

Digital Transistors (Built-in Resistors)

Dual Digital Transistors (NPN+PNP)

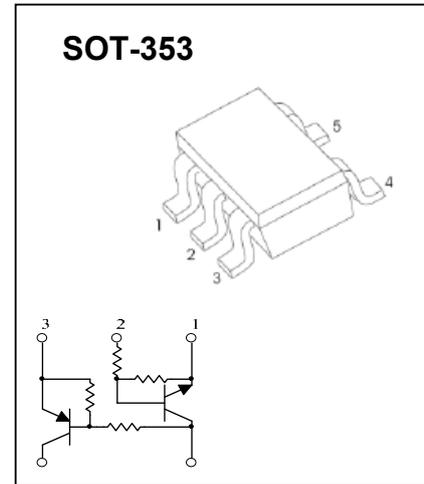
FEATURES

- DTC144E and DTA114Y transistors are built-in a package

MARKING: C4

NPN DTC144E Absolute maximum ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-10~40	V
Output current	I_o	100	mA
	$I_{C(MAX)}$	100	
Power dissipation	P_C	150	mW
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^\circ\text{C}$



Electrical characteristics ($T_a=25^\circ\text{C}$)

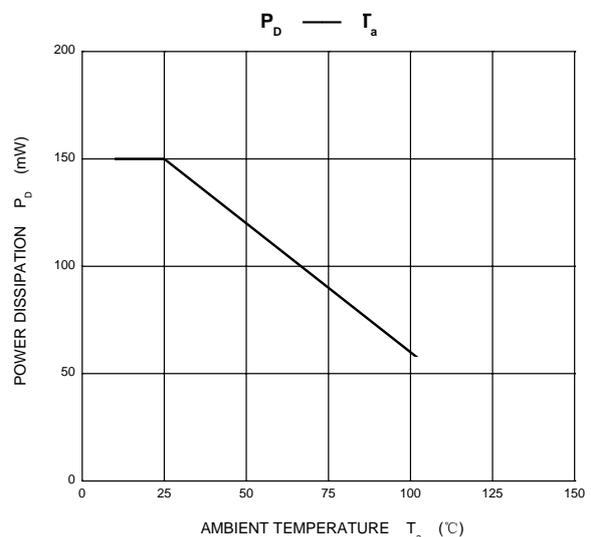
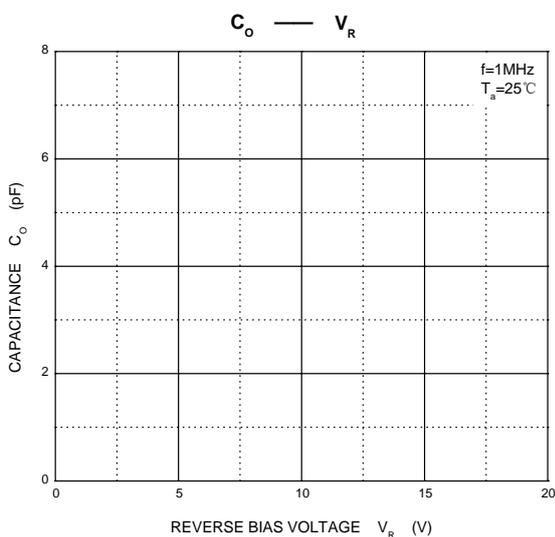
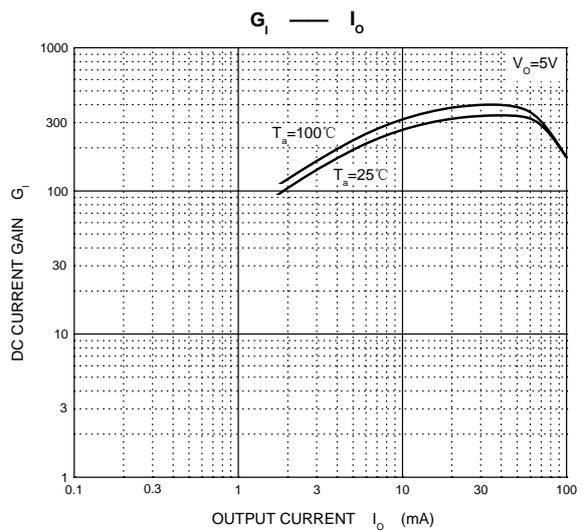
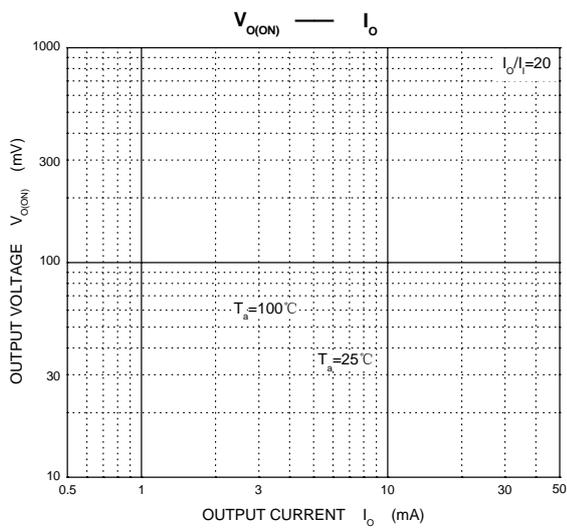
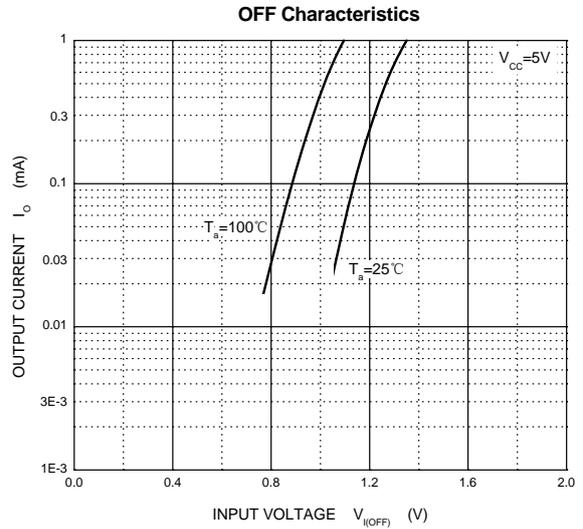
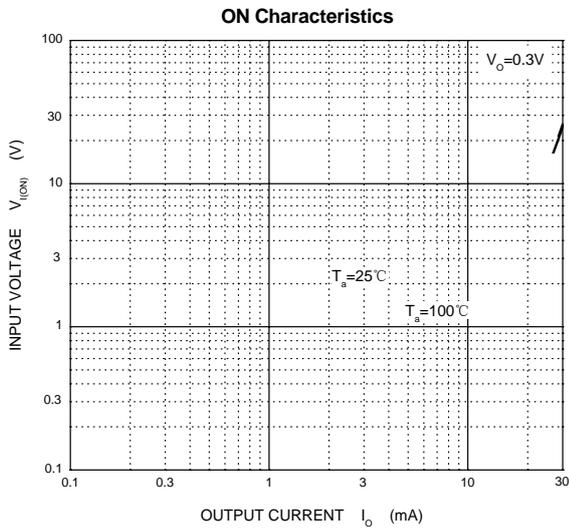
Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	0.5			V	$V_{CC}=5V, I_o=100\mu\text{A}$
	$V_{I(on)}$			3		$V_o=0.3V, I_o=2\text{mA}$
Output voltage	$V_{O(on)}$			0.3	V	$I_o/I_i=10\text{mA}/0.5\text{mA}$
Input current	I_i			0.18	mA	$V_i=5V$
Output current	$I_{O(off)}$			0.5	μA	$V_{CC}=50V, V_i=0$
DC current gain	G_i	68				$V_o=5V, I_o=5\text{mA}$
Input resistance	R_1	32.9	47	61.1	K Ω	
Resistance ratio	R_2/R_1	0.8	1	1.2		
Transition frequency	f_T		250		MHz	$V_{CE}=10V, I_E=-5\text{mA}, f=100\text{MHz}$

PNP DTA114Y Absolute maximum ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	-50	V
Input voltage	V_{IN}	-40~ +6	V
Output current	I_o	-70	mA
	$I_{C(MAX)}$	-100	
Power dissipation	P_C	150	mW
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^\circ\text{C}$

Electrical characteristics ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	-0.3			V	$V_{CC}=-5V, I_o=-100\mu\text{A}$
	$V_{I(on)}$			-1.4		$V_o=-0.3V, I_o=-1\text{mA}$
Output voltage	$V_{O(on)}$			-0.3	V	$I_o/I_i=-5\text{mA}/-0.25\text{mA}$
Input current	I_i			-0.88	mA	$V_i=-5V$
Output current	$I_{O(off)}$			-0.5	μA	$V_{CC}=-50V, V_i=0$
DC current gain	G_i	68				$V_o=-5V, I_o=-5\text{mA}$
Input resistance	R_1	7	10	13	K Ω	
Resistance ratio	R_2/R_1	3.7	4.7	5.7		
Transition frequency	f_T		250		MHz	$V_{CE}=-10V, I_E=5\text{mA}, f=100\text{MHz}$

Typical Characteristics
DTC144E(NPN)


Typical Characteristics
DTA114Y(PNP)
