# Digital transistors (built-in resistor) DTC623TU / DTC623TK

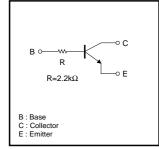
## Features

- In addition to the features of regular digital transistors.
- 1) Low saturation voltage, typically
- VCE (sat) =40mV at Ic / IB=50mA / 2.5mA, makes these transistors ideal for muting circuits.
- 2) These transistors can be used at high current levels, Ic=600mA.

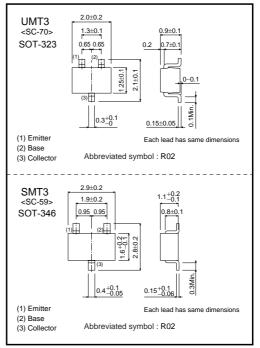
# Structure

NPN digital transistor (Built-in resistor type)

## Equivalent circuit



# •External dimensions (Unit : mm)



### Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	Vcbo	20	V
Collector-emitter voltage	VCEO	20	V
Emitter-base voltage	VEBO	12	V
Collector current	lc	600	mA
Collector power dissipation	Pc	200	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

# Transistors

## •Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
Collector-base breakdown voltage	ВVсво	20	-	-	V	Ic=50μA	
Collector-emitter breakdown voltage	BVCEO	20	-	-	V	Ic=1mA	
Emitter-base breakdown voltage	BVEBO	12	-	-	V	I <sub>E</sub> =50μA	
Collector cutoff current	Ісво	-	-	0.5	μA	V <sub>CB</sub> =20V	
Emitter cutoff current	I <sub>EBO</sub>	-	-	0.5	μA	V <sub>EB</sub> =12V	
Collector-emitter saturation voltage	VCE (sat)	-	40	150	mV	Ic=50mA, Iв=2.5mA	
DC current transfer ratio	hfe	820	-	2700	_	V <sub>CE</sub> =5V, I <sub>C</sub> =50mA	
Input resistance	R1	1.54	2.2	2.86	kΩ	_	
Transition frequency	f⊤	-	150	-	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> =-50mA, f=100MHz *	
Output "ON" resistance	Ron	-	0.4	_	Ω	VI=5V, R∟=1kΩ, f=1kHz	

\*Transition frequency of the device.

## Packaging specifications and hre

Turno	Package	UMT3	SMT3
	Packaging type	Taping	Taping
Туре	Code	T106	T146
	Basic ordering unit (pieces)	3000	3000
DTC623TU		0	_
DTC623TK		-	0

## •Electrical characteristic curves

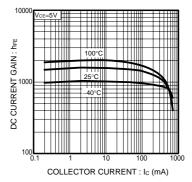


Fig.1 DC Current Gain vs. Collector Current

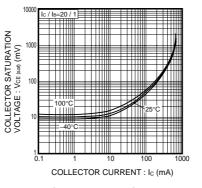


Fig.2 Collector-Emitter Saturation Voltage vs. Collector Current

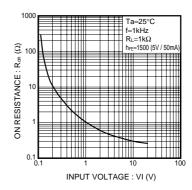


Fig.3 "ON" resistance vs. Input Voltage

### •Ron measurement circuit

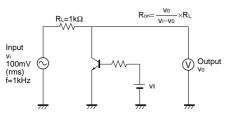


Fig.4 Output "ON" resistance (Ron) measurement circuit

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