



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



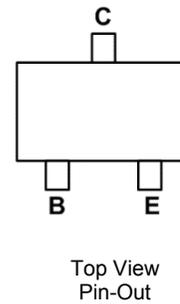
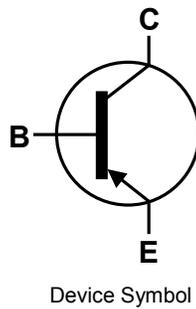
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Features

- Ideally Suited for Automatic Insertion
- Complementary NPN Types Available (NK-BC846AW - BC848CW)
- For Switching and AF Amplifier Applications

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 ③
- Weight: 0.006 grams (Approximate)



Absolute Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Collector-Base Voltage	NK-BC856	V_{CBO}	-80	V
	NK-BC857		-50	
	NK-BC858		-30	
Collector-Emitter Voltage	NK-BC856	V_{CEO}	-65	V
	NK-BC857		-45	
	NK-BC858		-30	
Emitter-Base Voltage		V_{EBO}	-5.0	V
Continuous Collector Current		I_C	-100	mA
Peak Pulse Collector Current (single pulse)		I_{CM}	-200	mA
Peak Pulse Emitter Current (single pulse)		I_{EM}	-200	mA

Thermal Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

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

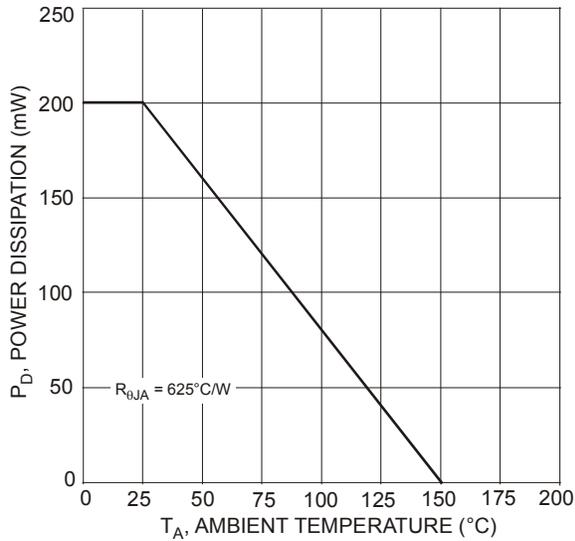
Note: 5. For a device mounted on minimum recommended pad layout 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

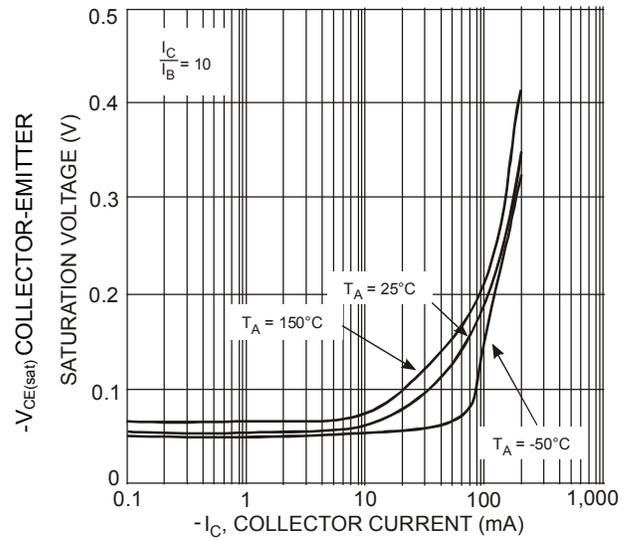
Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition	
Collector-Base Breakdown Voltage	NK-BC856	BV_{CBO}	-80	—	—	V	$I_C = -100\mu\text{A}$	
	NK-BC857		-50					
	NK-BC858		-30					
Collector-Emitter Breakdown Voltage (Note 6)	NK-BC856	BV_{CEO}	-65	—	—	V	$I_C = -10\text{mA}$	
	NK-BC857		-45					
	NK-BC858		-30					
Emitter-Base Breakdown Voltage		BV_{EBO}	-5	—	—	V	$I_E = -100\mu\text{A}$	
DC Current Gain (Note 6)	Current Gain Group	h_{FE}	A	125	180	250	—	$V_{CE} = -5.0\text{V}, I_C = -2.0\text{mA}$
			B	220	290	475		
			C	420	520	800		
Collector Cutoff Current		I_{CBO}	—	—	-15	nA	$V_{CB} = -30\text{V}$	
					-4	μA	$V_{CB} = -30\text{V}, T_A = +150^\circ\text{C}$	
Collector-Emitter Saturation Voltage (Note 6)		$V_{CE(sat)}$	—	-75	-300	mV	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	
				-250	-650		$I_C = -100\text{mA}, I_B = -5.0\text{mA}$	
Base-Emitter Turn-On Voltage (Note 6)		$V_{BE(on)}$	-600	-650	-750	mV	$I_C = -2\text{mA}, V_{CE} = -5\text{V}$	
			—	—	-820		$I_C = -10\text{mA}, V_{CE} = -5\text{V}$	
Base-Emitter Saturation Voltage (Note 6)		$V_{BE(sat)}$	—	-700	—	mV	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	
				-850	-950		$I_C = -100\text{mA}, I_B = -5\text{mA}$	
Output Capacitance		C_{obo}	—	3	4.5	pF	$V_{CB} = -10\text{V}, f = 1.0\text{MHz}$	
Transition Frequency		f_T	100	200	—	MHz	$V_{CE} = -5\text{V}, I_C = -10\text{mA}, f = 100\text{MHz}$	
Noise Figure		NF	—	—	10	dB	$V_{CE} = -5\text{V}, I_C = -200\mu\text{A}$ $R_S = 2\text{k}\Omega, f = 1\text{kHz}$ $\Delta f = 200\text{Hz}$	

 Note: 6. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$

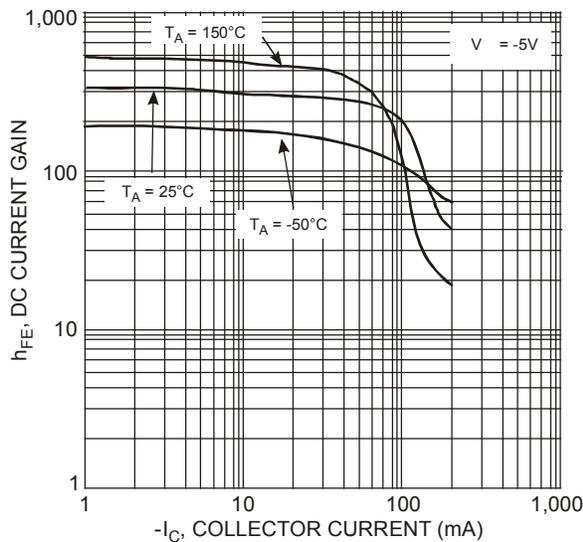
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



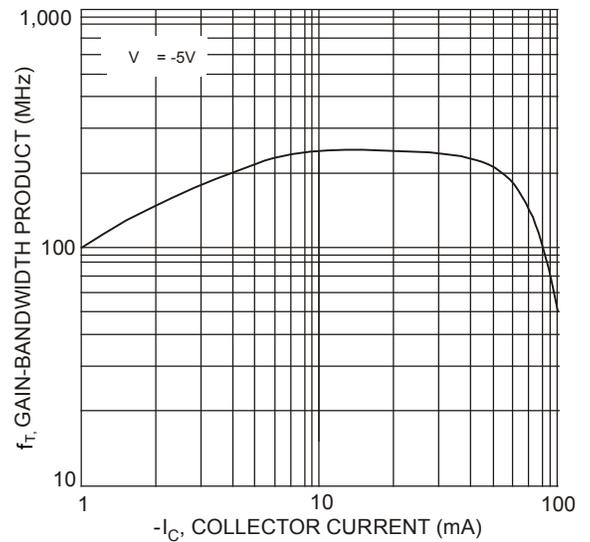
Power Dissipation vs. T_A
 $P_D \ v \ T_A$



Typical Collector-Emitter Saturation Voltage
 $V_{CE(sat)} \ v \ I_C$



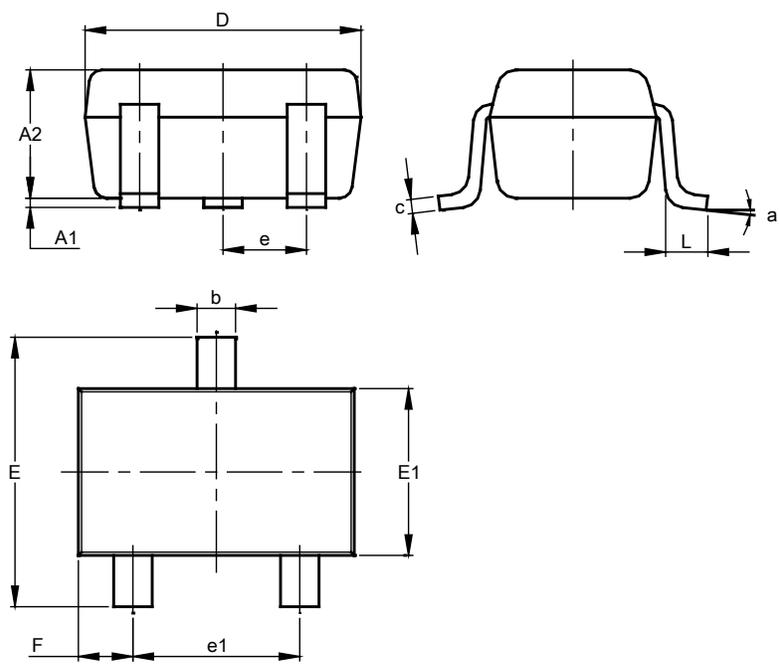
$h_{FE} \ v \ I_C$



$f_T \ v \ I_C$

Package Outline Dimensions

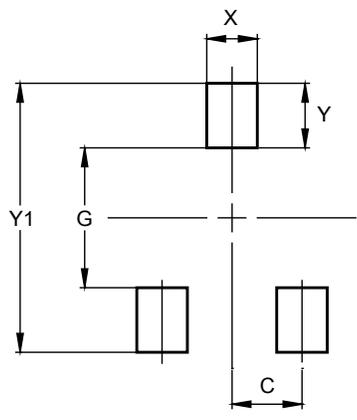
SOT323



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