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

0755-83047638
ysbdt@szyoushang.cn
www.szyoushang.cn

企业微信二维码

企业QQ二维码

Features

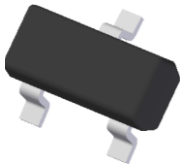
- Epitaxial Planar Die Construction
- Complementary NPN Types Available (DDTC)
- Built-In Biasing Resistors, R1 = R2

Mechanical Data

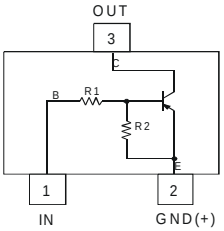
- Case: SOT23
- Case Material: Molded Plastic, “Green” Molding Compound UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.008 grams (Approximate)

Part Number	R1, R2 (NOM)
NK-DDTA123ECA	2.2kΩ
NK-DDTA143ECA	4.7kΩ
NK-DDTA114ECA	10kΩ
NK-DDTA124ECA	22kΩ
NK-DDTA144ECA	47kΩ
NK-DDTA115ECA	100kΩ

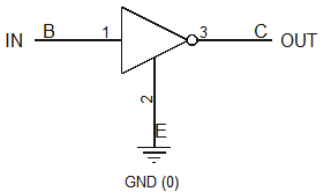
SOT23



Top View



Device Schematic



Equivalent Inverter Circuit

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

Characteristic		Symbol	Value	Unit
Supply Voltage <Pin: (3) to (2)>		V_{CC}	-50	V
Input Voltage <Pin: (1) to (2)>	NK-DDTA123ECA NK-DDTA143ECA NK-DDTA114ECA NK-DDTA124ECA NK-DDTA144ECA NK-DDTA115ECA	V_{IN}	+10 to –12 +10 to –30 +10 to –40 +10 to –40 +10 to –40 +10 to –40	V
Output Current	NK-DDTA123ECA NK-DDTA143ECA NK-DDTA114ECA NK-DDTA124ECA NK-DDTA144ECA NK-DDTA115ECA	I_O	-100 -100 -50 -30 -30 -20	mA
Output Current		I_C (Max)	-100	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 7)	P_D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 7)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes: 7. Mounted on FR-4 PC Board with minimum recommended pad layout.

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

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage		$V_{I(off)}$	-0.5	-1.1	—	V	V_{CC} = -5V, I_O = -100μA
		$V_{I(on)}$	—	-1.9	-3		V_O = -0.3V, I_O = -20mA, NK-DDTA123ECA V_O = -0.3V, I_O = -20mA, NK-DDTA143ECA V_O = -0.3V, I_O = -10mA, NK-DDTA114ECA V_O = -0.3V, I_O = -5mA, NK-DDTA124ECA V_O = -0.3V, I_O = -2mA, NK-DDTA144ECA V_O = -0.3V, I_O = -1mA, NK-DDTA115ECA
Output Voltage		$V_{O(on)}$	—	-0.1	-0.3	V	I_O/I_I = -10mA/-0.5mA, NK-DDTA123ECA I_O/I_I = -10mA/-0.5mA, NK-DDTA143ECA I_O/I_I = -10mA/-0.5mA, NK-DDTA114ECA I_O/I_I = -10mA/-0.5mA, NK-DDTA124ECA I_O/I_I = -10mA/-0.5mA, NK-DDTA144ECA I_O/I_I = -5mA/-0.25mA, NK-DDTA115ECA
Input Current	NK-DDTA123ECA NK-DDTA143ECA NK-DDTA114ECA NK-DDTA124ECA NK-DDTA144ECA NK-DDTA115ECA	I_I	—	—	-3.8 -1.8 -0.88 -0.36 -0.18 -0.15	mA	V_I = -5V
Output Current		$I_{O(off)}$	—	—	-0.5	μA	V_{CC} = -50V, V_I = 0V
DC Current Gain	NK-DDTA123ECA NK-DDTA143ECA NK-DDTA114ECA NK-DDTA124ECA NK-DDTA144ECA NK-DDTA115ECA	G_I	20 20 30 56 68 82	—	—	—	V_O = -5V, I_O = -20mA V_O = -5V, I_O = -10mA V_O = -5V, I_O = -5mA V_O = -5V, I_O = -5mA V_O = -5V, I_O = -5mA V_O = -5V, I_O = -5mA
Input Resistor Tolerance		ΔR_1	-30	—	+30	%	—
Resistance Ratio Tolerance		$\Delta R_2/R_1$	0.8	1	1.2	%	—
Gain-Bandwidth Product (Note 8)		f_T	—	250	—	MHz	V_{CE} = -10V, I_E = -5mA, f = 100MHz

Typical Characteristics – NK-DDTA143ECA (@T_A = +25°C, unless otherwise specified.)

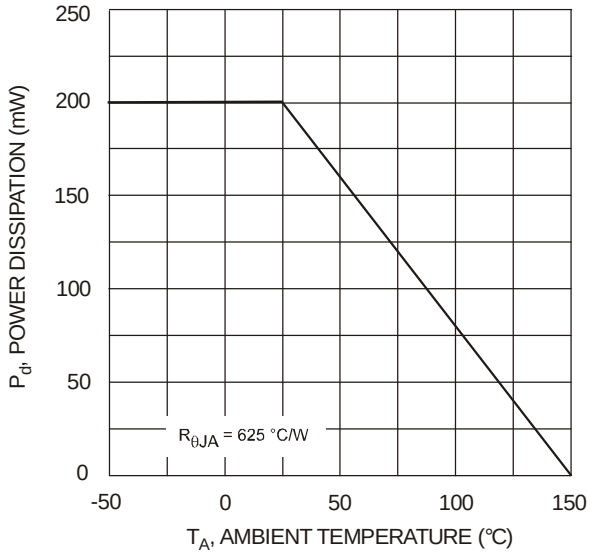


Fig. 1 Derating Curve

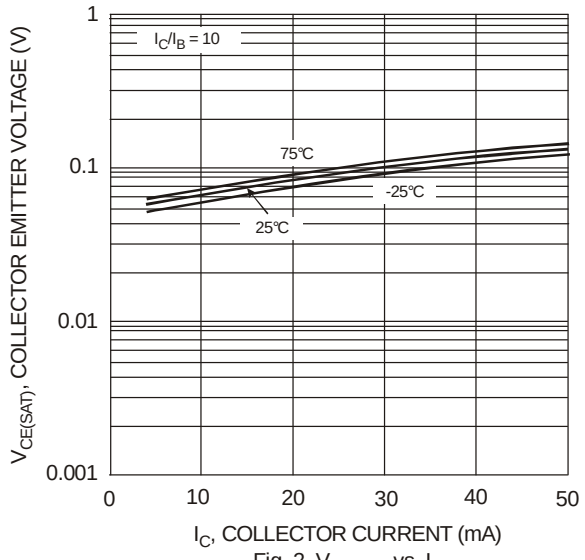


Fig. 2 $V_{CE(SAT)}$ vs. I_C

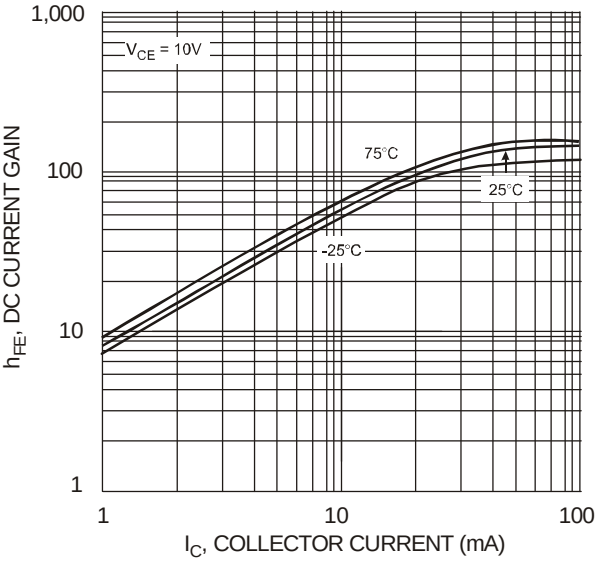


Fig. 3 DC Current Gain

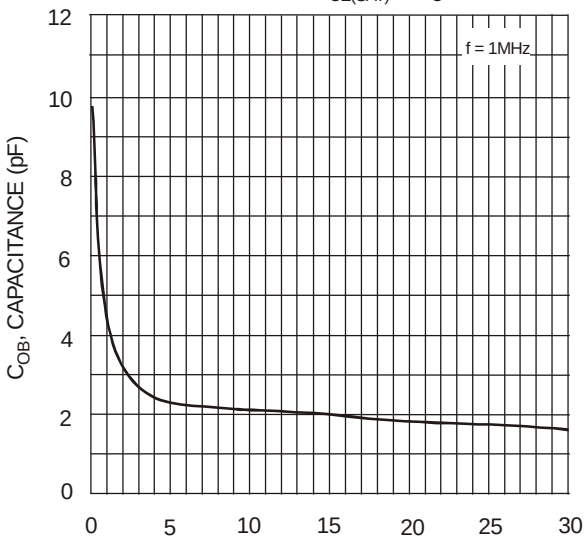
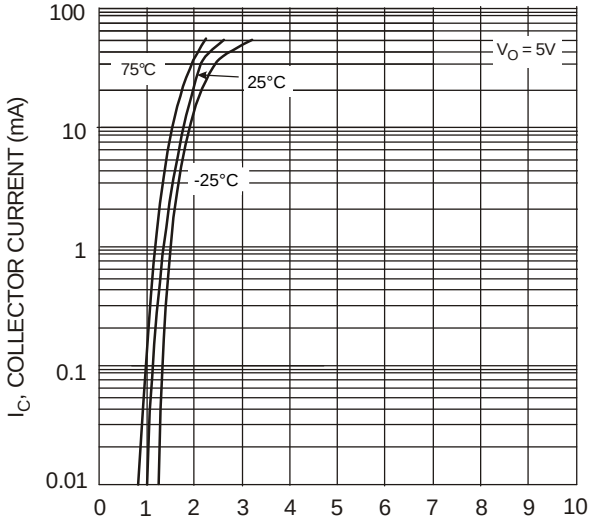
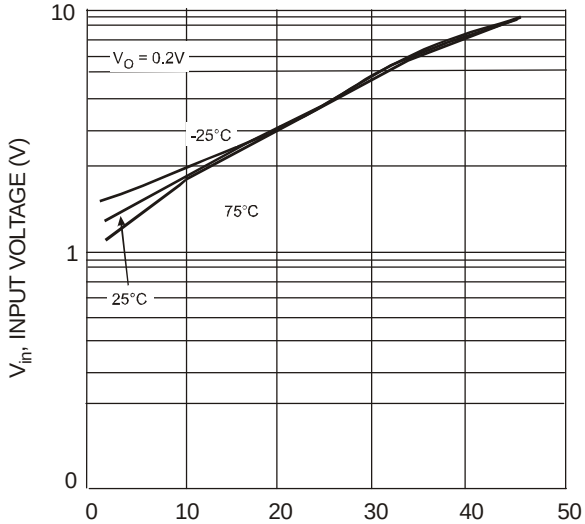


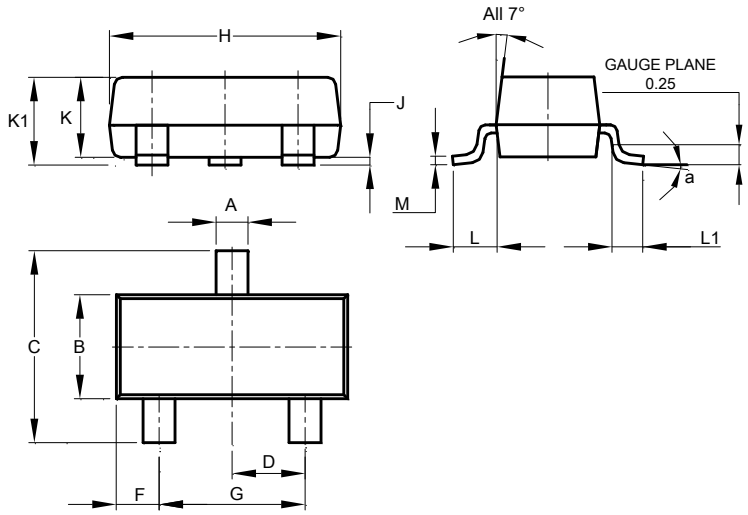
Fig. 4 Output Capacitance





Package Outline Dimensions

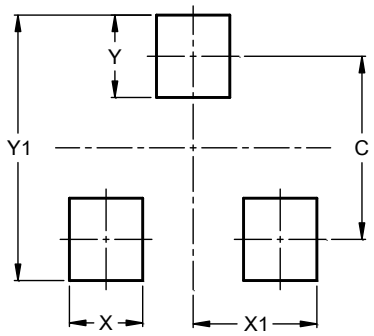
SOT23



SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9