

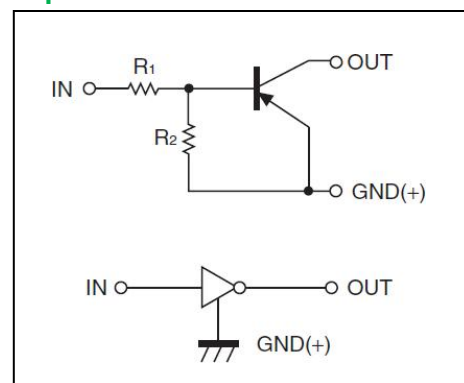
Digital Transistors (Built-in Resistors)

DIGITAL TRANSISTOR (PNP)

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



Part Number	MARKING	Package
DTA114YE	54	SOT-523
DTA114YUA	54	SOT-323
DTA114YKA	54	SOT23-3L
DTA114YCA	54	SOT-23

PIN CONNENCTIONS and MARKING

DTA114YE SOT-523 1. IN 2. GND 3. OUT	DTA114YUA SOT-323 1. IN 2. GND 3. OUT
DTA114YKA SOT23-3L 1. IN 2. GND 3. OUT	DTA114YCA SOT-23 1. IN 2. GND 3. OUT

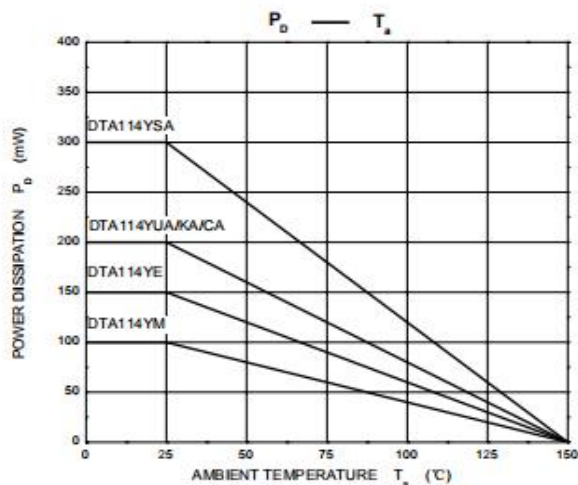
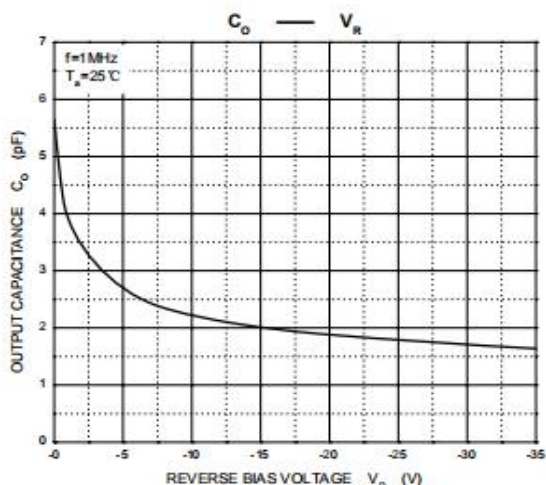
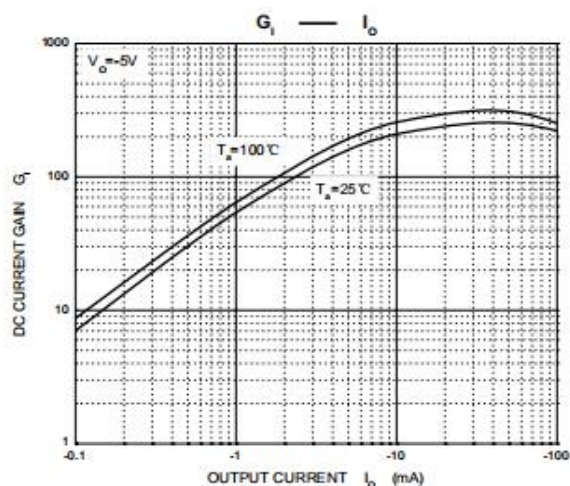
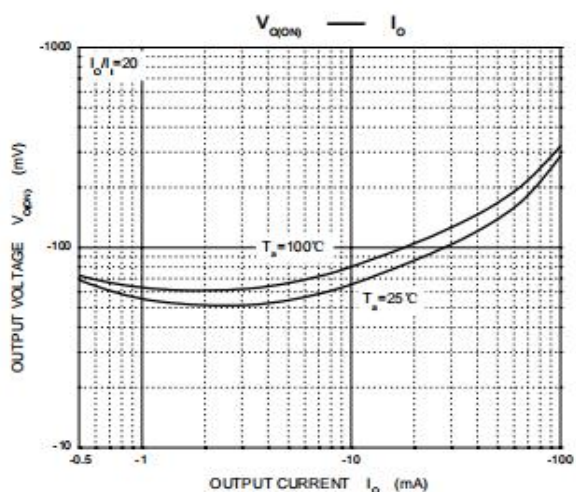
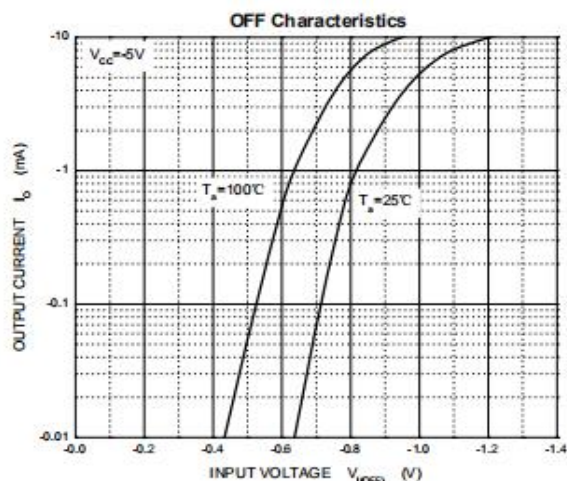
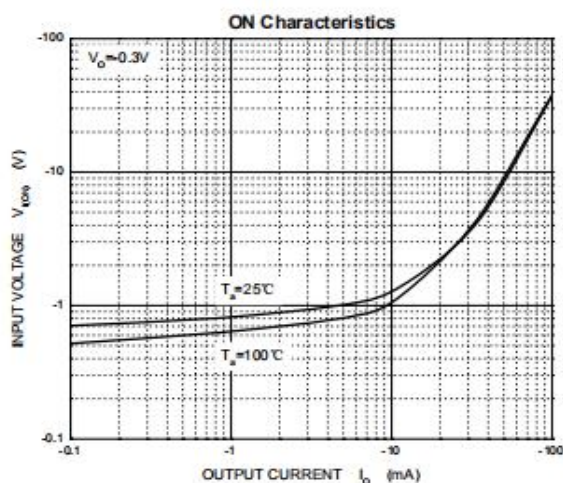
MAXIMUM RATINGS($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Limits(DTA114Y)				Unit
		E	UA	KA	CA	
V_{CC}	Supply Voltage	-50				V
V_{IN}	Input Voltage	-40~+6				V
I_O	Output Current	-70				mA
I_{CM}	Peak Collector Current	-100				mA
P_D	Power Dissipation	150	200	200	200	mW
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150				$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

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

Typical Characteristics



REVERSE VOLTAGE V_R (V) AMBIENT TEMPERATURE T_A ($^\circ C$)

Ordering information

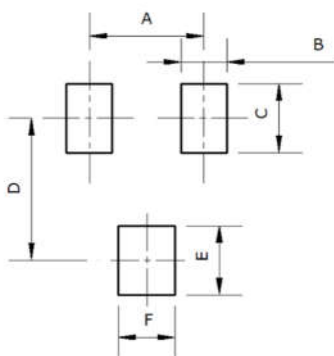
Package	Packing Description	Base Quantity	Packing Quantity
SOT-523	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-523

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	1.50	1.70	59	67
B	0.75	0.85	30	33
C	1.45	1.75	57	69
D	0.50TYP		0.020TYP	
E	0.90	1.10	35	43
G	0.00	0.10	0	4
H	0.60	0.80	24	31
J	0.10	0.20	4	8
K	0.15	0.35	6	14
L	0.26	0.46	10	18

The recommended mounting pad size



Millimeter (mm)	
Dim.	TYP
A	1.00
B	0.40
C	0.60
D	1.24
E	0.60
F	0.50

Ordering information

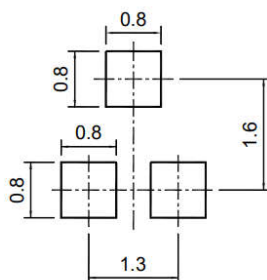
Package	Packing Description	Base Quantity	Packing Quantity
SOT-323	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-323

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.8	1.1	32	43
A1	0.1		4	
bp	0.3	0.4	12	16
C	0.10	0.25	4	10
D	1.8	2.2	71	87
E	1.15	1.35	45	53
E	1.3		51	
E1	0.65		26	
HE	2.0	2.2	79	87
Lp	0.15	0.45	6	18
Q	0.13	0.23	5.1	9
v	0.2		8	
W	0.2		8	

The recommended mounting pad size



Ordering information

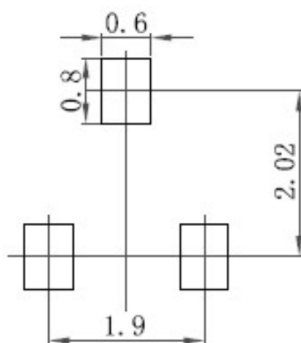
Package	Packing Description	Base Quantity	Packing Quantity
SOT23-3L	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT23-3L

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	1.05	1.25	41	49.2
A1	0.10		3.93	
A2	1.05	1.15	41	45
b	0.30	0.50	12	20
c	0.10	0.20	3.93	7.9
D	2.82	3.02	111	119
E	1.50	1.70	59	67
E1	2.65	2.95	104	116
e	0.95		37.4	
e1	1.80	2.00	71	78
L	0.30	0.066	12	26
Θ	8°			

The recommended mounting pad size



Ordering information

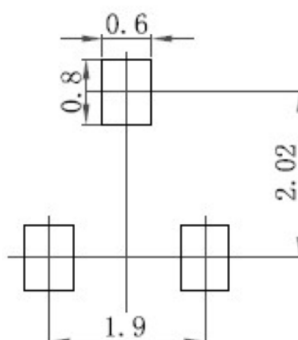
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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