

DTC114ECA-HF

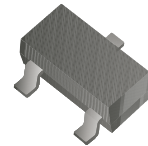
DTC($R_1=R_2$)

RoHS Device

Halogen Free

Features

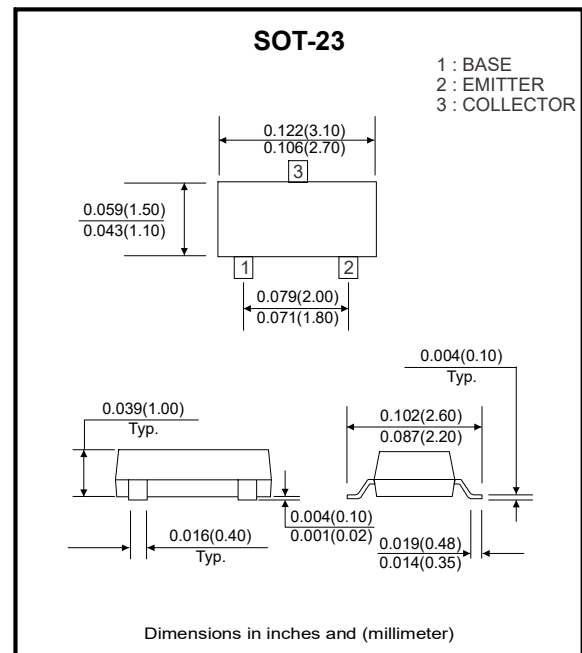
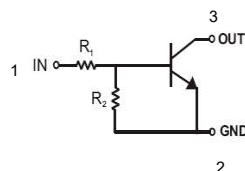
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see the equivalent circuit).
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- Only the on/off conditions need to be set for operation, marking the device design easy.



Mechanical data

- Solderability: MIL-STD-202, Method 208
- Full RoHS Compliance

Circuit Diagram



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

Symbol	Parameter	Value	Units
V_{CC}	Supply Voltage	50	V
V_{IN}	Input Voltage	-10 to +40	V
I_O	Output current	50	mA
$I_C(\text{Max.})$	Output current	100	mA
P_D	Power Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Air	625	$^{\circ}\text{C}/\text{W}$
T_j, T_{stg}	Operating and Storage and Temperature Range	-55 to +150	$^{\circ}\text{C}$

Notes:

Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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

REV:A

Electrical Characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
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	$V_{O(on)}$	$I_O/I=10mA/0.5mA$	-	0.1	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_T	$V_{CE}=10V, I_E=-5mA$, $f=100MHz$	-	250	-	MHz

Notes:

Characteristics of built-in transistor.

Typical characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

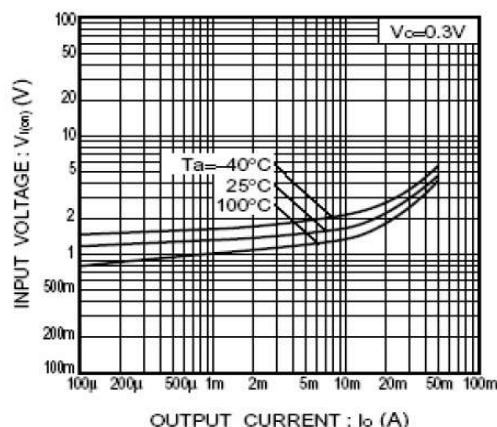


Fig.1 Input voltage vs. output current (ON characteristics)

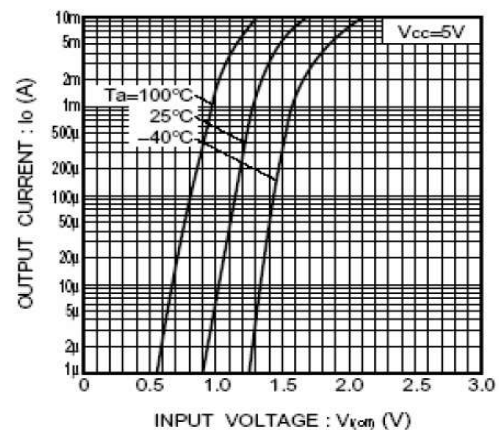


Fig.2 Output current vs. input voltage (OFF characteristics)

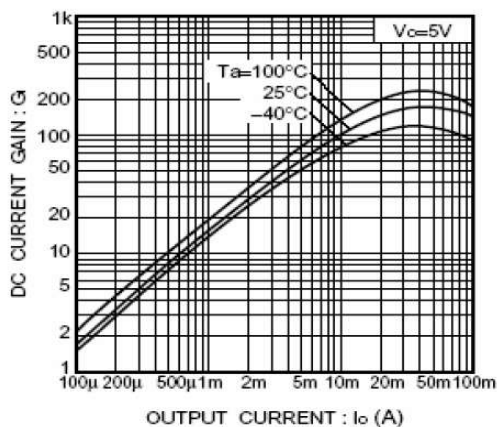


Fig.3 DC current gain vs. output current

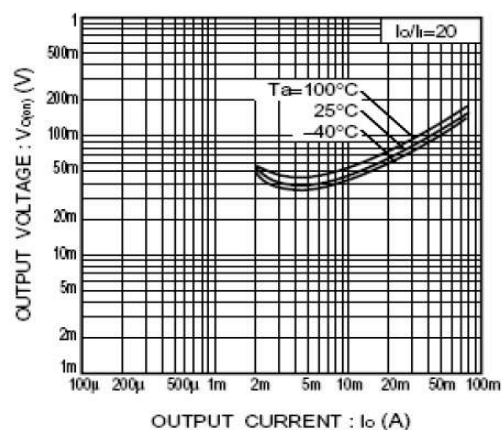
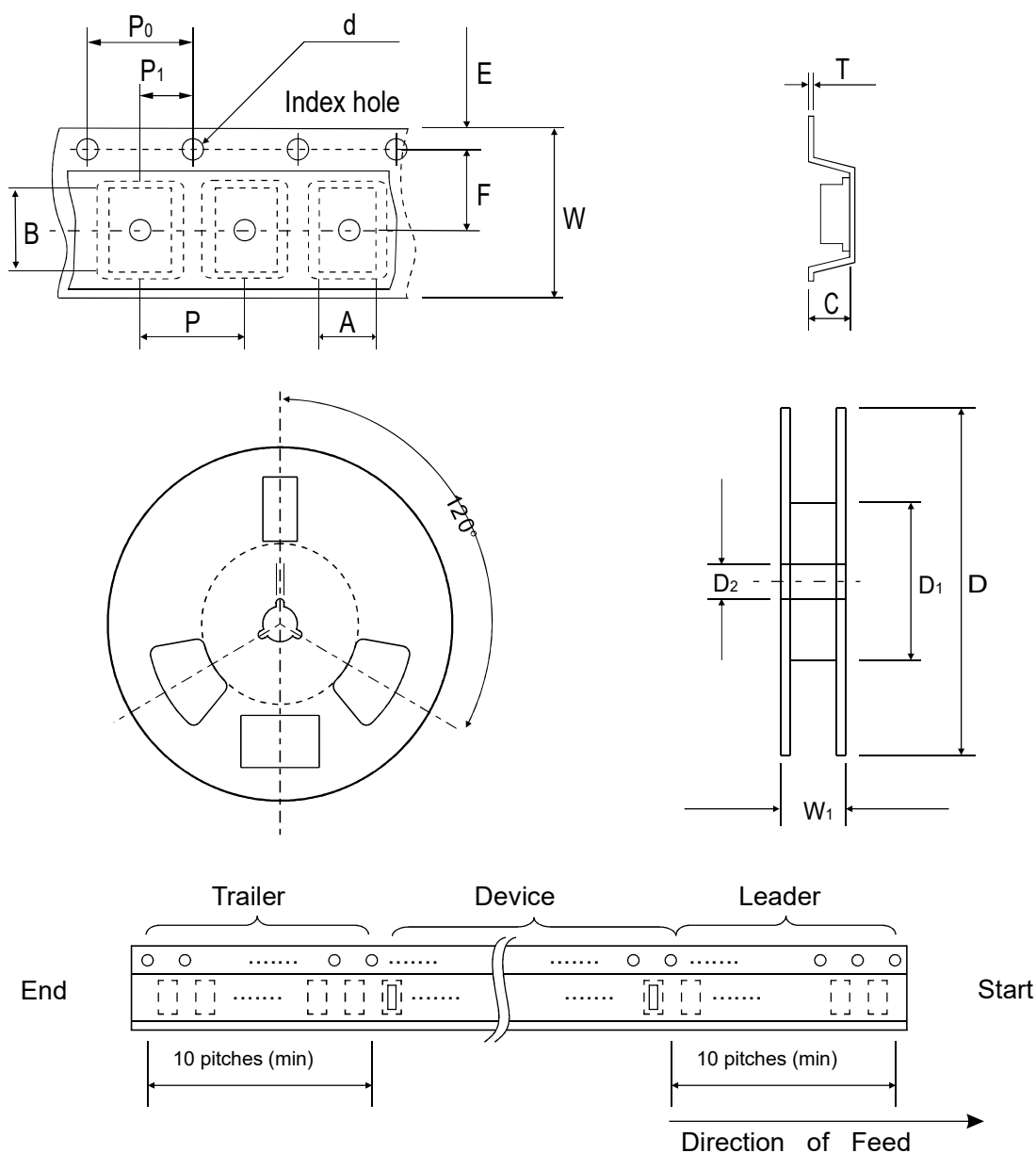


Fig.4 Output voltage vs. output current

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

REV:A

Reel Taping Specification



SOT-23	SYMBOL	A	B	C	d	D	D ₁	D ₂
	(mm)	3.10 ± 0.10	2.85 ± 0.10	1.40 ± 0.10	1.55 ± 0.10	178 ± 1	50.0 MIN.	13.0 ± 0.20
	(inch)	0.122 ± 0.004	0.112 ± 0.004	0.055 ± 0.004	0.061 ± 0.004	7.008 ± 0.04	1.969 MIN.	0.512 ± 0.008

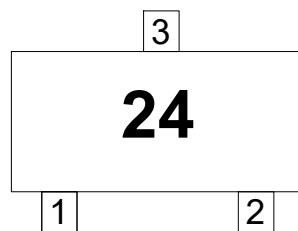
SOT-23	SYMBOL	E	F	P	P ₀	P ₁	W	W ₁
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 ± 0.30	14.4 MAX.
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 ± 0.012	0.567 MAX.

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

REV:A

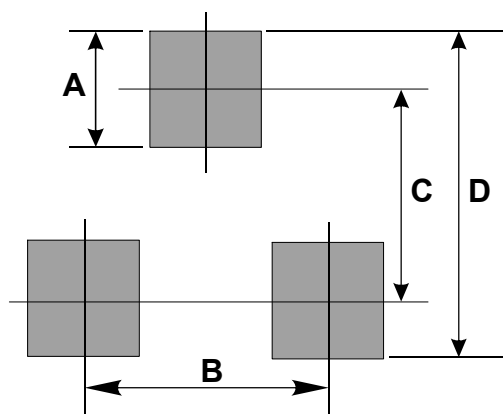
Marking Code

Part Number	Marking Code
DTC114ECA-HF	24



Suggested PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.80	0.031
B	1.90	0.075
C	2.02	0.080
D	2.82	0.111



Standard Packaging

Case Type	Qty per Reel	Reel Size
	(Pcs)	(inch)
SOT-23	3000	7