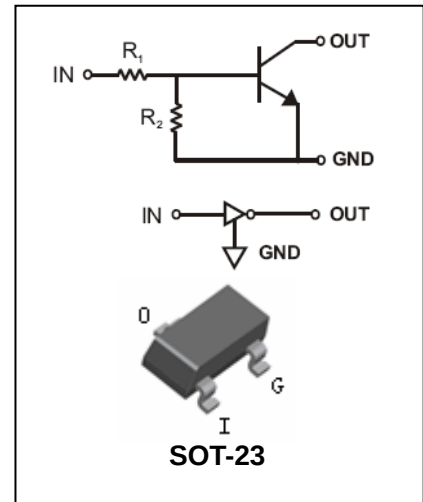


Digital Transistor

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

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	V
I _O	Output Current	DTC113ZCA 100 DTC114WCA 100 DTC114YCA 70 DTC123JCA 100 DTC123YCA 100 DTC143XCA 100 DTC143ZCA 100	mA
I _C (Max.)	Output current	ALL 100	mA
P _D	Power Dissipation	200	mW

Digital Transistor

DTC(R₁≠R₂ SERIES)CA

Symbol	Parameter	Value	Units
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

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

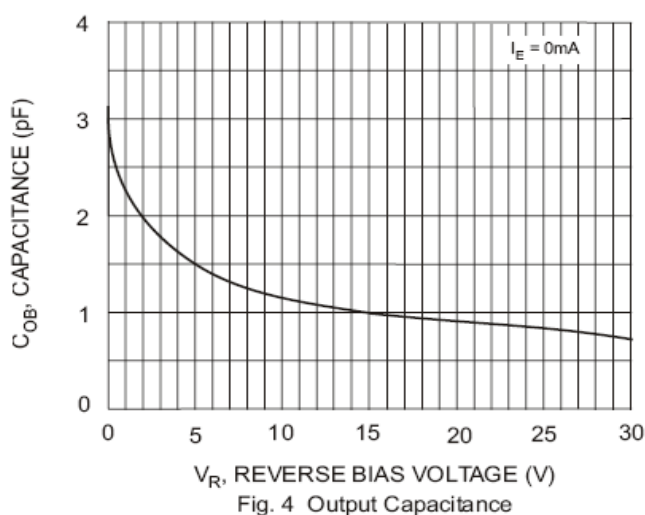
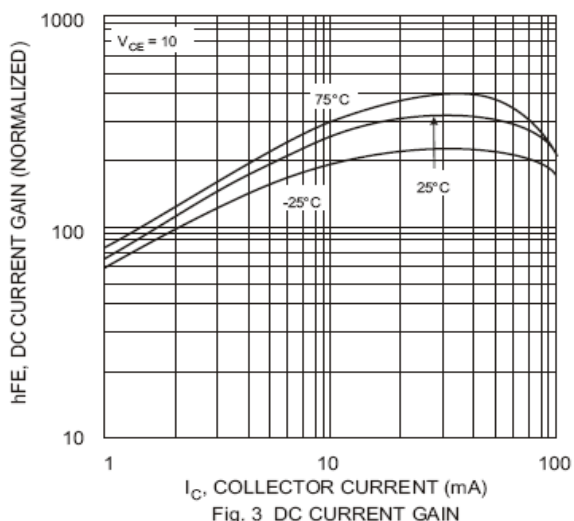
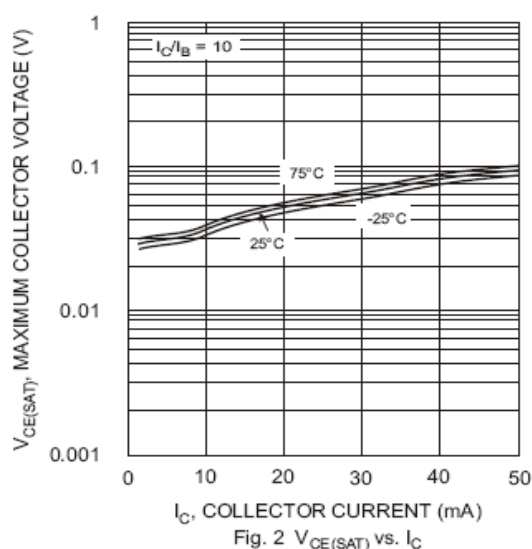
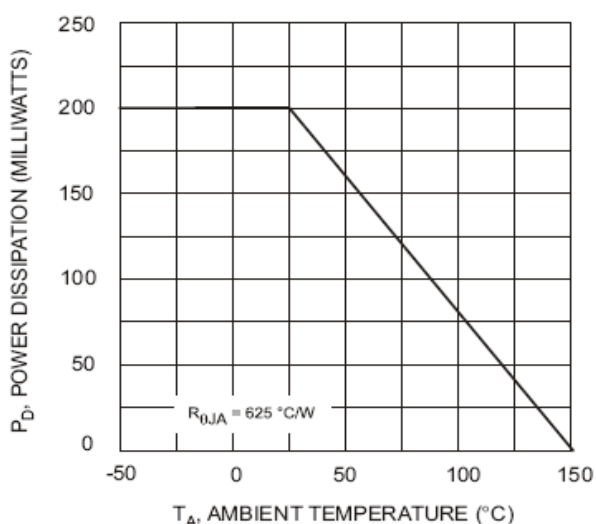
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Voltage	DTC113ZCA DTC114WCA DTC114YCA DTC123JCA DTC123YCA DTC143XCA DTC143ZCA	V _{I(off)} V _{CC} =5V, I _O =100μA	0.3 0.8 0.3 0.5 0.3 0.3 0.5	-	-	V
Input Voltage	DTC113ZCA DTC114WCA DTC114YCA DTC123JCA DTC123YCA DTC143XCA DTC143ZCA	V _{I(on)} V _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	-	-	3.0 3.0 1.4 1.1 3.0 2.5 1.3	V
Output Voltage	DTC123JCA DTC143ZCA DTC114YCA ALL Others	V _{O(on)} I _O /I _I =5mA/0.25mA I _O /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
Output Current		I _{O(off)} V _{CC} =50V, V _I =0V	-	-	0.5	μA
DC Current Gain	DTC113ZCA DTC114WCA DTC114YCA DTC123JCA DTC123YCA DTC143XCA DTC143ZCA	G _I V _O =5V, I _O =10mA	33 24 68 80 33 30 80	-	-	

Digital Transistor

DTC(R₁≠R₂ SERIES)CA

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Input Resistor DTC113ZCA DTC114WCA DTC114YCA DTC123JCA DTC123YCA DTC143XCA DTC143ZCA	R ₁ (R ₂)			1(10) 10(4.7) 10(47) 2.2(47) 2.2(10) 4.7(10) 4.7(47)		kΩ
Input Resistor (R ₁) Tolerance	ΔR ₁	-	-30		+30	%
Resistance Ratio Tolerance	ΔR ₂ /R ₁	-	-20		+20	%
Gain-Bandwidth Product	f _T	V _{CE} =10V, I _E =5mA, f=100MHz	-	250	-	MHz

TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified



Digital Transistor

DTC(R₁≠R₂ SERIES)CA

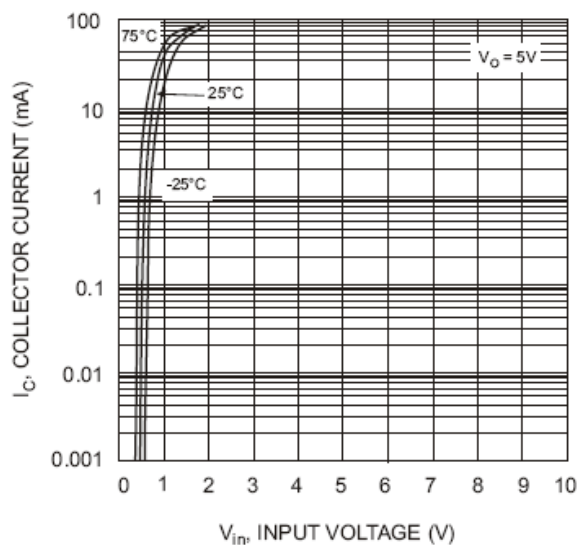


Fig. 5 Collector Current Vs. Input Voltage

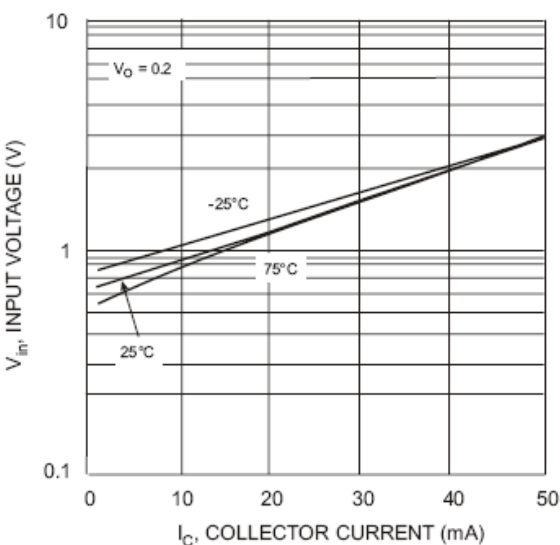


Fig. 6 Input Voltage vs. Collector Current

PACKAGE OUTLINE

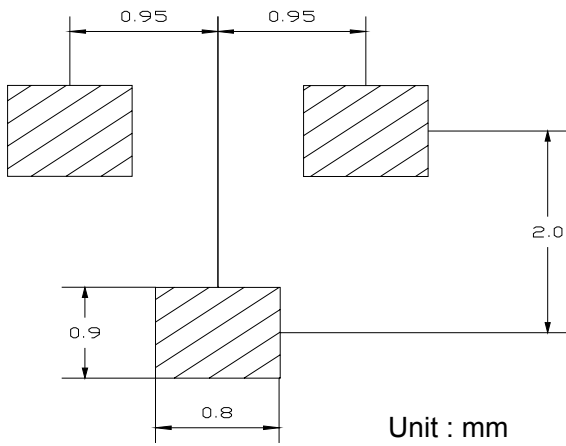
Plastic surface mounted package

SOT-23

The drawing shows three views of the SOT-23 package: a top view with dimensions A (width), B (height), and D (lead width); a side view with dimensions E (lead height), J (lead thickness), and K (body height); and a bottom view with dimensions G (lead spacing), H (lead height), and C (body thickness).

SOT-23		
Dim	Min	Max
A	2.85	2.95
B	1.25	1.35
C	1.0Typical	
D	0.37	0.43
E	0.35	0.48
G	1.85	1.95
H	0.02	0.1
J	0.1Typical	
K	2.35	2.45
All Dimensions in mm		

Digital Transistor**DTC(R₁≠R₂ SERIES)CA**

SOLDERING FOOTPRINT**PACKAGE INFORMATION**

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