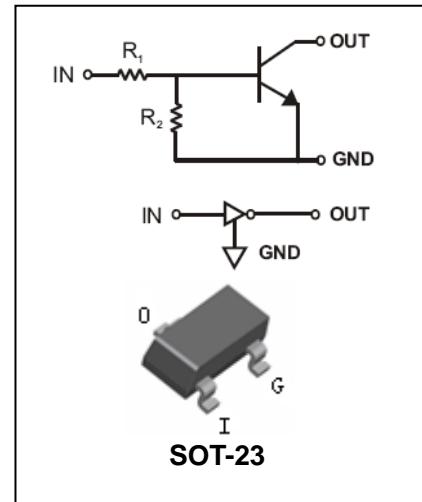


Digital Transistor

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

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	-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 _{θJA}	Thermal Resistance, Junction to Ambient Air		625	°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	$V_{I(off)}$	$V_{CC}=5V, I_O=100\mu A$	0.5	1.1	-	V		
Input Voltage	$V_{I(on)}$	DTC114ECA $V_O=0.3V, I_O=10mA$	-	1.9	3			
Input Voltage		DTC124ECA $V_O=0.2V, I_O=5mA$						
Input Voltage		DTC143ECA $V_O=0.3V, I_O=20mA$						
Input Voltage		DTC144ECA $V_O=0.3V, I_O=2mA$						
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	mA		
Input Current					DTC124ECA		0.36	
Input Current					DTC143ECA		1.8	
Input Current					DTC144ECA		0.18	
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			
DC Current Gain					DTC124ECA		56	
DC Current Gain					DTC143ECA		20	
DC Current Gain					DTC144ECA		68	
Input Resistor	$R_1(R_2)$			7	10	13	k Ω	
Input Resistor				DTC124ECA	15.4	22		28.6
Input Resistor				DTC143ECA	3.29	4.7		6.11
Input Resistor				DTC144ECA	32.9	47		61.1
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°C unless otherwise specified

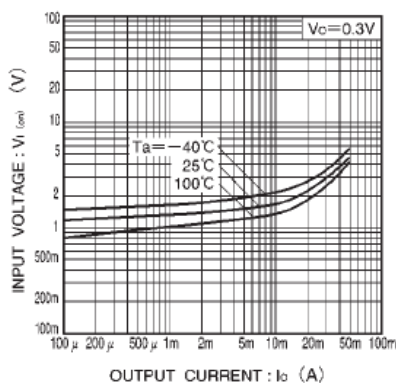


Fig.1 Input voltage vs. output current (ON characteristics)

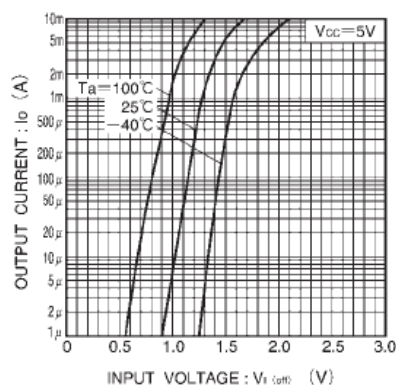


Fig.2 Output current vs. input voltage (OFF characteristics)

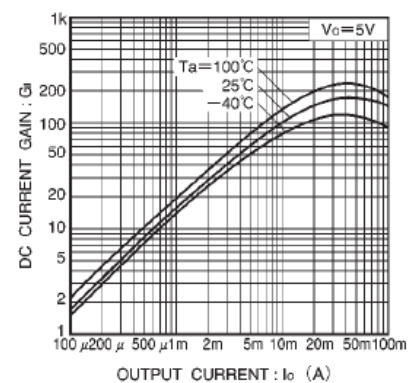


Fig.3 DC current gain vs. output current

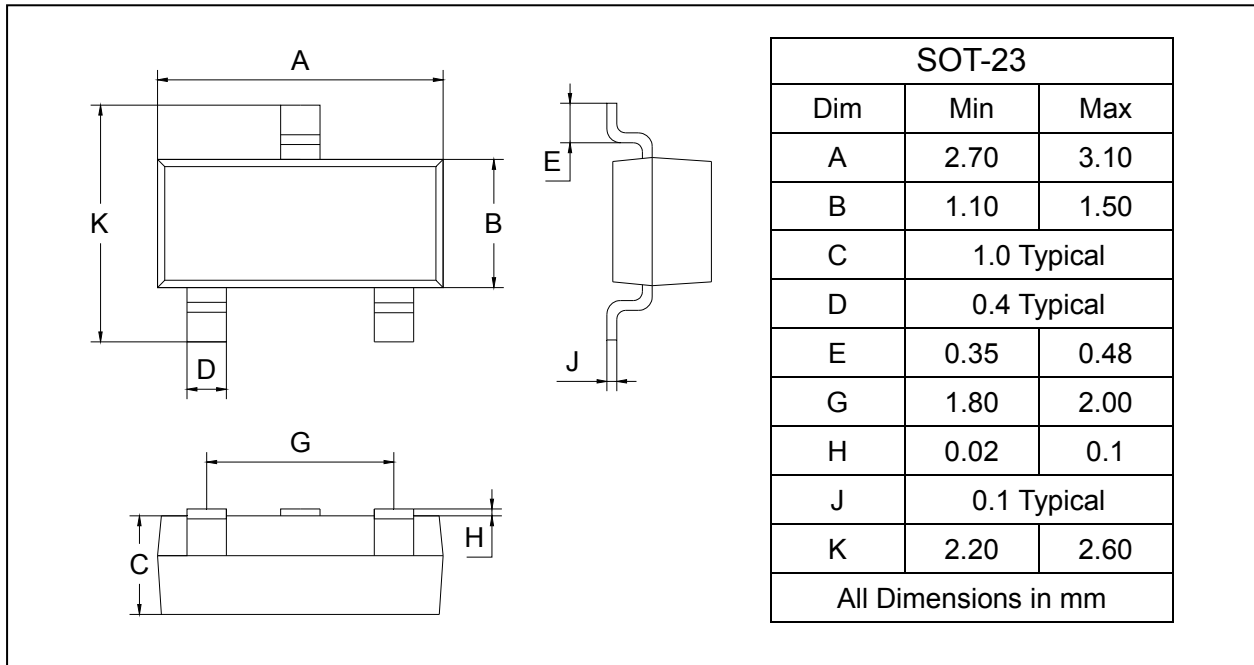
Digital Transistor

DTC(R₁=R₂ SERIES)CA

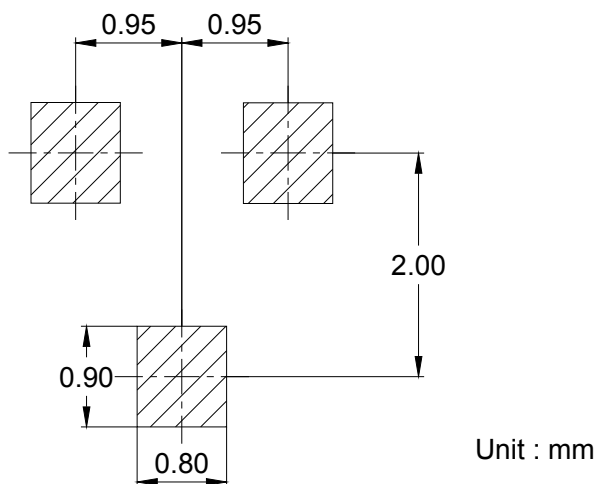
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

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