



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Digital transistors (built-in resistor)

DTC314TU / DTC314TK

●Features

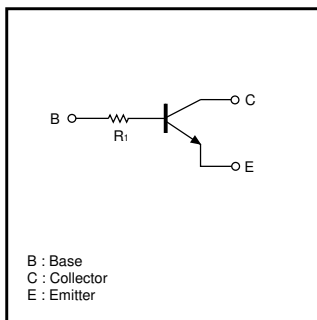
In addition to the features of regular digital transistors,

- 1) Low saturation voltage, typically $V_{CE(sat)}=40mV$ at $I_C/I_B=50mA/2.5mA$, makes these transistors ideal for muting circuits.
- 2) These transistors can be used at high current levels, $I_C=600mA$.

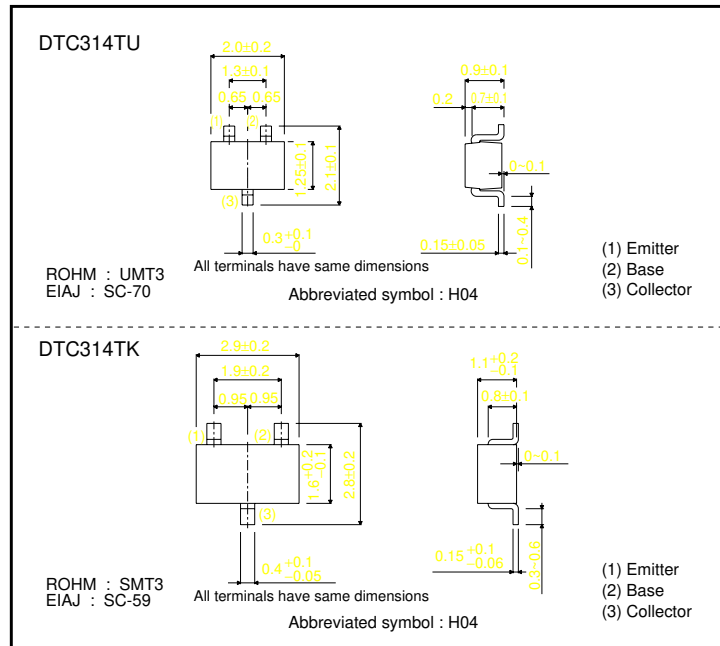
●Structure

NPN digital transistor
(Built-in resistor type)

●Equivalent circuit



●External dimensions (Units : mm)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits(DTC314T□)		Unit
		U	K	
Collector-base voltage	V_{CBO}	30		V
Collector-emitter voltage	V_{CEO}	15		V
Emitter-base voltage	V_{EBO}	5		V
Collector current	I_C	600		mA
Collector power dissipation	P_C	200		mW
Junction temperature	T_j	150		°C
Storage temperature	T_{stg}	-55~+150		°C

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CBO}	30	–	–	V	I _C =50μA
Collector-emitter breakdown voltage	BV _{CEO}	15	–	–	V	I _C =1mA
Emitter-base breakdown voltage	BV _{EBO}	5	–	–	V	I _E =50μA
Collector cutoff current	I _{CBO}	–	–	0.5	μA	V _{CB} =20V
Emitter cutoff current	I _{EBO}	–	–	0.5	μA	V _{EB} =4V
Collector-emitter saturation voltage	V _{CE(sat)}	–	40	80	mV	I _C /I _B =50mA/2.5mA
DC current transfer ratio	h _{FE}	100	250	600	–	V _{CE} =5V, I _C =50mA
Input resistance	R _i	7	10	13	kΩ	–
Transition frequency	f _T	–	200	–	MHz	V _{CE} =10V, I _E =–50mA, f=100MHz *
Output "ON" resistance	R _{on}	–	1.5	–	Ω	V _i =7V, R _L =1kΩ, f=1kHz

* Transition frequency of the device

●Packaging specifications

Type	Package	UMT3	SMT3
	Packaging type	Taping	Taping
	Code	T106	T146
	Basic ordering unit (pieces)	3000	3000
DTC314TU		○	–
DTC314TK		–	○

●Electrical characteristic curves

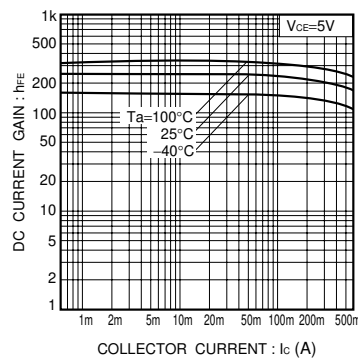


Fig.1 DC current gain vs. collector current

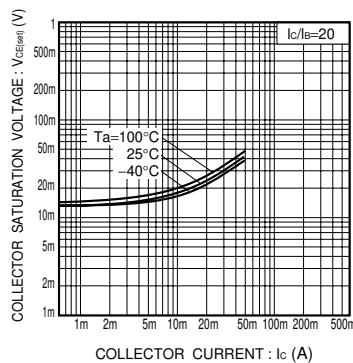


Fig.2 Collector-emitter saturation voltage vs. collector current

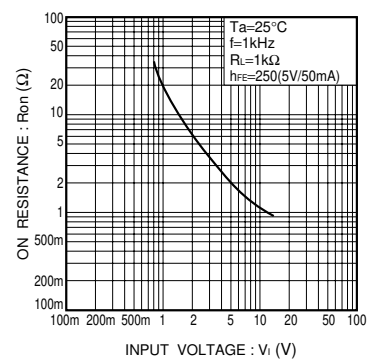


Fig.3 "ON" resistance vs. input voltage

Transistors

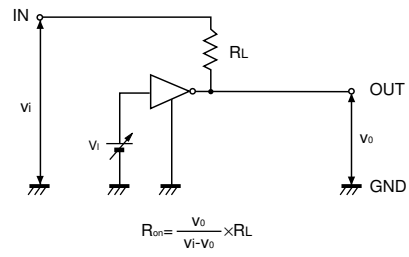
● R_{on} measurement circuit

Fig.4 Output "ON" resistance (R_{on}) measurement circuit