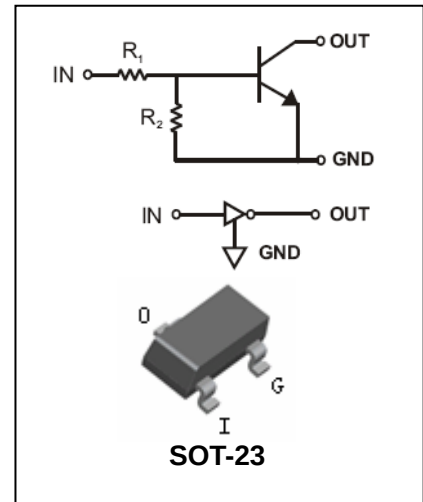


Digital Transistor

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
DTC143ECA	23	SOT-23
DTC124ECA	25	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 -10 to+40 DTC124ECA -10 to+40 DTC143ECA -10 to+30 DTC144ECA -10 to+40	V
I _O	Output Current	DTC114ECA 50 DTC124ECA 30 DTC143ECA 100 DTC144ECA 100	mA
I _C (Max.)	Output current	100	ALL 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℃ 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	DTC143ECA DTC114ECA DTC144ECA DTC124ECA	$V_{I(on)}$	$V_O=0.3V, I_O=20mA$ $V_O=0.3V, I_O=10mA$ $V_O=0.3V, I_O=2mA$ $V_O=0.3V, I_O=5mA$	-	1.9	3		
Output Voltage	DTC143ECA DTC114ECA DTC144ECA DTC124ECA	$V_{O(on)}$	$I_O/I_I=10mA/0.5mA,$	-	0.1	0.3		V
Input Current	DTC143ECA DTC114ECA DTC144ECA DTC124ECA	I_I	$V_I=5V$	-	-	1.8 0.88 0.18 0.36		mA
Output Current		$I_{O(off)}$	$V_{CC}=50V, V_I=0V$	-	-	0.5	μA	
DC Current Gain	DTC143ECA DTC114ECA DTC144ECA DTC124ECA	G_I	$V_O=5V, I_O=10mA$ $V_O=5V, I_O=5mA$ $V_O=5V, I_O=5mA$ $V_O=5V, I_O=5mA$	20 20 68 56	-	-		
Input Resistor	DTC143ECA DTC114ECA DTC144ECA DTC124ECA	$R_1(R_2)$			4.7 10 47 22		k Ω	
Input Resistor (R_1) Tolerance		ΔR_1	-	-30		+30	%	
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

Digital Transistor

DTC(R₁=R₂ SERIES)CA

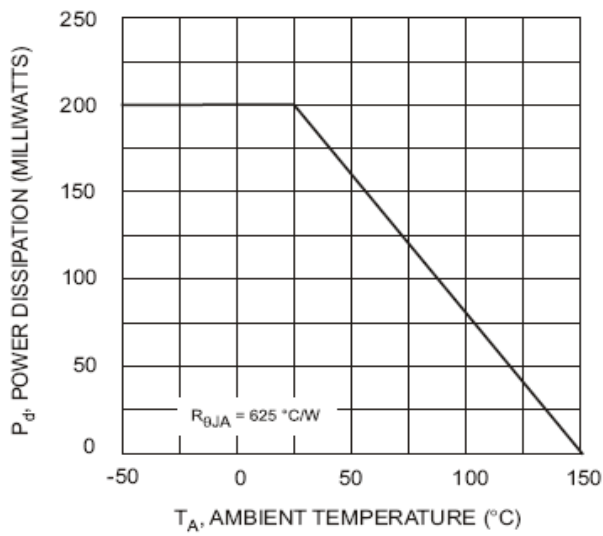


Fig. 1 Derating Curve

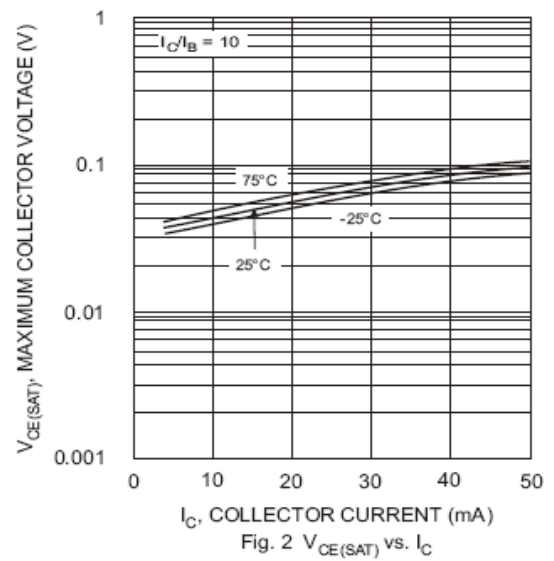


Fig. 2 V_{CE(SAT)} vs. I_C

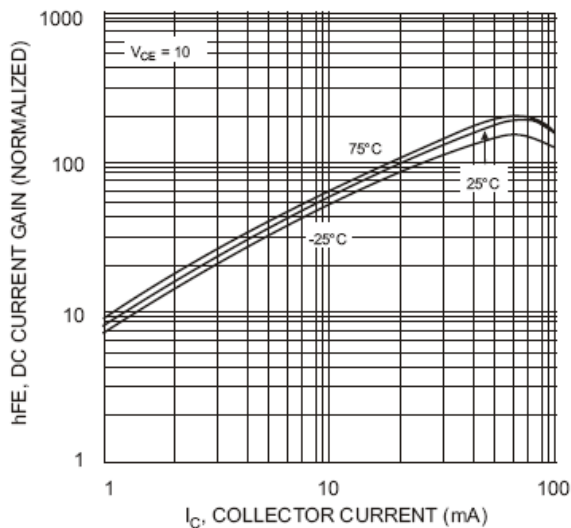


Fig. 3 DC CURRENT GAIN

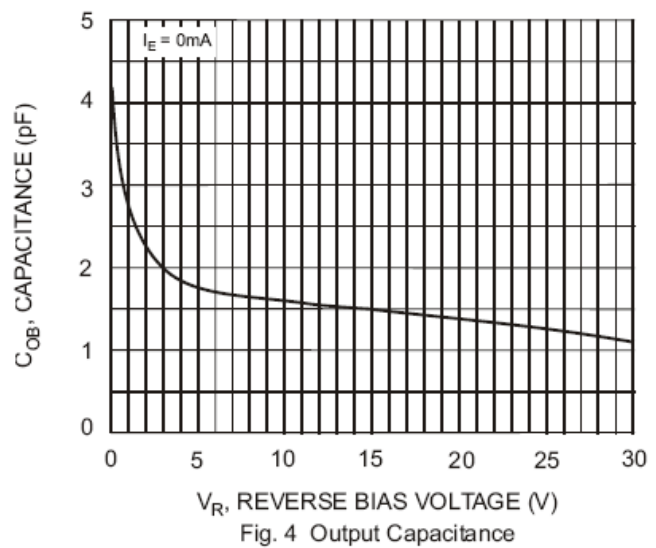


Fig. 4 Output Capacitance

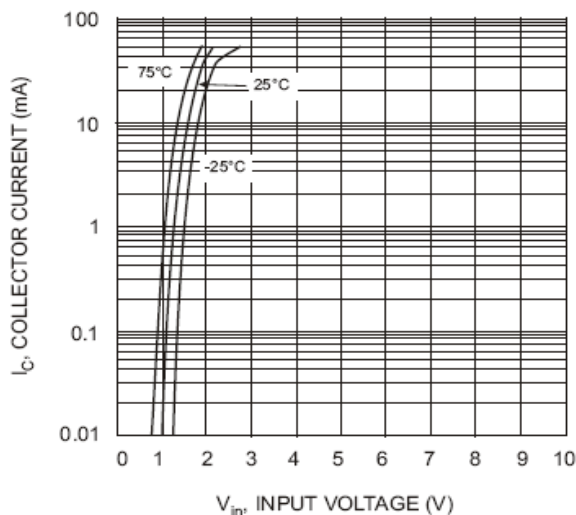


Fig. 5 Collector Current Vs. Input Voltage

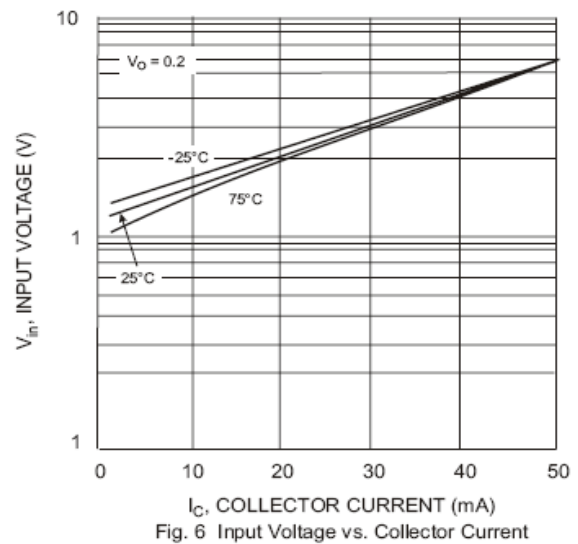


Fig. 6 Input Voltage vs. Collector Current

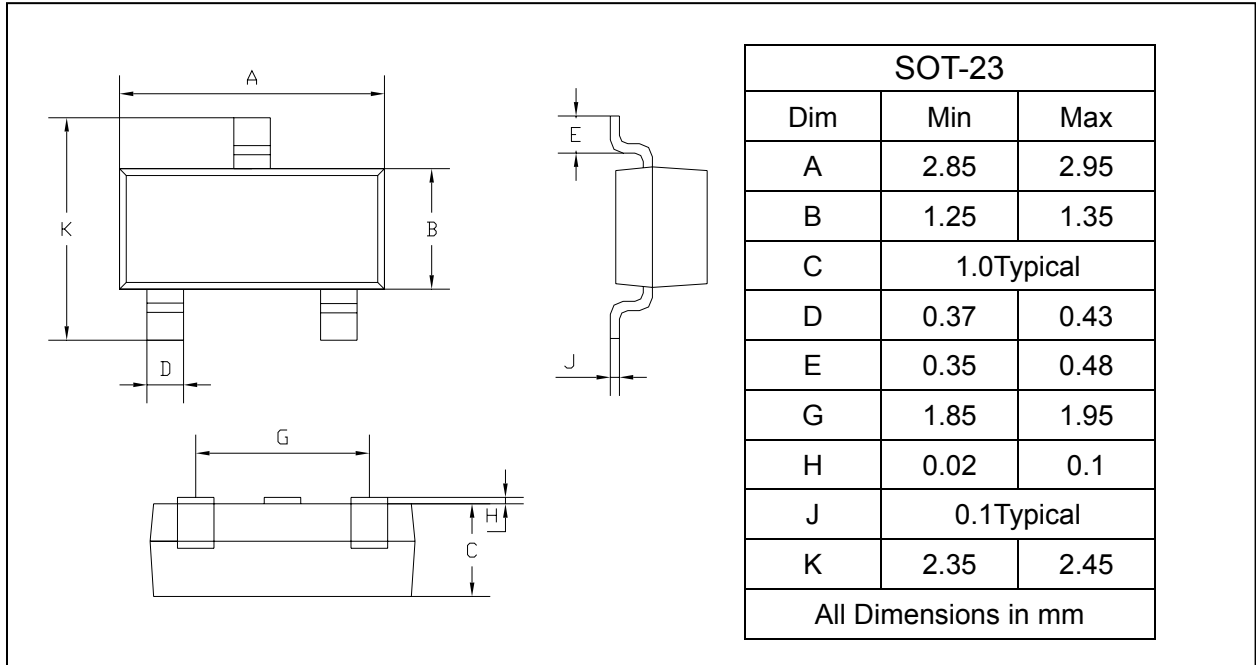
Digital Transistor

DTC(R₁=R₂ SERIES)CA

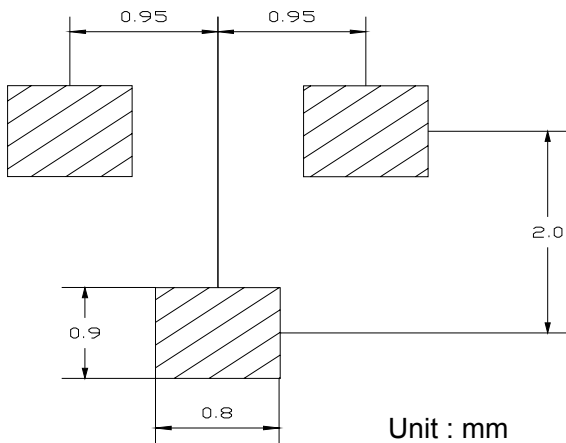
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

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