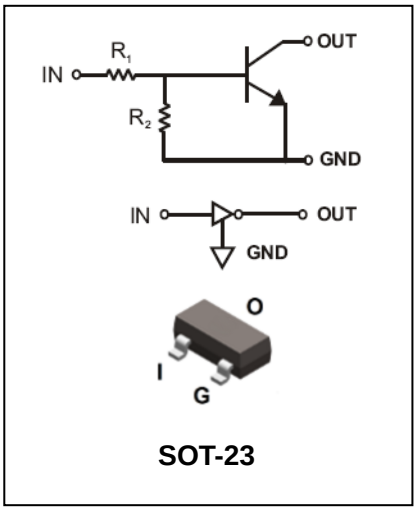
DTC(R1=R2 SERIES)CA

Digital Transistor(NPN)

FEATURES

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



SOT-23

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℃ unless otherwise specified

Symbol	Parameter		Value	Units
V_{CC}	Supply Voltage		50	V
V_{IN}	Input Voltage	DTC114ECA	-10 to+40	V
		DTC124ECA	-10 to+40	
		DTC143ECA	-10 to+30	
		DTC144ECA	-10 to+40	
		DTC115ECA	-10 to +40	
I_O	Output Current	DTC114ECA	50	mA
		DTC124ECA	30	
		DTC143ECA	100	
		DTC144ECA	100	
		DTC115ECA	100	
I_C(Max.)	Output current	ALL	100	mA
P_D	Power Dissipation		200	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Air *1		409	℃/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case *1		225	℃/W
$R_{\theta JL}$	Thermal Resistance, Junction to Lead *1		197	℃/W
T_J, T_{STG}	Operating and Storage and Temperature Range		-55 to +150	℃

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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	-	-	V
Input Voltage	DTC114ECA	$V_{I(on)}$	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	$V_{O(on)}$	I_o/I_I=10mA/0.5mA	-	-	0.3	V
	DTC124ECA		I_o/I_I=10mA/0.5mA				
	DTC143ECA		I_o/I_I=10mA/0.5mA				
	DTC144ECA		I_o/I_I=10mA/0.5mA				
	DTC115ECA		I_o/I_I=5mA/0.25mA				
Input Current	DTC114ECA	I_I	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	G_I	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	
Gain-Bandwidth Product		f_T	V_{CE}=10V,I_E=-5mA, f=100MHz	-	250	-	MHz

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

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

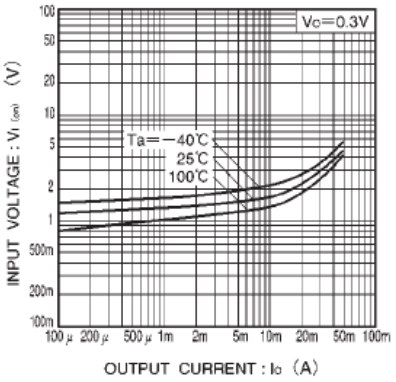

Fig.1 Input voltage vs. output current (ON characteristics)

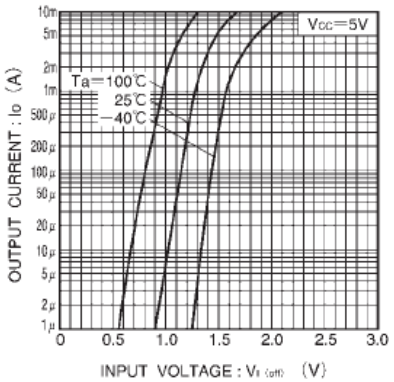

Fig.2 Output current vs. input voltage (OFF characteristics)

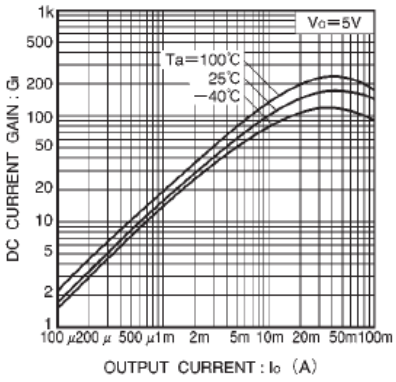

Fig.3 DC current gain vs. output current

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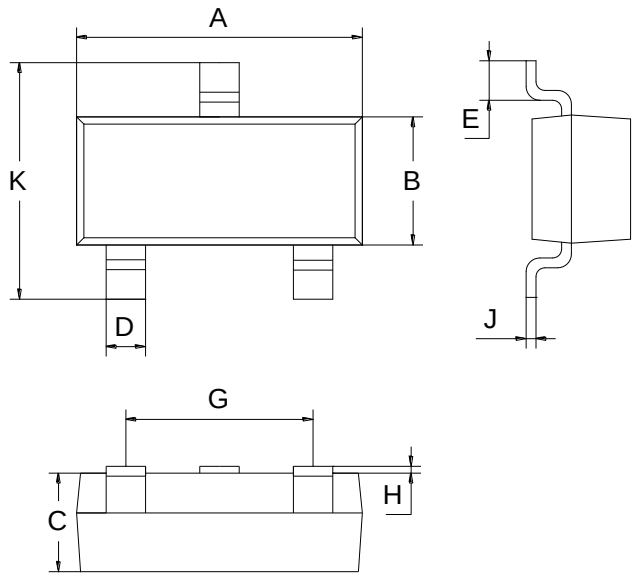
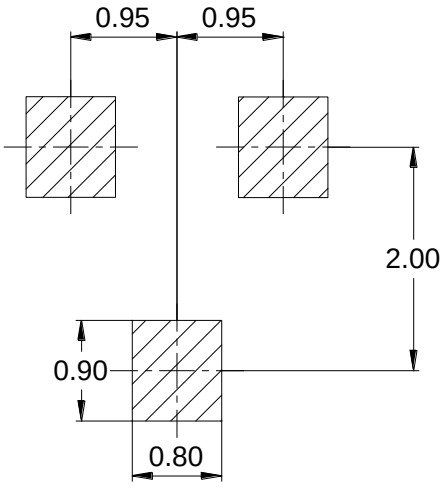
PACKAGE OUTLINE

Plastic surface mounted package SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit: mm

PACKAGE INFORMATION

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