

# Digital transistors (built-in resistor)

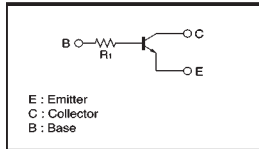
## DTC323TU / DTC323TK / DTC323TS

### ●Features

In addition to the features of regular digital transistors,

- 1) Low  $V_{CE(sat)}$  makes these transistors ideal for muting circuits.  
(Typ. 0.04V at  $I_C/I_B=50/2.5mA$ )
- 2) They can be used at high current. ( $I_{CMax.}=600mA$ )

### ●Circuit schematic



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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	30	—	—	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	15	—	—	V	$I_C=1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	5	—	—	V	$I_E=50\mu A$
Collector cutoff current	$I_{CBO}$	—	—	0.5	$\mu A$	$V_{CB}=20V$
Emitter cutoff current	$I_{EBO}$	—	—	0.5	$\mu A$	$V_{EB}=4V$
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	—	$I_C=50mA, V_{CE}=5V$
Input resistance	$R_1$	1.64	2.2	2.86	k $\Omega$	—
Transition frequency	$f_r$	—	200	—	MHz	$V_{CE}=10V, I_E=-50mA, f=100MHz$ *
Output on resistance	$R_{on}$	—	0.65	—	$\Omega$	$V_I=7V, R_L=1k\Omega, f=1kHz$

\* Transition frequency of the device.

(96-348-C323T)

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

Parameter	Symbol	Limits	Unit
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	DTC323TU / DTC323TK	200	mW
	DTC323TS	300	
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	-55~+150	°C

### ●Package, marking, and packaging specifications

Part No.	DTC323TU	DTC323TK	DTC323TS
Package	UMT3	SMT3	SPT
Marking	H02	H02	—
Packaging code	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	5000

# Digital transistors (built-in resistor)

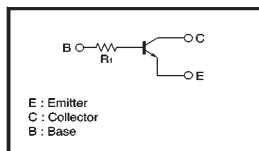
## DTC343TK / DTC343TS

### ●Features

In addition to the features of regular digital transistors,

- 1) Low  $V_{CE(sat)}$  makes these transistors ideal for muting circuits.  
(Typ. 0.04V at  $I_C/I_B=50/2.5mA$ )
- 2) They can be used at high current. ( $I_{CMax.}=600mA$ )

### ●Circuit schematic



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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	30	—	—	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	15	—	—	V	$I_C=1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	5	—	—	V	$I_E=50\mu A$
Collector cutoff current	$I_{CBO}$	—	—	0.5	$\mu A$	$V_{CB}=20V$
Emitter cutoff current	$I_{EBO}$	—	—	0.5	$\mu A$	$V_{EB}=4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	40	80	mV	$I_C=50mA, I_B=2.5mA$
DC current transfer ratio	$h_{FE}$	100	250	600	—	$I_C=50mA, V_{CE}=5V$
Input resistance	$R_1$	3.29	4.7	6.11	k $\Omega$	—
Transition frequency	$f_r$	—	200	—	MHz	$V_{CE}=10V, I_E=-50mA, f=100MHz$ *
Output on resistance	$R_{on}$	—	0.95	—	$\Omega$	$V_I=7V, R_L=1k\Omega, f=1kHz$

\* Transition frequency of the device.

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

Parameter	Symbol	Limits	Unit
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	DTC343TK	200	mW
	DTC343TS	300	
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	-55~+150	°C

### ●Package, marking, and packaging specifications

Part No.	DTC343TK	DTC343TS
Package	SMT3	SPT
Marking	H03	—
Packaging code	T146	TP
Basic ordering unit (pieces)	3000	5000

(94S-751-C343T)