

Digital Transistors (Built-in Resistors)

Dual Digital Transistors (NPN+PNP)

FEATURES

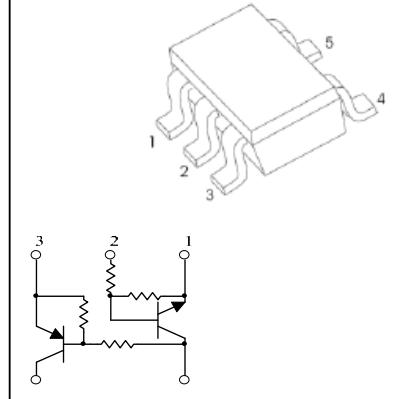
- DTC144E and DTA114Y transistors are built-in a package

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	°C

SOT-353



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

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

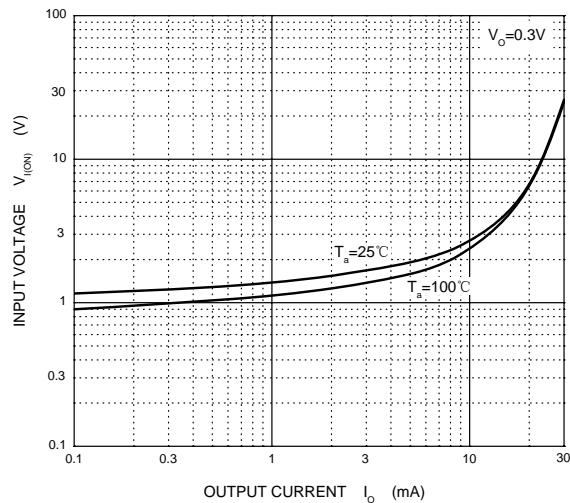
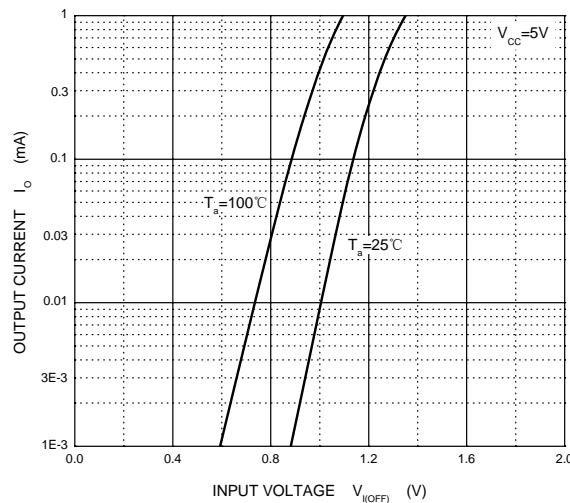
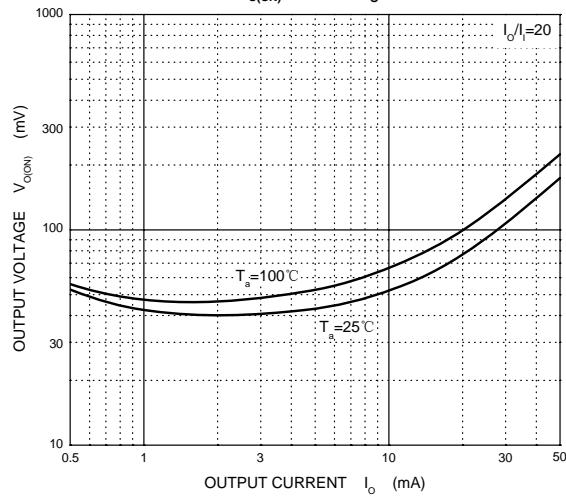
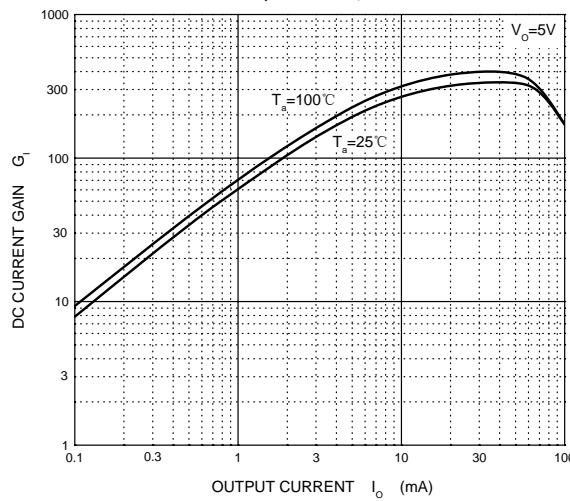
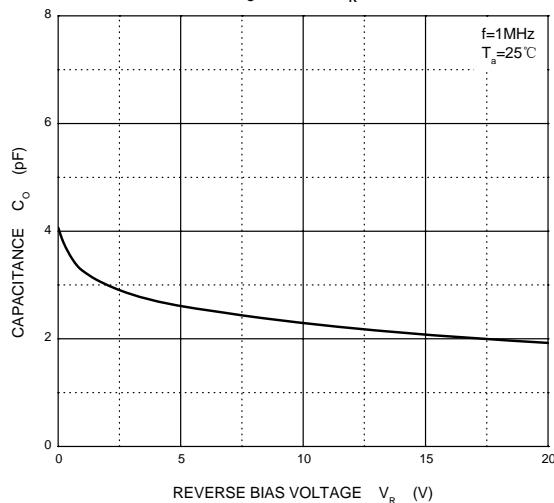
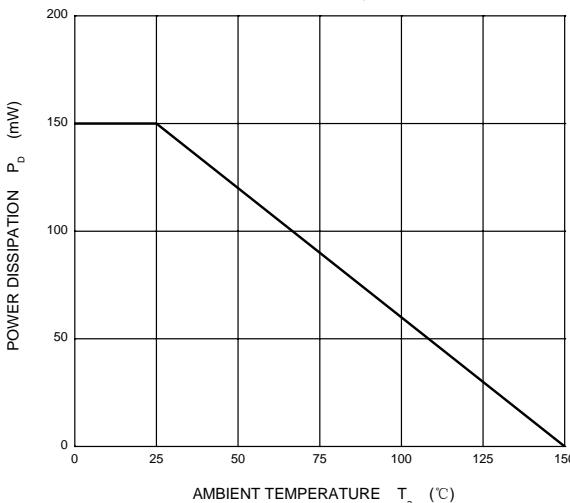
PNP DTA114Y Absolute maximum ratings ($T_a=25^\circ\text{C}$)

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	°C

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

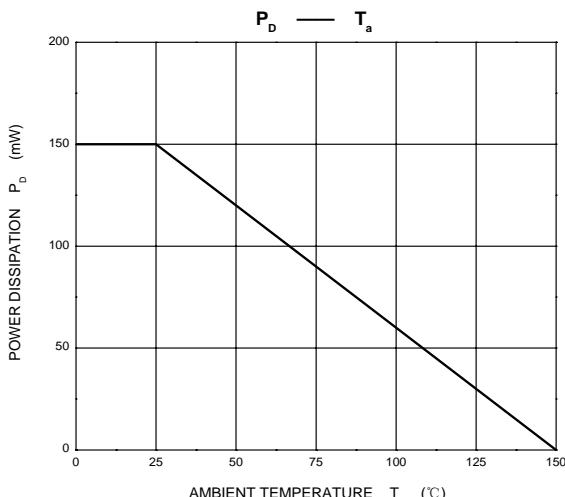
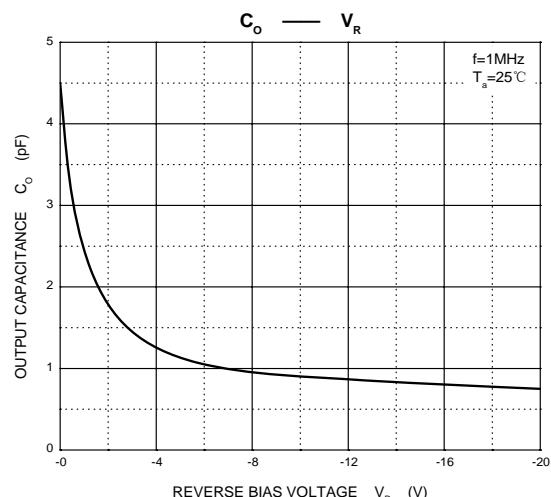
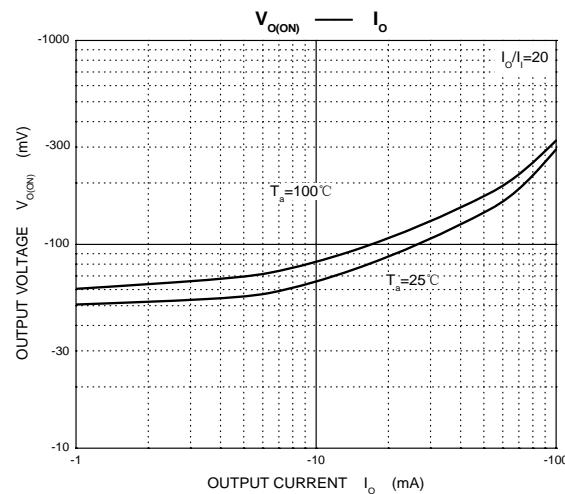
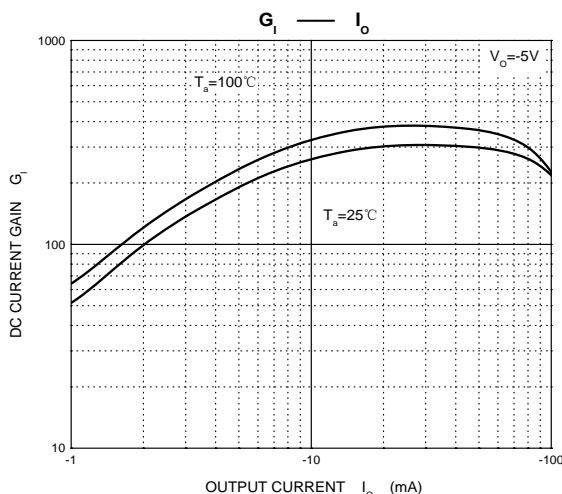
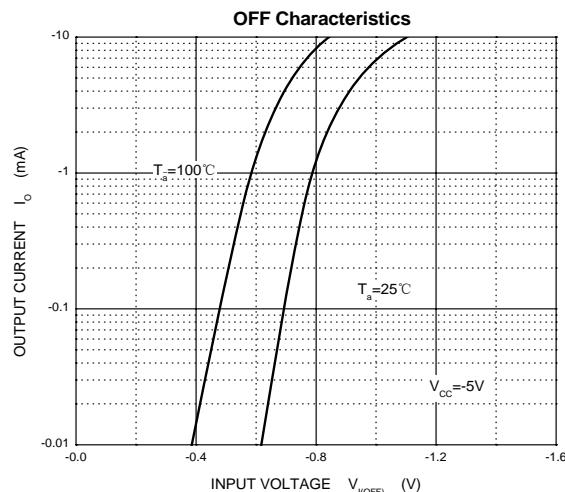
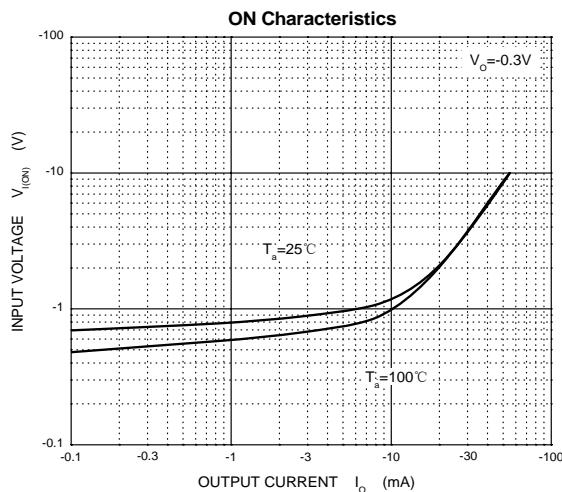
Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	-0.3			V	$V_{CC}=-5\text{V}, I_O=-100\mu\text{A}$
	$V_{I(on)}$			-1.4		$V_O=-0.3\text{V}, I_O=-1\text{mA}$
Output voltage	$V_{O(on)}$			-0.3	V	$I_O/I_I=-5\text{mA}/-0.25\text{mA}$
Input current	I_I			-0.88	mA	$V_I=-5\text{V}$
Output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

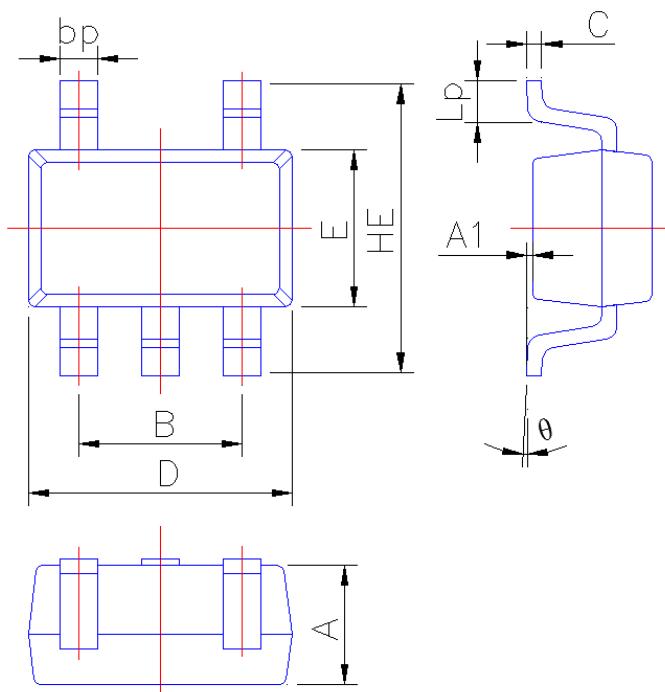
Typical Characteristics

ON Characteristics

OFF Characteristics

V_{O(ON)} — I_o

G_i — I_o

C_o — V_R

P_D — T_a


Typical Characteristics

DTA114Y(PNP)



SOT-353 Package Outline Dimensions


Symbol	Dimension in Millimeters	
	Min	Max
A	0.90	1.00
A1	0.010	0.100
B	1.20	1.40
bp	0.25	0.45
C	0.09	0.15
D	2.00	2.20
E	1.15	1.35
HE	2.15	2.55
Lp	0.25	0.46
θ	0°	6°