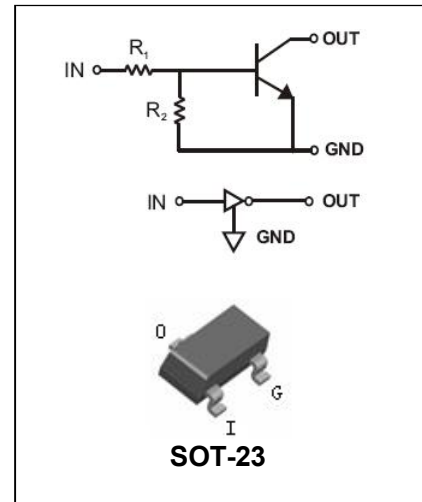


Digital Transistor

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
DTC113ZCA	E21	SOT-23
DTC114WCA	84	SOT-23
DTC114YCA	64	SOT-23
DTC123JCA	E42	SOT-23
DTC123YCA	62	SOT-23
DTC143XCA	43	SOT-23
DTC143ZCA	E23	SOT-23
DTC124XCA	N18	SOT-23

MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units
V _{CC}	Supply Voltage	50	V
V _{IN}	Input Voltage	DTC113ZCA	-5 to+10
		DTC114WCA	-10 to+30
		DTC114YCA	-6 to +40
		DTC123JCA	-5 to+12
		DTC123YCA	-5 to+12
		DTC143XCA	-7 to+20
		DTC143ZCA	-5 to+30
		DTC124XCA	-10 to+40
I _o	Output Current	DTC113ZCA	100
		DTC114WCA	100
		DTC114YCA	70
		DTC123JCA	100
		DTC123YCA	100
		DTC143XCA	100
		DTC143ZCA	100



Digital Transistor

DTC(R₁ ≠ R₂ SERIES)CA

	DTC124XCA		50	mA
I _c (Max.)	Output current	ALL	100	mA
P _D	Power Dissipation		200	mW
Symbol	Parameter		Value	Units
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

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

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage	DTC113ZCA DTC114WCA DTC114YCA DTC123JCA DTC123YCA DTC143XCA DTC143ZCA DTC124XCA	V _{I(off)} V _{CC} =5V, I _o =100μA	0.3 0.8 0.3 0.5 0.3 0.3 0.5 0.4	-	-	V
Input Voltage	DTC113ZCA DTC114WCA DTC114YCA DTC123JCA DTC123YCA DTC143XCA DTC143ZCA DTC124XCA	V _{I(on)} V _O =0.3V, I _o =20mA V _O =0.3V, I _o =2mA V _O =0.3V, I _o =1mA V _O =0.3V, I _o =5mA V _O =0.3V, I _o =20mA V _O =0.3V, I _o =20mA V _O =0.3V, I _o =5mA V _O =0.3V, I _o =5mA V _O =0.3V, I _o =2mA	-	-	3.0 3.0 1.4 1.1 3.0 2.5 1.3 2.5	
Output Voltage	DTC123JCA DTC143ZCA DTC114YCA ALL Others	V _{O(on)} I _b /I _i =5mA/0.25mA I _b /I _i =10mA/0.5mA	-	0.1	0.3	V
Input Current	DTC113ZCA DTC114WCA DTC114YCA DTC123JCA DTC123YCA DTC143XCA DTC143ZCA	I _i V _i =5V	-	-	7.2 0.88 0.88 3.6 3.8 1.8 1.8	mA



Digital Transistor

DTC(R₁ ≠ R₂ SERIES)CA

DTC124XCA						0.36	
Output Current		I _{O(off)}	V _{CC} =50V, V _I =0V	-	-	0.5	μA
DC Current Gain	DTC113ZCA	G _I	V _O =5V, I _O =5mA	33	-	-	
	DTC114WCA		V _O =5V, I _O =10mA	24			
	DTC114YCA		V _O =5V, I _O =5mA	68			
	DTC123JCA		V _O =5V, I _O =10mA	80			
	DTC123YCA		V _O =5V, I _O =10mA	33			
	DTC143XCA		V _O =5V, I _O =10mA	30			
	DTC143ZCA		V _O =5V, I _O =10mA	80			
	DTC124XCA		V _O =5V, I _O =10mA	68			
Parameter		Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Resistor	DTC113ZCA	R ₁ (R ₂)		0.7	1(10)	1.3	kΩ
	DTC114WCA			7	10(4.7)	13	
	DTC114YCA			7	10(47)	13	
	DTC123JCA			1.54	2.2(47)	2.86	
	DTC123YCA			1.54	2.2(10)	2.86	
	DTC143XCA			3.29	4.7(10)	6.11	
	DTC143ZCA			3.29	4.7(47)	6.11	
	DTC124XCA			15.4	22 (47)	28.6	
Input Resistor (R ₁) Tolerance		ΔR ₁	-	-30		+30	%
Resistance Ratio Tolerance		ΔR ₂ /R ₁	-	-20		+20	%
Transition frequency		f _T	V _O =10V, I _O =5mA, f=100MHz	-	250	-	MHz

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

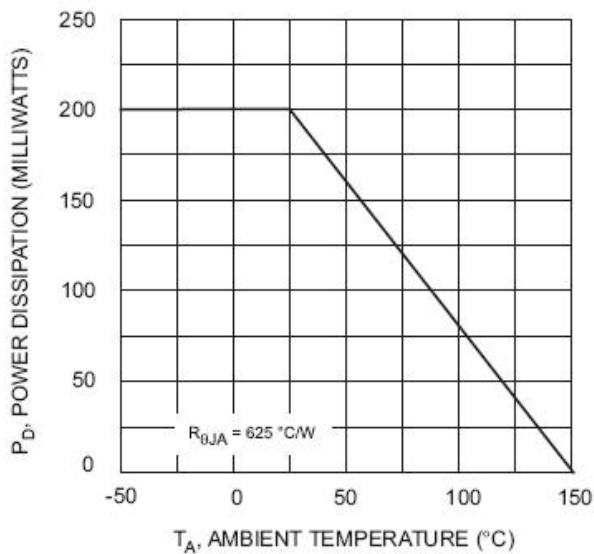


Fig. 1 Derating Curve

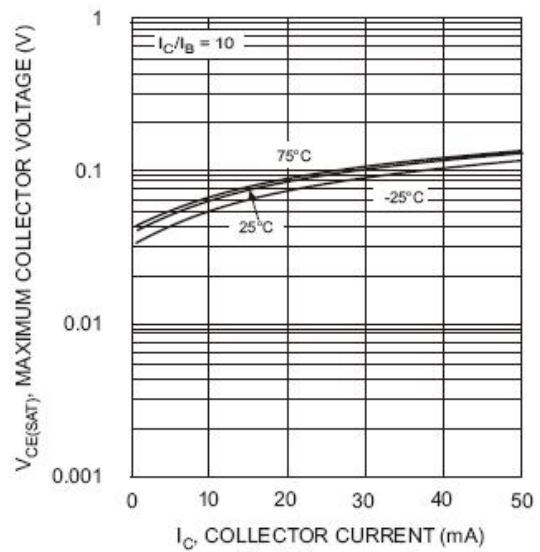
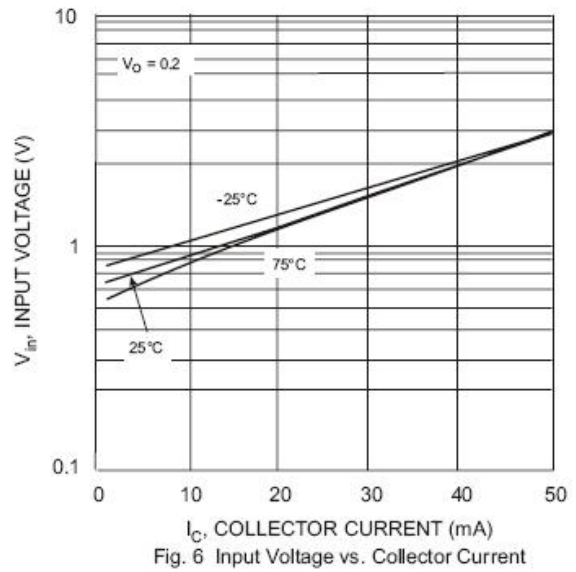
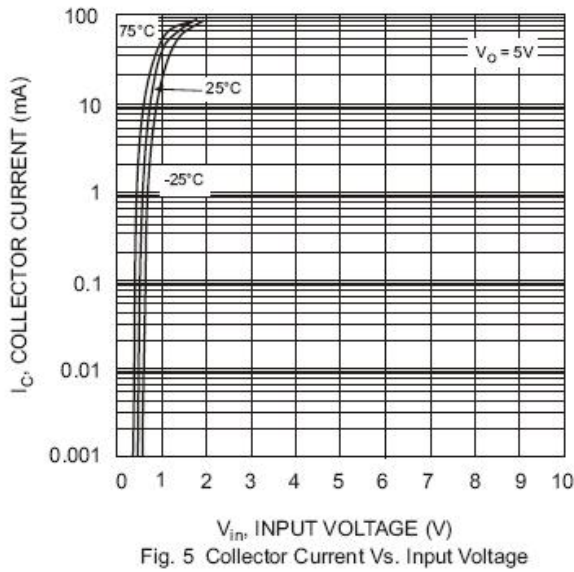
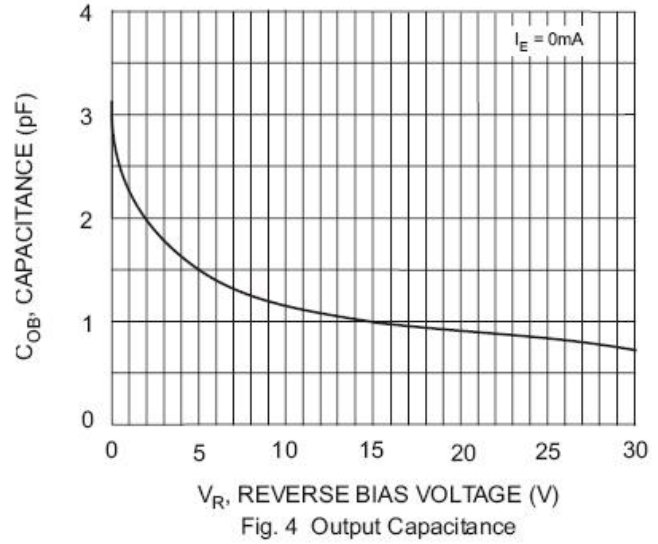
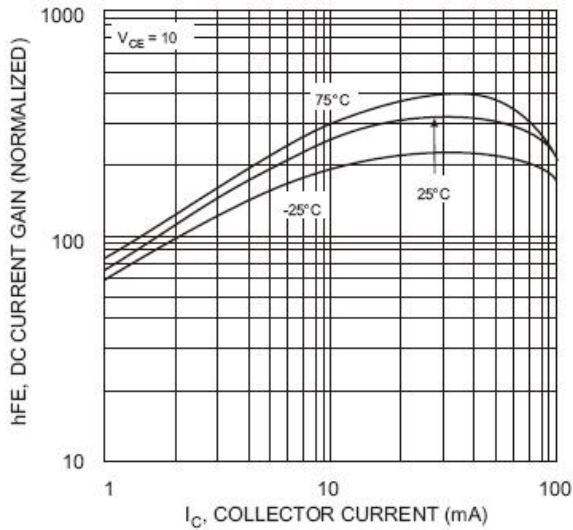


Fig. 2 V_{CE(SAT)} vs. I_C



Digital Transistor

DTC(R₁ ≠ R₂ SERIES)CA



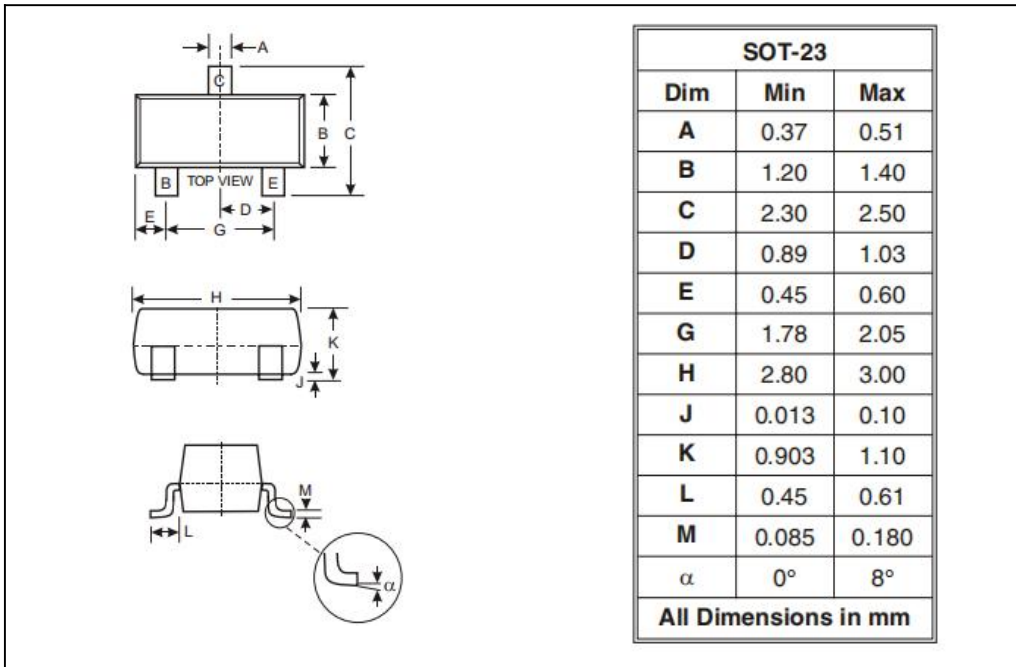
Digital Transistor

DTC(R₁ ≠ R₂ SERIES)CA

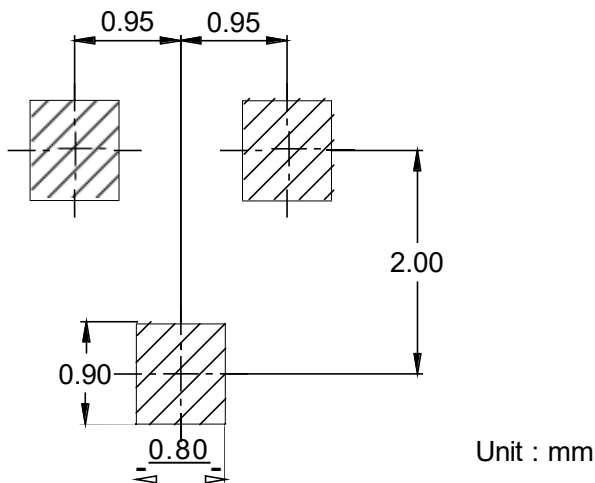
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
DTCXXXCA	SOT-23	3000pcs / Tape & Reel