



YOUSHANG SEMICONDUCTOR

**设计研发新型功率器件**

**各类小信号开关**

**中低压及高压大电流等场效应管**

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企业微信二维码



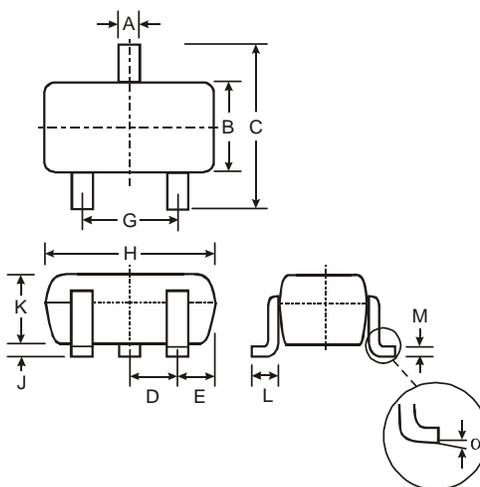
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## Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistors, R1≠R2

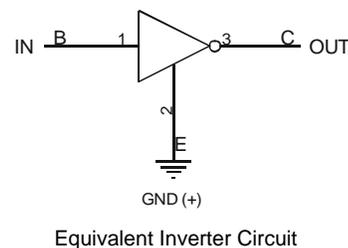
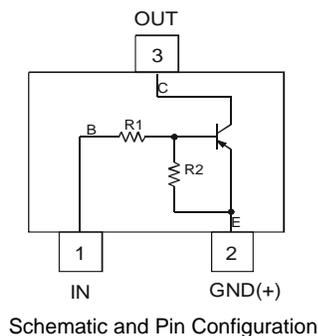
## Mechanical Data

- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 3. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking Information: See Page 4
- Type Code: See Table Below
- Ordering Information: See Page 4
- Weight: 0.006 grams (approximate)



SOT-323		
Dim	Min	Max
A	0.25	0.40
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.18
$\alpha$	0°	8°
All Dimensions in mm		

P/N	R1 (NOM)	R2 (NOM)	Type Code
NK-DDTA113ZUA	1K $\Omega$	10K $\Omega$	P02
NK-DDTA123YUA	2.2K $\Omega$	10K $\Omega$	P05
NK-DDTA123JUA	2.2K $\Omega$	47K $\Omega$	P06
NK-DDTA143XUA	4.7K $\Omega$	10K $\Omega$	P09
NK-DDTA143FUA	4.7K $\Omega$	22K $\Omega$	P10
NK-DDTA143ZUA	4.7K $\Omega$	47K $\Omega$	P11
NK-DDTA114YUA	10K $\Omega$	47K $\Omega$	P14
NK-DDTA114WUA	10K $\Omega$	4.7K $\Omega$	P15
NK-DDTA124XUA	22K $\Omega$	47K $\Omega$	P18
NK-DDTA144VUA	47K $\Omega$	10K $\Omega$	P21
NK-DDTA144WUA	47K $\Omega$	22K $\Omega$	P22



## Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Supply Voltage, (3) to (2)	V <sub>CC</sub>	-50	V
Input Voltage, (1) to (2)	V <sub>IN</sub>	+5 to -10 +5 to -12 +5 to -12 +7 to -20 +6 to -30 +5 to -30 +6 to -40 +10 to -30 +10 to -40 +15 to -40 +10 to -40	V
Output Current	I <sub>O</sub>	-100 -100 -100 -100 -100 -100 -70 -100 -50 -30 -30	mA

**Maximum Ratings (continued)** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Output Current	I <sub>c</sub> (Max)	-100	mA
Power Dissipation	P <sub>d</sub>	200	mW
Thermal Resistance, Junction to Ambient Air (Note 4)	R <sub>θJA</sub>	625	°C/W
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition				
Input Voltage	V <sub>I(off)</sub>	-0.3			V	V <sub>CC</sub> = 5V, I <sub>O</sub> = 100μA				
		-0.3								
		-0.5								
		-0.3								
		-0.3								
		-0.5	—	—						
		-0.3								
		-0.8								
		-0.4								
		-1.0								
	-0.8									
	V <sub>I(on)</sub>	—	—		-3.0	V	V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -5mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -20mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -3mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -5mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -1mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -2mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -2mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -2mA V <sub>O</sub> = -0.3V, I <sub>O</sub> = -2mA			
					-3.0					
					-1.1					
					-2.5					
					-1.3					
					-1.3					
					-1.4					
					-3.0					
					-2.5					
				-5.0						
			-4.0							
Output Voltage	V <sub>O(on)</sub>	—	-0.1	-0.3	V	I <sub>O</sub> /I <sub>i</sub> = -5mA/-0.25mA NK-DDTA123JUA I <sub>O</sub> /I <sub>i</sub> = -5mA/-0.25mA NK-DDTA143ZUA I <sub>O</sub> /I <sub>i</sub> = -5mA/-0.25mA NK-DDTA114YUA I <sub>O</sub> /I <sub>i</sub> = -10mA/-0.5mA All Others				
Input Current	I <sub>i</sub>	—	—	-7.2	mA	V <sub>I</sub> = -5V				
				-3.8						
				-3.6						
				-1.8						
				-1.8						
				-1.8						
				-0.88						
				-0.88						
				-0.36						
				-0.16						
				-0.16						
		Output Current	I <sub>O(off)</sub>	—			—	-0.5	μA	V <sub>CC</sub> = -50V, V <sub>I</sub> = 0V
		DC Current Gain	G <sub>i</sub>	-33					—	V <sub>O</sub> = -5V, I <sub>O</sub> = -10mA
-33										
-80										
-30										
-68										
-80	—			—						
-68										
-24										
-68										
-33										
-56										
Input Resistor Tolerance	ΔR <sub>1</sub>			-30	—	+30	%	—		
Resistance Ratio Tolerance	ΔR <sub>2</sub> /R <sub>1</sub>	-20	—	+20	%	—				
Gain-Bandwidth Product*	f <sub>T</sub>	—	250	—	MHz	V <sub>CE</sub> = -10V, I <sub>E</sub> = 5mA, f = 100MHz				

\* Transistor - For Reference Only

**Typical Curves – NK-DDTA123JUA**

