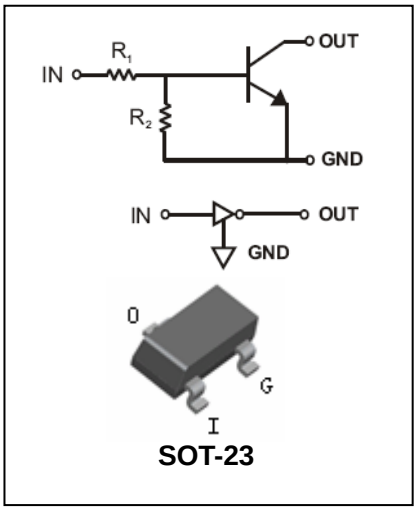
Digital Transistor DTC($R_1 \neq R_2$ SERIES)CA

FEATURES

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

Lead-free



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℃ unless otherwise specified

Symbol	Parameter		Value	Units
V_{CC}	Supply Voltage		50	V
V_{IN}	Input Voltage	DTC113ZCA	-5 to+10	V
		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	mA
		DTC114WCA	100	
		DTC114YCA	70	
		DTC123JCA	100	
		DTC123YCA	100	
		DTC143XCA	100	
		DTC143ZCA	100	

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	DTC124XCA	50	mA
I_C(Max.)	Output current ALL	100	mA
P_D	Power Dissipation	200	mW
Symbol	**Parameter**	**Value**	**Units**
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Air	625	℃/W
T_j,T_{stg}	Operating and Storage and Temperature Range	-55 to +150	℃

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter		**Symbol**	**Test conditions**	**MIN**	**TYP**	**MAX**	**UNIT**
Input Voltage	DTC113ZCA	$V_{I(off)}$	V_{CC}=5V,I_O=100μA	0.3	-	-	V
	DTC114WCA			0.8			
	DTC114YCA			0.3			
	DTC123JCA			0.5			
	DTC123YCA			0.3			
	DTC143XCA			0.3			
	DTC143ZCA			0.5			
	DTC124XCA			0.4			
Input Voltage	DTC113ZCA	$V_{I(on)}$	V_O=0.3V,I_O=20mA	-	-	3.0	
	DTC114WCA		V_O=0.3V,I_O=2mA			3.0	
	DTC114YCA		V_O=0.3V,I_O=1mA			1.4	
	DTC123JCA		V_O=0.3V,I_O=5mA			1.1	
	DTC123YCA		V_O=0.3V,I_O=20mA			3.0	
	DTC143XCA		V_O=0.3V,I_O=20mA			2.5	
	DTC143ZCA		V_O=0.3V,I_O=5mA			1.3	
	DTC124XCA		V_O=0.3V,I_O=2mA			2.5	
Output Voltage	DTC123JCA	$V_{O(on)}$	I_o/I_I=5mA/0.25mA	-	0.1	0.3	V
	DTC143ZCA						
	DTC114YCA						
	ALL Others		I_o/I_I=10mA/0.5mA				
Input Current	DTC113ZCA	I_I	V_I=5V	-	-	7.2	mA
	DTC114WCA					0.88	
	DTC114YCA					0.88	
	DTC123JCA					3.6	
	DTC123YCA					3.8	
	DTC143XCA					1.8	
	DTC143ZCA					1.8	
	DTC124XCA					0.36	
Output Current		$I_{O(off)}$	V_{CC}=50V,V_I=0V	-	-	0.5	μA

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DC Current Gain	DTC113ZCA	G_I	V_O=5V,I_O=10mA	33	-	-
	DTC114WCA			24		
	DTC114YCA			68		
	DTC123JCA			80		
	DTC123YCA			33		
	DTC143XCA			30		
	DTC143ZCA			80		
	DTC124XCA			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		$\Delta R_2/R_1$	-	-20		+20	%
Gain-Bandwidth Product		f_T	V_{CE}=10V,I_E=5mA, f=100MHz	-	250	-	MHz

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

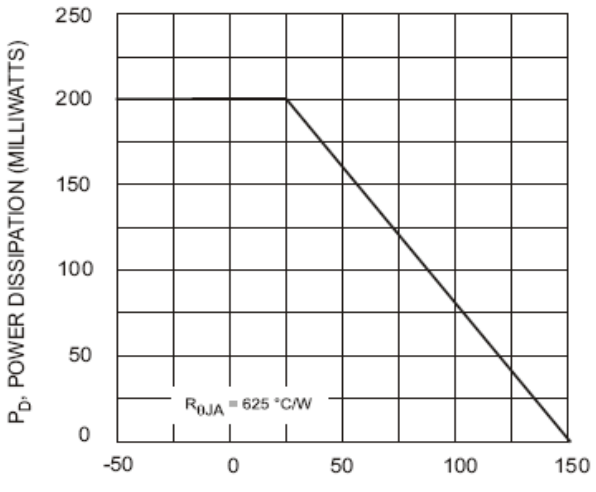

Fig. 1 Derating Curve

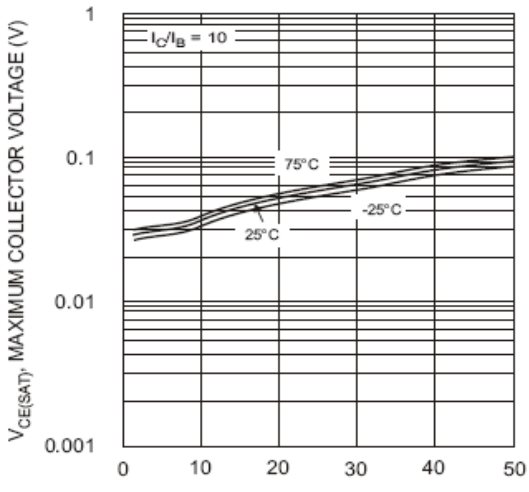

Fig. 2 $V_{CE(SAT)}$ vs. I_C

Digital Transistor

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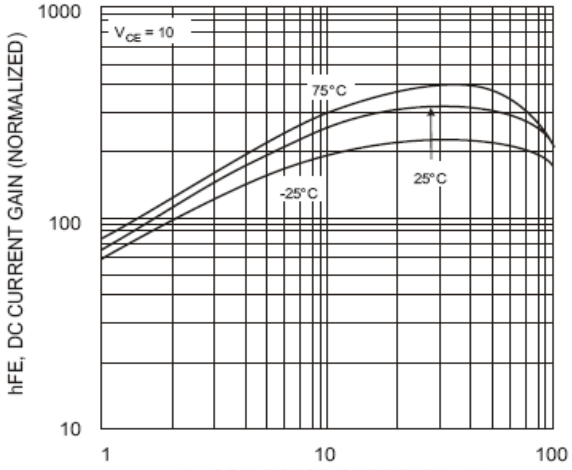

Fig. 3 DC CURRENT GAIN

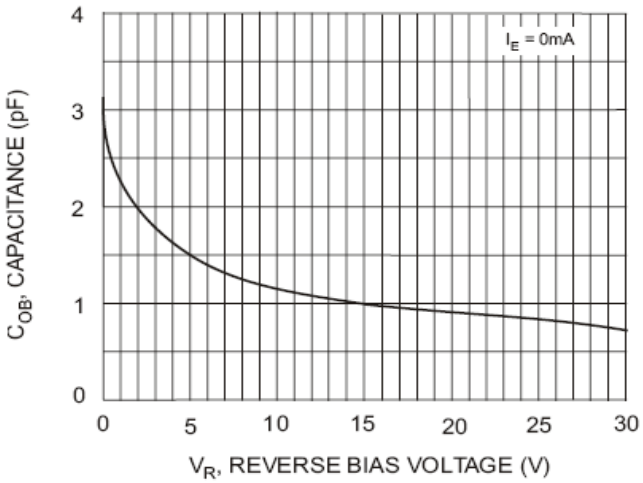

Fig. 4 Output Capacitance

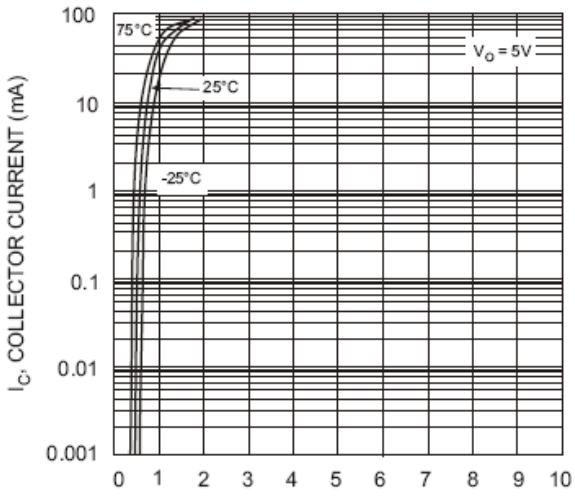

Fig. 5 Collector Current Vs. Input Voltage

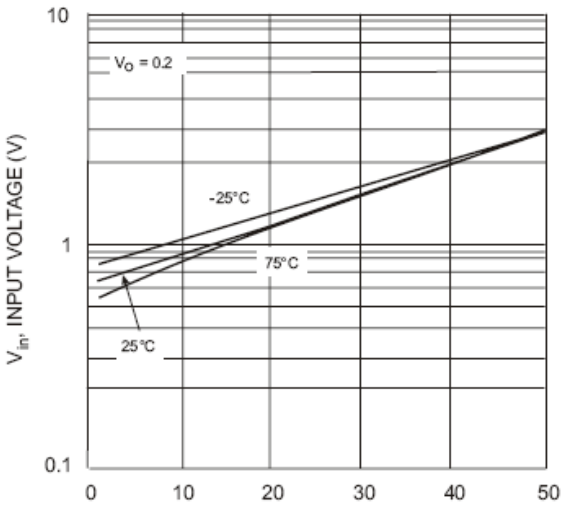

Fig. 6 Input Voltage vs. Collector Current

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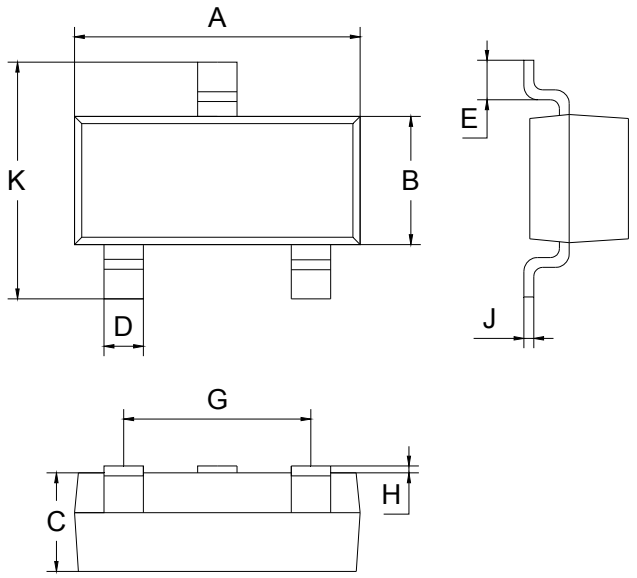
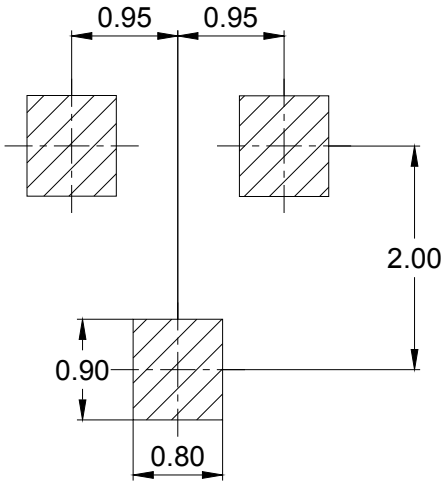
PACKAGE OUTLINE

Plastic surface mounted package SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.1 Typical	
K	2.20	2.60
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
DTCXXXXCA	SOT-23	3000/Tape&Reel