优尚

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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Features

- Complementary PNP Types Available (DDTB)
- Built-In Biasing Resistors
- Surface Mount Package Suited for Automated Assembly

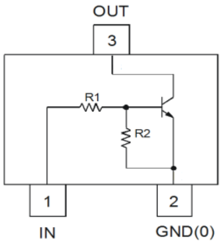
Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic, “Green” Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.006 grams (Approximate)

Part Number	R1(NOM)	R2(NOM)
NK-DDTD122LU	0.22kΩ	10kΩ
NK-DDTD142JU	0.47kΩ	10kΩ
NK-DDTD122TU	0.22kΩ	Open
NK-DDTD142TU	0.47kΩ	Open

SOT323

Top View



Device Schematic

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

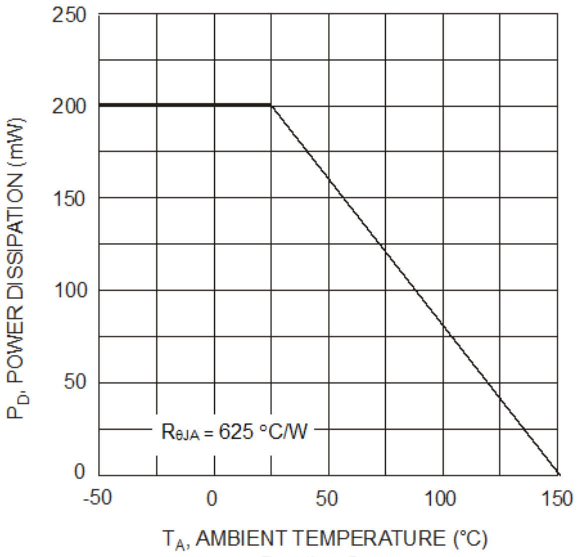
Characteristic		Symbol	Value	Unit
Supply Voltage, (3) to (2)		V_{CC}	50	V
Input Voltage, (1) to (2)	NK-DDTD122TU NK-DDTD142TU	V_{IN}	-5 to +6 -5 to +6	V
Input Voltage, (2) to (1)	NK-DDTD122TU NK-DDTD142TU	$V_{EBO(MAX)}$	5	V
Output Current	All	I_C	500	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Note: 5. Mounted on FR4 PC Board with minimum recommended pad layout.

Power Derating Curve



Derating Curve

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.) **R1 & R2 Types**

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	NK-DDTD122LU NK-DDTD142JU	$V_{I(off)}$	0.3 0.3	—	—	V	V_{CC} = 5V, I_O = 100μA
	NK-DDTD122LU NK-DDTD142JU	$V_{I(on)}$	—	—	2.0 2.0	V	V_O = 0.3V, I_O = 20mA V_O = 0.3V, I_O = 20mA
Output Voltage		$V_{O(on)}$	—	—	0.3	V	I_O/I_I = 50mA/2.5mA
Input Current	NK-DDTD122LU NK-DDTD142JU	I_I	—	—	28 13	mA	V_I = 5V
Output Current		$I_{O(off)}$	—	—	0.5	μA	V_{CC} = 50V, V_I = 0V
DC Current Gain	NK-DDTD122LU NK-DDTD142JU	G_I	56 56	—	—	—	V_O = 5V, I_O = 50mA
Gain-Bandwidth Product (Note 6)		f_T	—	200	—	MHz	V_{CE} = 10V, I_E = 5mA, f = 100MHz

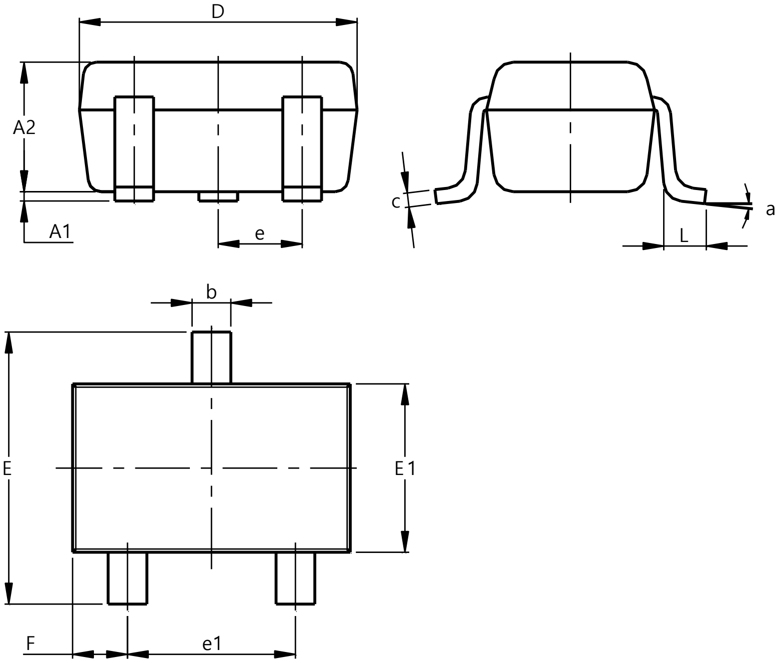
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.) **R1-Only Types**

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV_{CBO}	50	—	—	V	I_C = 50μA
Collector-Emitter Breakdown Voltage		BV_{CEO}	40	—	—	V	I_C = 1mA
Emitter-Base Breakdown Voltage	NK-DDTD122TU NK-DDTD142TU	BV_{EBO}	5	—	—	V	I_E = 50μA I_E = 50μA
Collector Cutoff Current		I_{CBO}	—	—	0.5	μA	V_{CB} = 50V
Emitter Cutoff Current	NK-DDTD122TU NK-DDTD142TU	I_{EBO}	— —	— —	0.5 0.5	μA	V_{EB} = 4V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	—	—	0.3	V	I_C = 50mA, I_B = 2.5mA
DC Current Transfer Ratio	NK-DDTD122TU NK-DDTD142TU	h_{FE}	100 100	250 250	600 600	—	I_C = 5mA, V_{CE} = 5V
Gain-Bandwidth Product (Note 6)		f_T	—	200	—	MHz	V_{CE} = 10V, I_E = 5mA, f = 100MHz

Note: 6. Transistor - for reference only.

Package Outline Dimensions

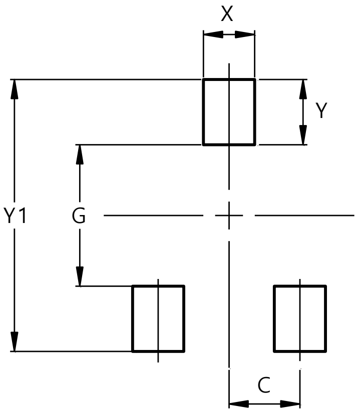
SOT323



SOT323			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

SOT323



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500