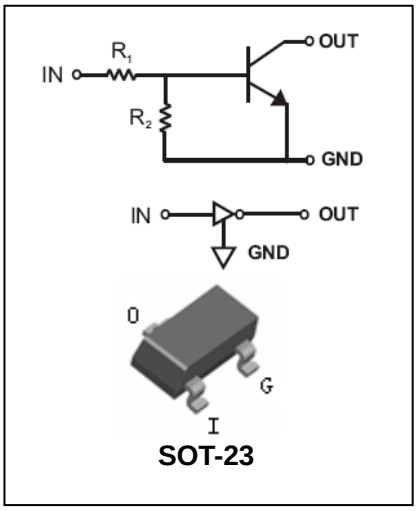
Digital Transistor

DTC(R_1=R_2 SERIES)CA

FEATURES

- Epitaxial planar die construction.
- Complementary PNP types available(DTA).
- Built-in biasing resistors,R_1=R_2.
- Also available in lead free version.

Lead-free



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℃ unless otherwise specified

Symbol	Parameter		Value	Units
V_{CC}	Supply Voltage		50	V
V_{IN}	Input Voltage	DTC114ECA DTC124ECA DTC143ECA DTC144ECA	-10 to+40 -10 to+40 -10 to+30 -10 to+40	V
I_O	Output Current	DTC114ECA DTC124ECA DTC143ECA DTC144ECA	50 30 100 100	mA
I_C(Max.)	Output current	ALL	100	mA
P_D	Power Dissipation		200	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Air		625	℃/W
T_j,T_{stg}	Operating and Storage and Temperature Range		-55 to +150	℃

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter		Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage		$V_{I(off)}$	V_{CC}=5V,I_O=100μA	0.5	1.1	-	V
Input Voltage	DTC114ECA DTC124ECA DTC143ECA DTC144ECA	$V_{I(on)}$	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	
Output Voltage		$V_{O(on)}$	I_o/I_I=10mA/0.5mA,	-	0.1	0.3	V
Input Current	DTC114ECA DTC124ECA DTC143ECA DTC144ECA	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	μA
DC Current Gain	DTC114ECA DTC124ECA DTC143ECA DTC144ECA	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	DTC114ECA DTC124ECA DTC143ECA DTC144ECA	$R_1(R_2)$		7 15.4 3.29 32.9	10 22 4.7 47	13 28.6 6.11 61.1	kΩ
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℃ unless otherwise specified

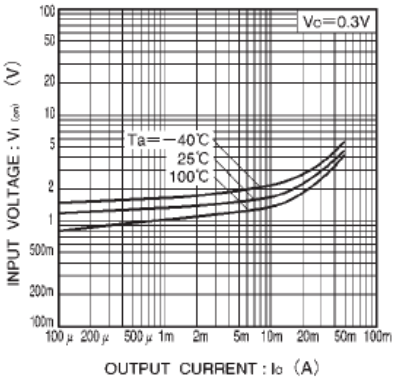


Fig.1 Input voltage vs. output current (ON characteristics)

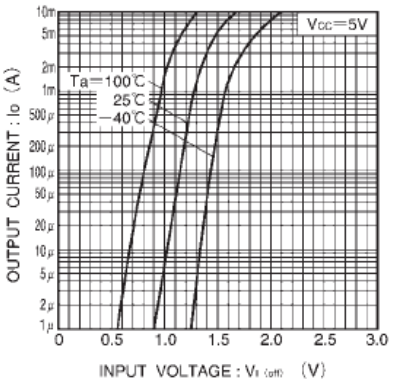


Fig.2 Output current vs. input voltage (OFF characteristics)

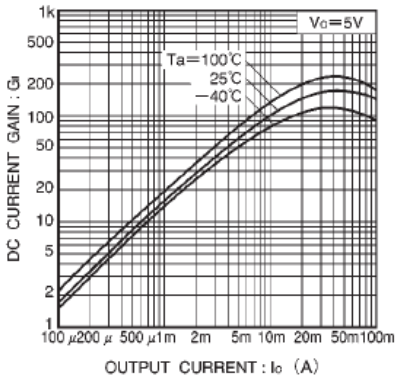
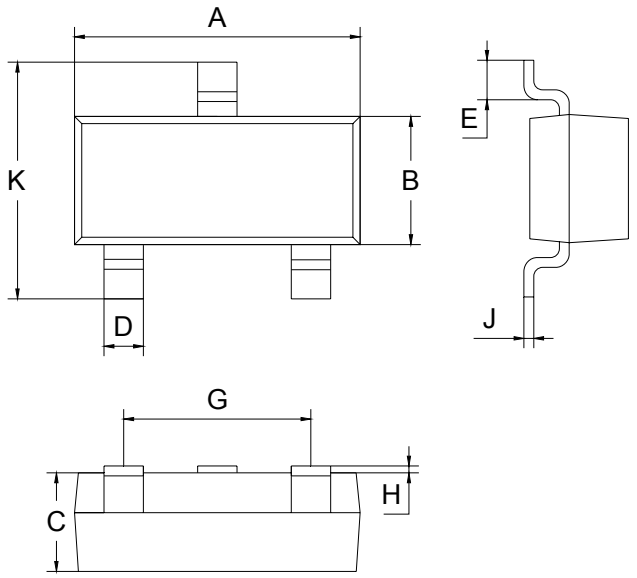


Fig.3 DC current gain vs. output current

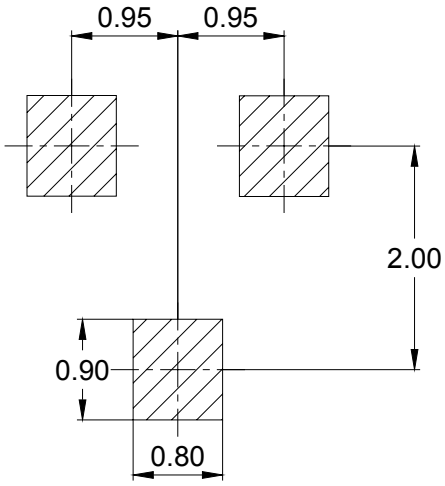
PACKAGE OUTLINE

Plastic surface mounted package SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.1 Typical	
K	2.20	2.60
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

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

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