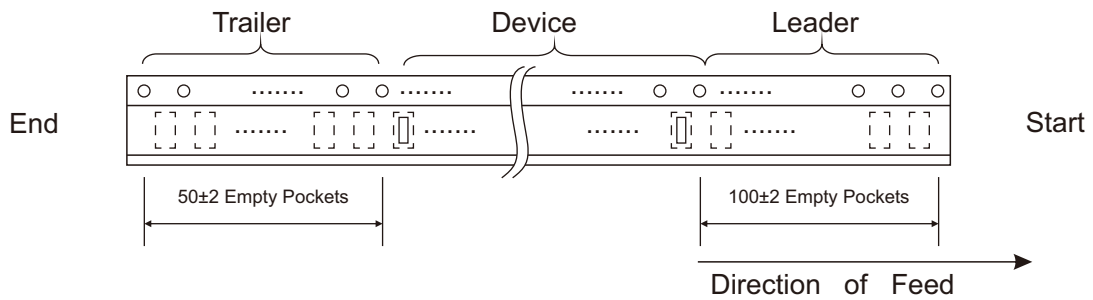
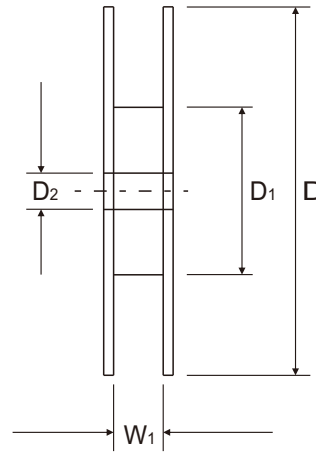
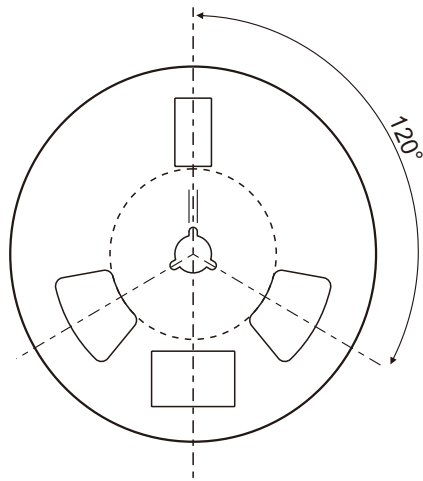
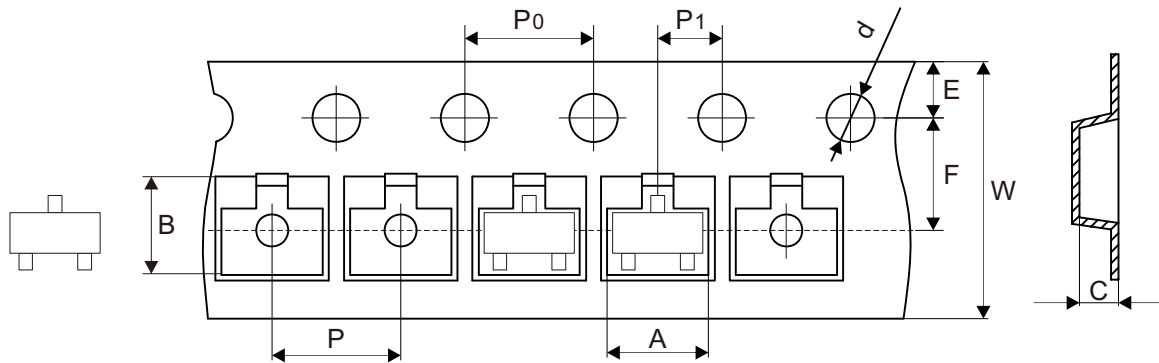


Fig.3 - DC Current Gain vs. Output Current



Reel Taping Specification



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

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

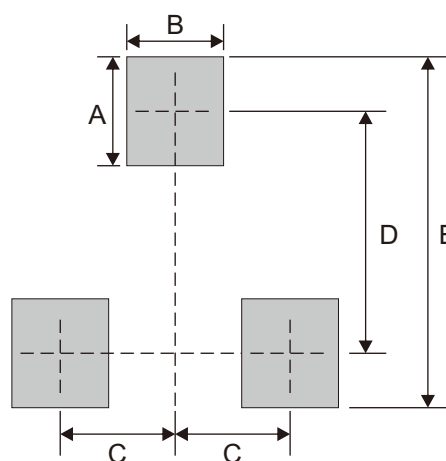
Marking Code

Part Number	Marking Code
ADTC114ECA-HF	24



Suggested P.C.B. 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



Standard Packaging

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