



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

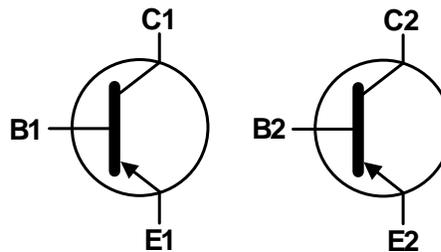
- $BV_{CEO} > -65V$
- $I_C = -100mA$ High Collector Current
- Complementary NPN Types Available (NK-BC846AS)
- Ideally Suited for Automatic Insertion
- For Switching and AF Amplifier Applications

Mechanical Data

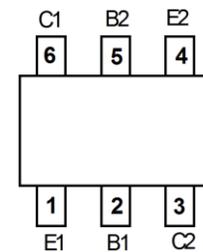
- Case: SOT363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Finish. Solderable per MIL-STD-202, Method 208 
- Weight: 0.006 grams (Approximate)



Top View



Device Symbol



Top View
Pin-Out

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

Characteristic	Symbol	Value	Unit
Collector – Base Voltage	V_{CB0}	-80	V
Collector – Emitter Voltage	V_{CEO}	-65	V
Emitter – Base Voltage	V_{EBO}	-5.0	V
Collector Current	I_C	-100	mA
Peak Collector Current	I_{CM}	-200	mA
Peak Emitter Current	I_{EM}	-200	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (Note 7) (@ $T_A = +25^\circ\text{C}$ unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector – Base Breakdown Voltage	BV_{CB0}	-80	—	—	V	$I_C = 10\mu\text{A}$
Collector – Emitter Breakdown Voltage	BV_{CEO}	-65	—	—	V	$I_C = 10\text{mA}$
Emitter – Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	$I_E = 1\mu\text{A}$
DC Current Gain	h_{FE}	125	180	250	—	$V_{CE} = -5.0\text{V}, I_C = -2.0\text{mA}$
Collector – Emitter Saturation Voltage	$V_{CE(SAT)}$	—	-75 -250	-300 -650	mV	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$ $I_C = -100\text{mA}, I_B = -5.0\text{mA}$
Base – Emitter Saturation Voltage	$V_{BE(SAT)}$	—	-700 -850	—	mV	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$ $I_C = -100\text{mA}, I_B = -5.0\text{mA}$
Base – Emitter Voltage	$V_{BE(ON)}$	-600	-650	-750 -820	mV	$V_{CE} = -5.0\text{V}, I_C = -2.0\text{mA}$ $V_{CE} = -5.0\text{V}, I_C = -10\text{mA}$
Collector – Cutoff Current	I_{CES} I_{CBO} I_{CBO}	— — —	— — —	-15 -15 -4.0	nA nA μA	$V_{CE} = -80\text{V}$ $V_{CB} = -30\text{V}$ $V_{CB} = -30\text{V}, T_A = +150^\circ\text{C}$
Gain Bandwidth Product	f_T	100	—	—	MHz	$V_{CE} = -5.0\text{V}, I_C = -10\text{mA}$, $f = 100\text{MHz}$
Collector – Base Capacitance	C_{CB}	—	3	—	pF	$V_{CB} = -10\text{V}, f = 1.0\text{MHz}$

- Notes:
- For the device mounted on minimum recommended pad layout FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
 - Short duration pulse test used to minimize self-heating effect.

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

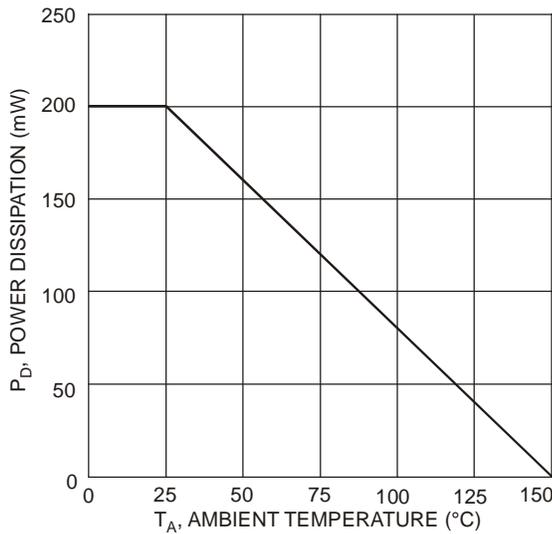


Fig. 1 Power Derating Curve

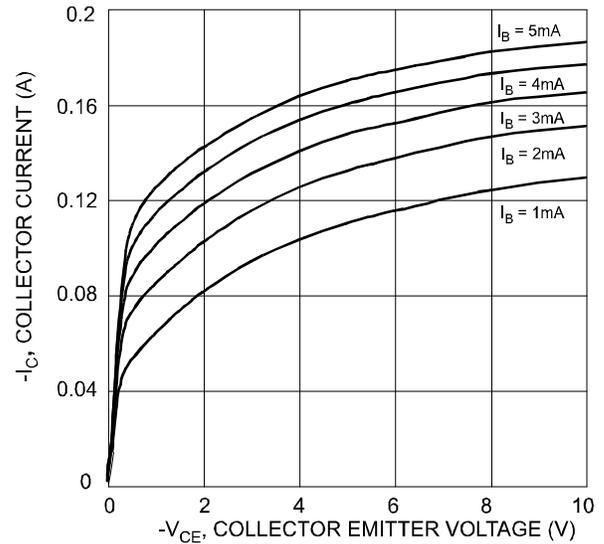


Fig. 2 Typical Collector Current vs. Collector Emitter Voltage

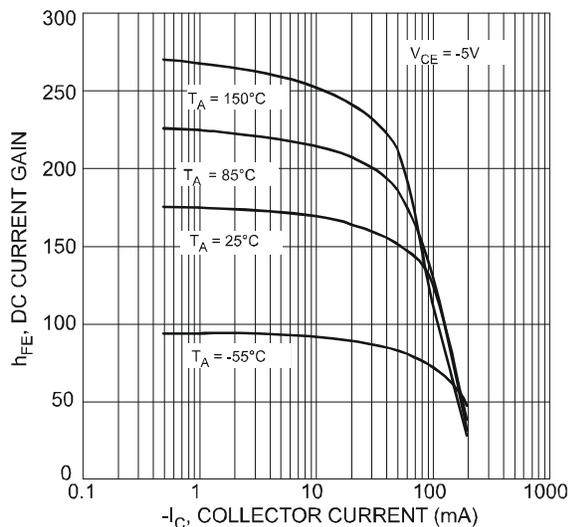


Fig. 3 Typical DC Current Gain vs. Collector Current

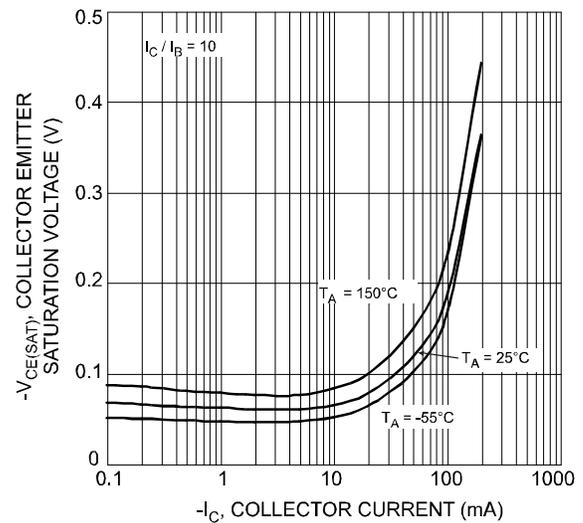


Fig. 4 Typical Collector Emitter Saturation Voltage vs. Collector Current

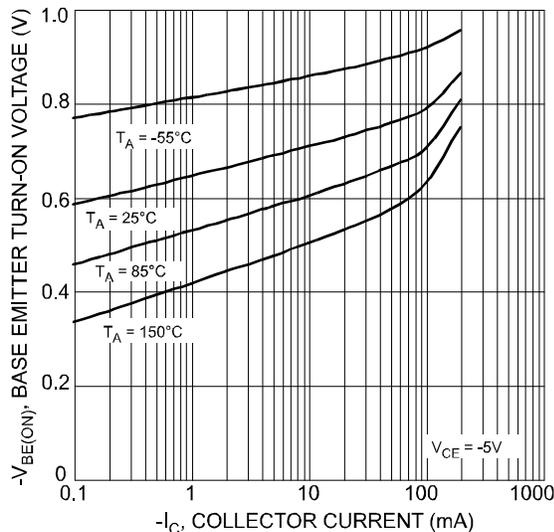


Fig. 5 Typical Base Emitter Turn-On Voltage vs. Collector Current

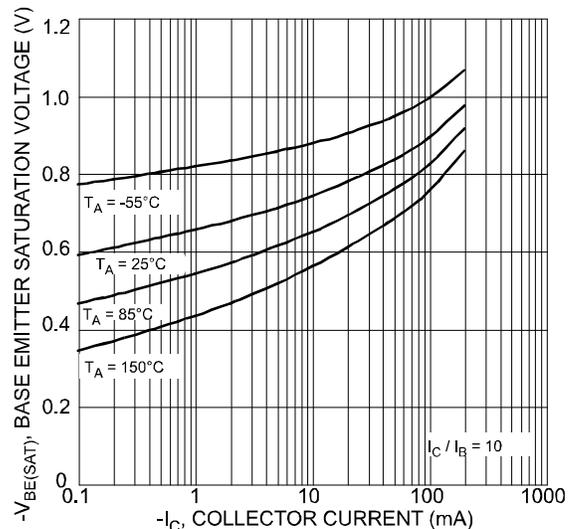


Fig. 6 Typical Base Emitter Saturation Voltage vs. Collector Current

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

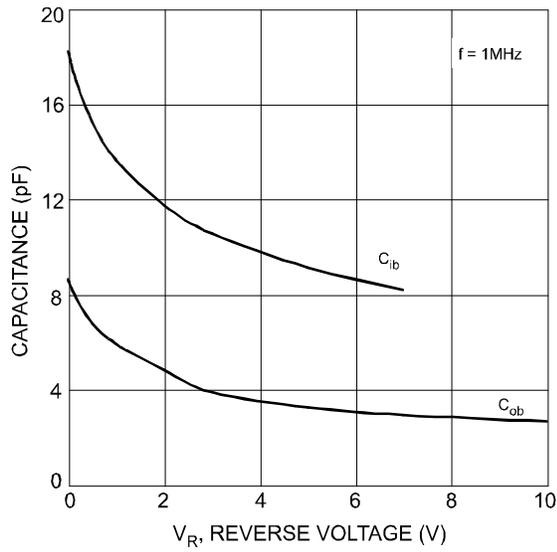


Fig. 7 Typical Capacitance Characteristics

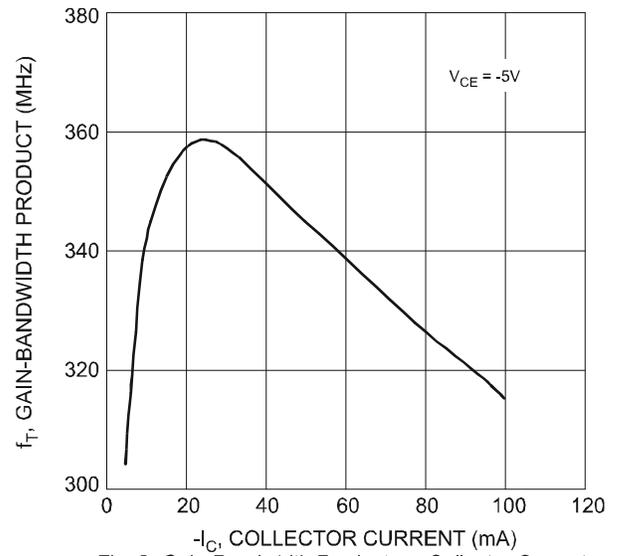
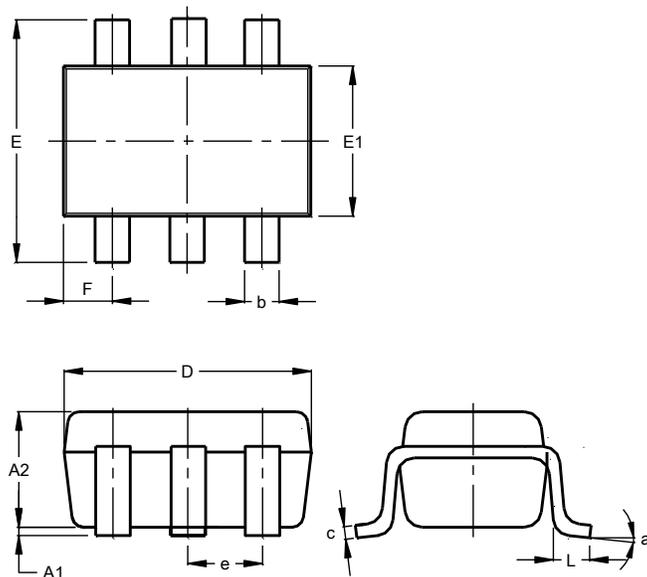


Fig. 8 Gain-Bandwidth Product vs. Collector Current

Package Outline Dimensions

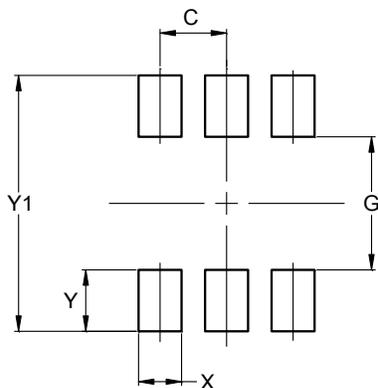
SOT363



SOT363			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	1.00
b	0.10	0.30	0.25
c	0.10	0.22	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		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

SOT363



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500