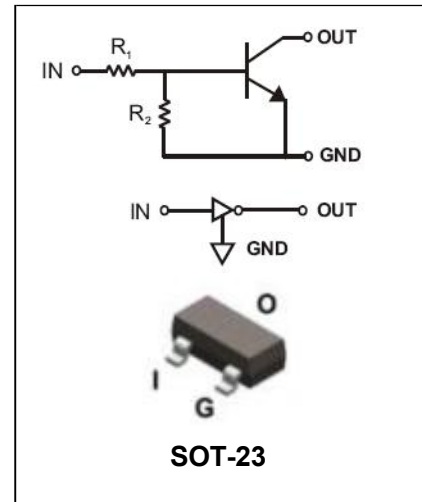


Digital Transistor

DTC(R₁=R₂ SERIES)CA

FEATURES

- Epitaxial planar die construction.
- Complementary PNP types available(DTA).
- Built-in biasing resistors,R₁=R₂.
- 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
DTC115ECA	29	SOT-23

MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units	
V _{CC}	Supply Voltage	50	V	
V _{IN}	Input Voltage	DTC114ECA DTC124ECA DTC143ECA DTC144ECA DTC115ECA	-10 to+40 -10 to+40 -10 to+30 -10 to+40 -10 to +40	V
I _O	Output Current	DTC114ECA DTC124ECA DTC143ECA DTC144ECA DTC115ECA	50 30 100 30 100	mA
I _C (Max.)	Output current	ALL	100	mA
P _D	Power Dissipation		200	mW
R _{θJA}	Thermal Resistance, Junction to Ambient Air *1		409	°C/W
R _{θJC}	Thermal Resistance, Junction to Case *1		225	°C/W
R _{θJL}	Thermal Resistance, Junction to Lead *1		197	°C/W
T _J , T _{STG}	Operating and Storage and Temperature Range		-55 to +150	°C



Digital Transistor

DTC(R₁=R₂ SERIES)CA

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 =100μA	0.5	-	-	V
Input Voltage	DTC114ECA	V _O =0.3V, I _o =10mA	-	-	3	
	DTC124ECA	V _O =0.2V, I _o =5mA				
	DTC143ECA	V _O =0.3V, I _o =20mA				
	DTC144ECA	V _O =0.3V, I _o =2mA				
	DTC115ECA	V _O =0.3V, I _o =1mA				
Output Voltage	DTC114ECA	I _b /I _i =10mA/0.5mA	-	-	0.3	V
	DTC124ECA	I _b /I _i =10mA/0.5mA				
	DTC143ECA	I _b /I _i =10mA/0.5mA				
	DTC144ECA	I _b /I _i =10mA/0.5mA				
	DTC115ECA	I _b /I _i =5mA/0.25mA				
Input Current	DTC114ECA	V _I =5V	-	-	0.88	mA
	DTC124ECA				0.36	
	DTC143ECA				1.8	
	DTC144ECA				0.18	
	DTC115ECA				0.15	
Output Current	I _{O(off)}	V _{CC} =50V, V _I =0V	-	-	0.5	μA
DC Current Gain	DTC114ECA	V _O =5V, I _o =5mA	30	-	-	-
	DTC124ECA	V _O =5V, I _o =5mA	56			
	DTC143ECA	V _O =5V, I _o =10mA	20			
	DTC144ECA	V _O =5V, I _o =5mA	68			
	DTC115ECA	V _O =5V, I _o =5mA	82			
Input Resistor	DTC114ECA	R ₁ (R ₂)	7	10	13	kΩ
	DTC124ECA		15.4	22	28.6	
	DTC143ECA		3.29	4.7	6.11	
	DTC144ECA		32.9	47	61.1	
	DTC115ECA		70	100	130	
Resistance Ratio	R ₂ /R ₁	-	0.8	1	1.2	
Transition frequency	f _T	V _O =10V, I _o =5mA, f=100MHz	-	250	-	MHz

Note 1: The data tested by surface mounted on a 15mm * 15mm * 1mm FR4-epoxy P.C.B

Digital Transistor

DTC(R₁=R₂ SERIES)CA

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

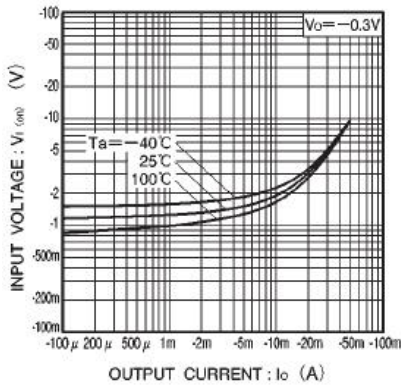


Fig.1 Input voltage vs. output current (ON characteristics)

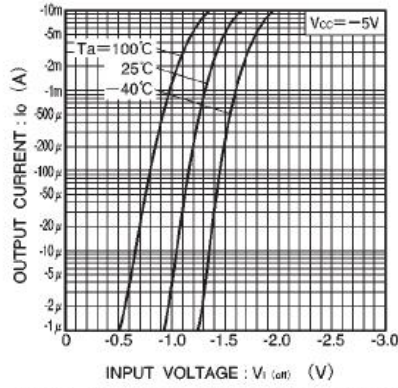


Fig.2 Output current vs. input voltage (OFF characteristics)

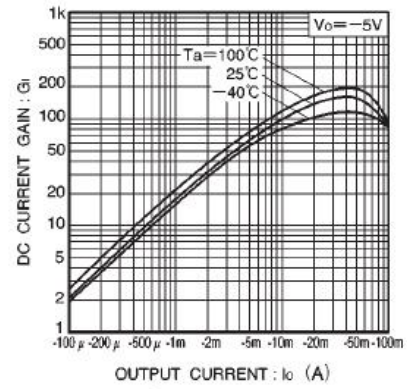


Fig.3 DC current gain vs. output current

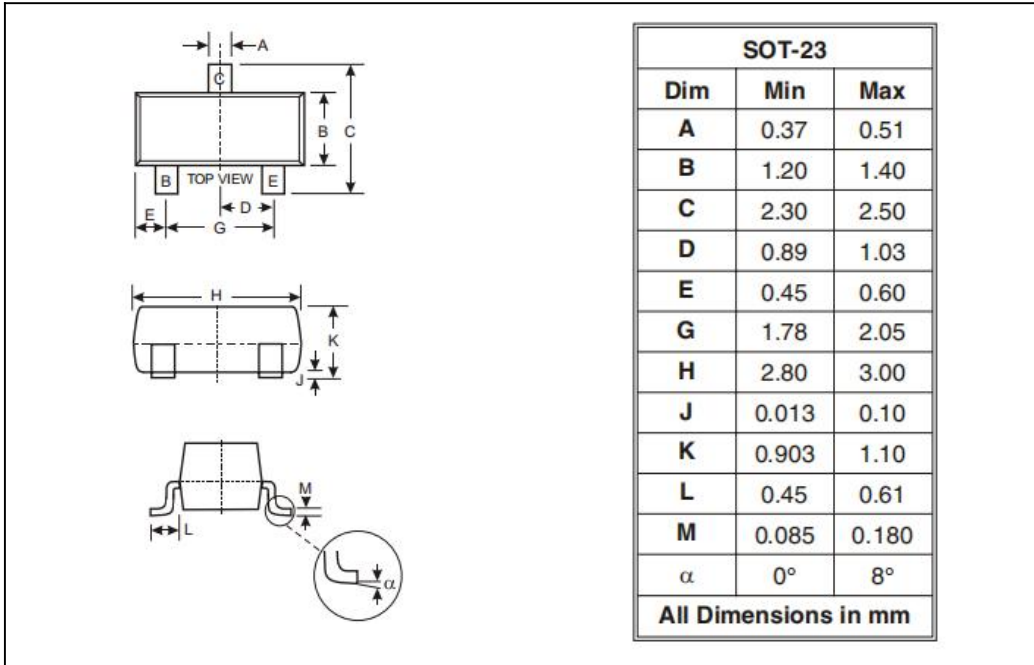
Digital Transistor

DTC(R₁=R₂ SERIES)CA

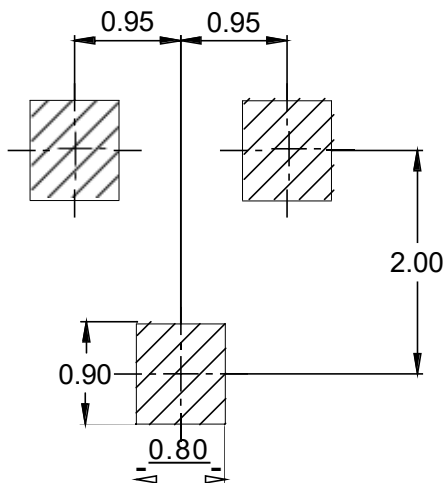
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



Unit: mm

PACKAGE INFORMATION

Device	Package	Shipping
DTC114ECA/124ECA/143ECA/144ECA/115ECA	SOT-23	3000 pcs / Tape & Reel