

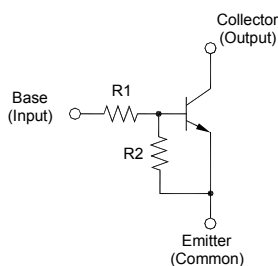
Digital Transistors (Built-in Resistors)

DIGITAL TRANSISTOR (NPN)

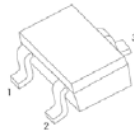
FEATURES

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input.They also have the advantage of almost completely eliminating parasitic effects
- Only the on/off conditions need to be set for operation, making device design easy

Equivalent Circuit



SOT-523



1. IN
2. GND
3. OUT

MARKING: E42

MAXIMUM RATINGS(Ta=25°C unless otherwise noted)

Symbol	Parameter	Limits(DTC123JE)	Unit
V _{CC}	Supply Voltage	50	V
V _{IN}	Input Voltage	-5~+12	V
I _O	Output Current	100	mA
P _D	Power Dissipation	150	
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55~+150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_O=100\mu A$	0.5			V
	$V_{I(on)}$	$V_O=0.3V, I_O=5mA$			1.1	V
Output voltage	$V_{O(on)}$	$I_O/I_I=5mA/0.25mA$		0.1	0.3	V
Input current	I_I	$V_I=5V$			3.6	mA
Output current	$I_{O(off)}$	$V_{CC}=50V, V_I=0$			0.5	μA
DC current gain	G_I	$V_O=5V, I_O=10mA$	80			
Input resistance	R_1		1.54	2.2	2.86	k Ω
Resistance ratio	R_2/R_1		17	21	26	
Transition frequency	f_T	$V_O=10V, I_O=5mA, f=100MHz$		250		MHz

