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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Description

This Bipolar Junction Transistor (BJT) is designed to meet the stringent requirements of Automotive Applications.

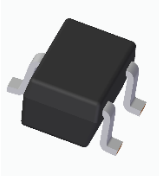
Features

- $BV_{CEO} > -65V$
- I_C = -100mA High Collector Current
- Ideally Suited for Automatic Insertion
- Complementary NPN Types Available (NK-BC846BWQ)
- For Switching and AF Amplifier Applications

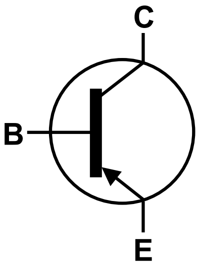
Mechanical Data

- 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 e3
- Weight: 0.006 grams (Approximate)

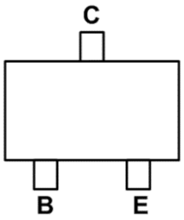
SOT323



Top View



Device Symbol



Top View

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-80	V
Collector-Emitter Voltage	V_{CEO}	-65	V
Emitter-Base Voltage	V_{EBO}	-5.0	V
Continuous Collector Current	I_C	-100	mA
Peak Collector Current	I_{CM}	-200	mA
Peak Emitter Current	I_{EM}	-200	mA

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

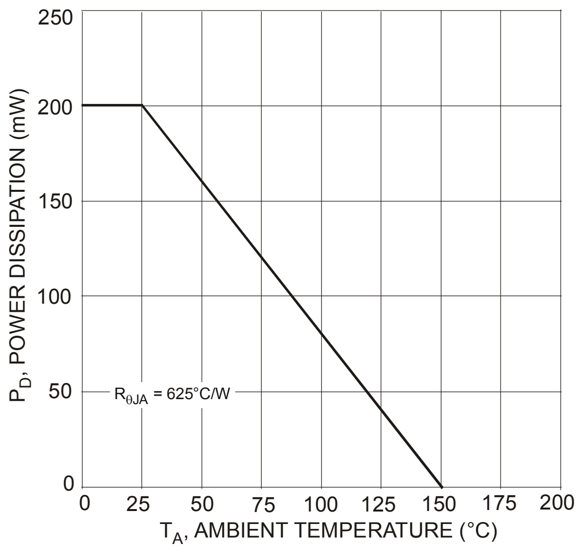
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 6)	P_D	200	mW
Thermal Resistance, Junction to Ambient	(Note 6)	$R_{\Theta JA}$	625	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-65 to +150	°C

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

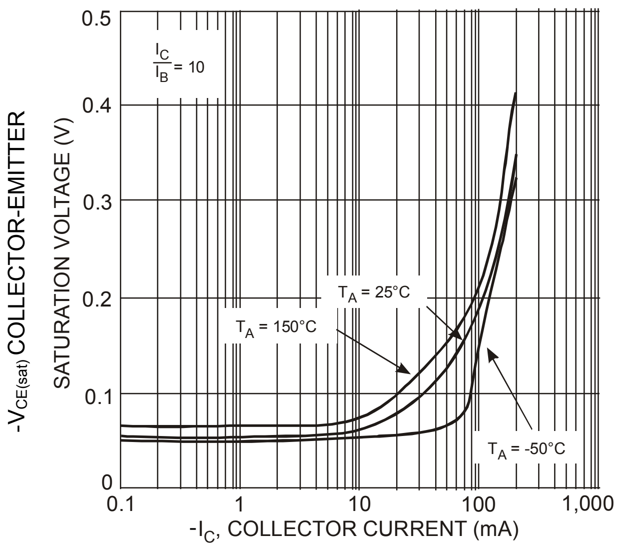
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-80	—	—	V	I_C = -100μA
Collector-Emitter Breakdown Voltage (Note 7)	BV_{CEO}	-65	—	—	V	I_C = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	I_E = -100μA
DC Current Gain (Note 7)	h_{FE}	220	290	475	—	V_{CE} = -5.0V, I_C = -2.0mA
Collector Cutoff Current	I_{CBO}	—	—	-15	nA	V_{CB} = -30V
				-4	μA	V_{CB} = -30V, T_A = +150°C
Collector-Emitter Saturation Voltage (Note 7)	$V_{CE(sat)}$	—	-75	-300	mV	I_C = -10mA, I_B = -0.5mA
			-250	-650		I_C = -100mA, I_B = -5.0mA
Base-Emitter Turn-On Voltage (Note 7)	$V_{BE(on)}$	-600	-650	-750	mV	I_C = -2mA, V_{CE} = -5V
		—	—	-820		I_C = -10mA, V_{CE} = -5V
Base-Emitter Saturation Voltage (Note 7)	$V_{BE(sat)}$	—	-700	—	mV	I_C = -10mA, I_B = -0.5mA
			-850	-950		I_C = -100mA, I_B = -5mA
Output Capacitance	C_{obo}	—	3	4.5	pF	V_{CB} = -10V, f = 1.0MHz
Transition Frequency	f_T	100	200	—	MHz	V_{CE} = -5V, I_C = -10mA, f = 100MHz
Noise Figure	NF	—	—	10	dB	V_{CE} = -5V, I_C = -200μA R_S = 2kΩ, f = 1kHz Δf = 200Hz

Notes: 6. 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.
7. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%

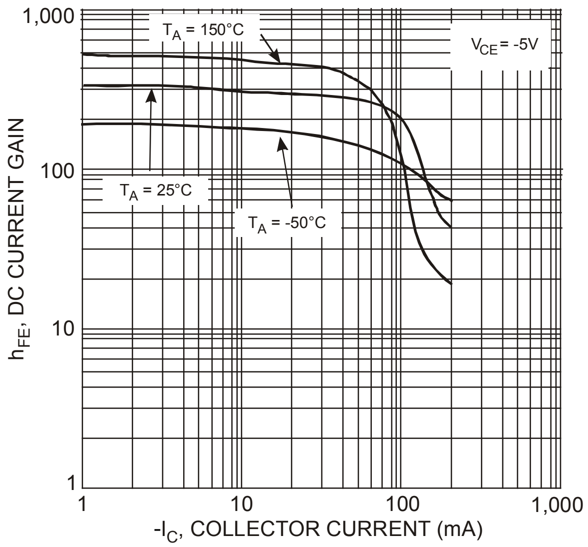
Typical Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)



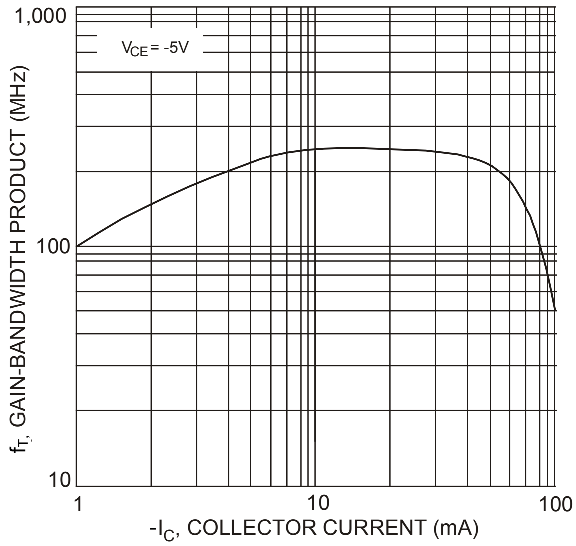
Power Dissipation vs.
Ambient Temperature Note (6)



Collector-Emitter Saturation Voltage
vs. Collector Current

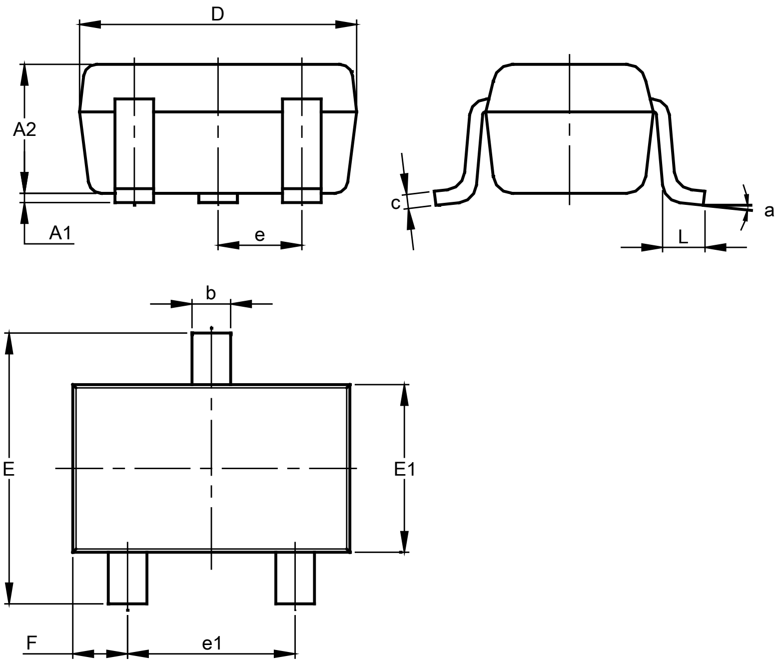


DC Current Gain vs. Collector
Current



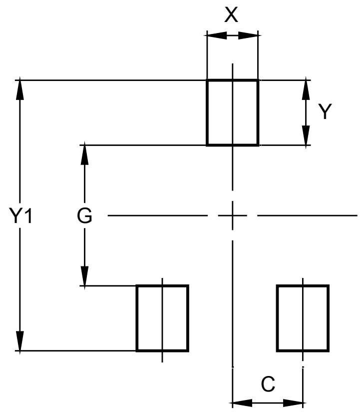
Gain-Bandwidth Product vs. Collector Current

Package Outline Dimensions



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



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