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

- BV_{CEO} > -150V
- I_C = -600mA high Collector Current
- Ideal for Medium Power Switching or Amplification Applications
- Complementary PNP Type: NK-DZT5551

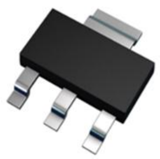
Mechanical Data

- Case: SOT223
- Case Material: Molded Plastic. “Green” Molding Compound. UL Flammability 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: 0.112 grams (Approximate)

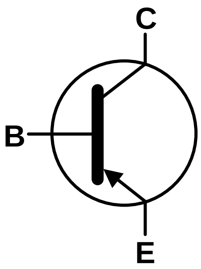
Applications

- Amplifiers
- Power Supplies

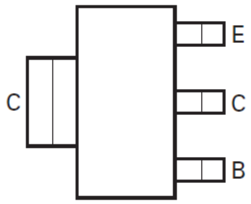
SOT223



Top View



Device Symbol



Top View
Pin-Out

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-160	V
Collector-Emitter Voltage	V_{CEO}	-150	V
Emitter-Base Voltage	V_{EBO}	-6	V
Collector Current	I_C	-600	mA

Thermal Characteristics (@T$_A$ = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation @T$_A$ = +25°C	(Note 5)	P_D	1	W
Thermal Resistance, Junction to Ambient @T$_A$ = +25°C	(Note 5)	$R_{\theta JA}$	125	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-65 to +150	°C

ESD Ratings (Note 6)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Notes:
5. For a device mounted with the collector lead on minimum recommended pad (MRP) layout 1oz copper that is on a single-sided 1.6mm FR-4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

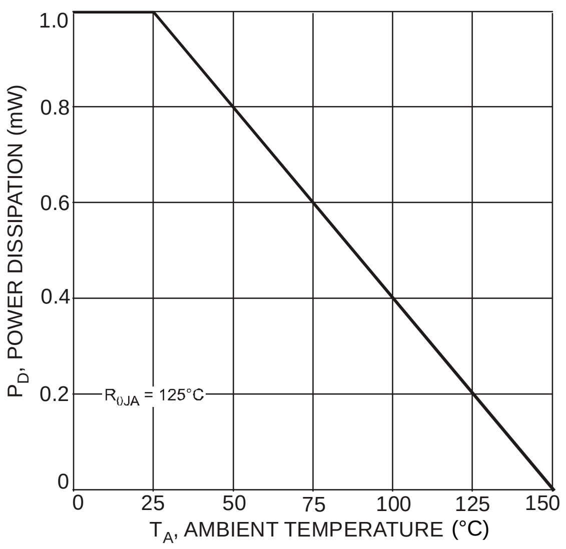


Fig. 1 Max Power Dissipation vs. Ambient Temperature

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CBO}	-160	—	—	V	I_C = -100µA, I_E = 0
Collector-Emitter Breakdown Voltage (Note 7)	BV_{CEO}	-150	—	—	V	I_C = -1mA, I_B = 0
Emitter-Base Breakdown Voltage	BV_{EBO}	-6	—	—	V	I_E = -10µA, I_C = 0
Collector-Base Cut-off Current	I_{CBO}	—	—	-50	nA µA	V_{CB} = -120V, I_E = 0 V_{CB} = -120V, I_E = 0, T_A = +150°C
Emitter-Base Cut-off Current	I_{EBO}	—	—	-50	nA	V_{EB} = -3V, I_C = 0
ON CHARACTERISTICS (Note 7)						
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	— —	— —	-0.2 -0.5	V	I_C = -10mA, I_B = -1mA I_C = -50mA, I_B = -5mA
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	—	—	-1.0	V	I_C = -10mA, I_B = -1mA I_C = -50mA, I_B = -5mA
Static Forward Current Transfer Ratio	h_{FE}	50 60 50	— — —	— 240 —	—	I_C = -1mA, V_{CE} = -5V I_C = -10mA, V_{CE} = -5V I_C = -50mA, V_{CE} = -5V
SMALL SIGNAL CHARACTERISTICS						
Transition Frequency	f_T	100	—	300	MHz	V_{CE} = -10V, I_C = -10mA, f = 100MHz
Output Capacitance	Cobo	—	—	6	pF	V_{CB} = -10V, f = 1MHz, I_E = 0
Small Signal Current Gain	h_{FE}	40	—	260	—	V_{CE} = -10V, I_C = -1.0mA, f = 1.0kHz
Noise Figure	NF	—	—	8	dB	V_{CE} = -5.0V, I_C = -200µA, R_S = 10Ω, f = 1.0kHz

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

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

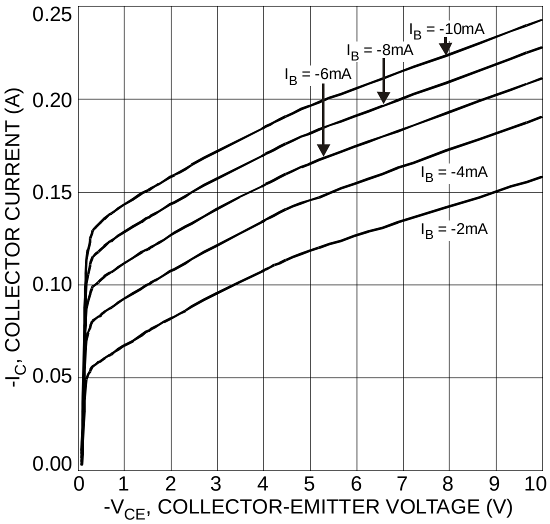


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

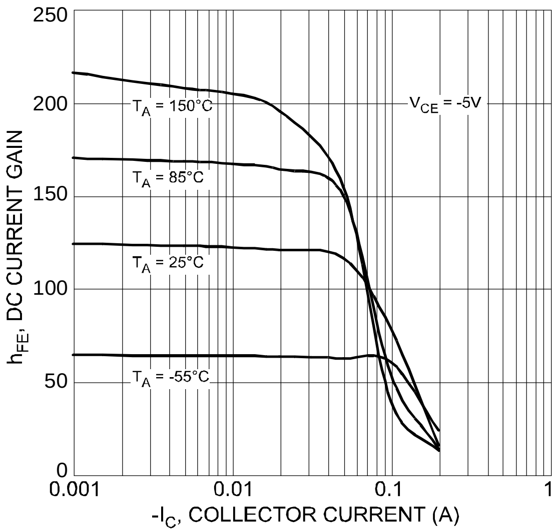


Fig. 3 Typical DC Current Gain vs. Collector Current

Typical Electrical Characteristics (Cont.)

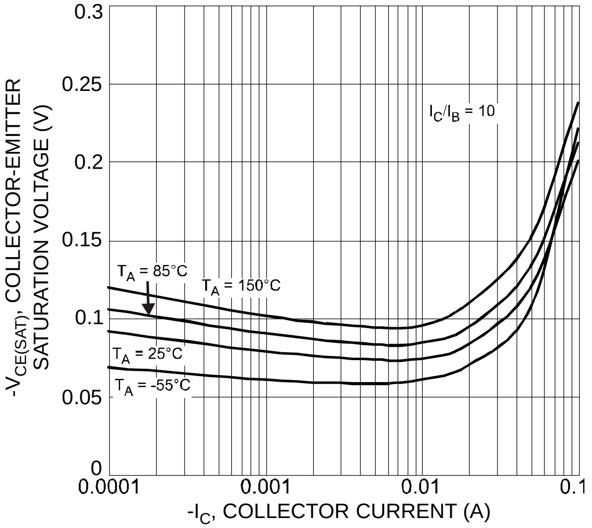


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

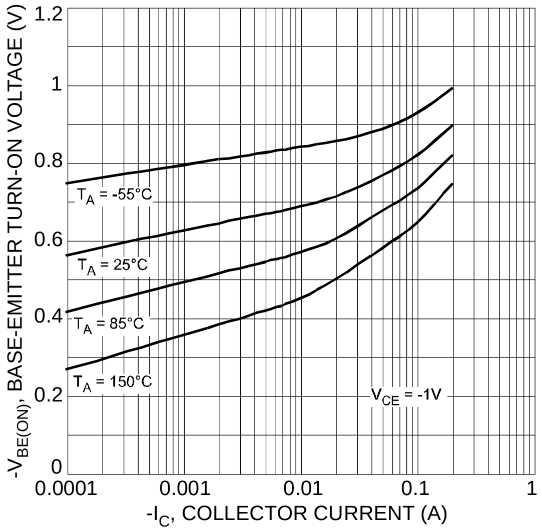


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

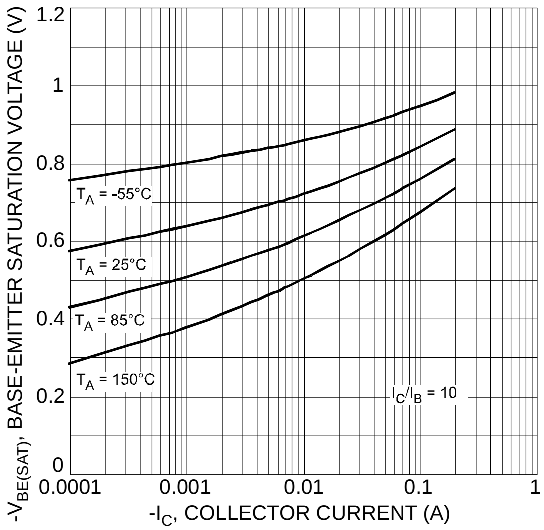


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

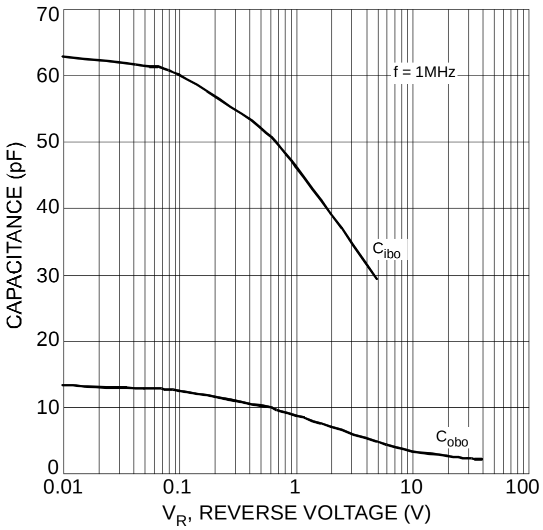


Fig. 7 Typical Capacitance Characteristics

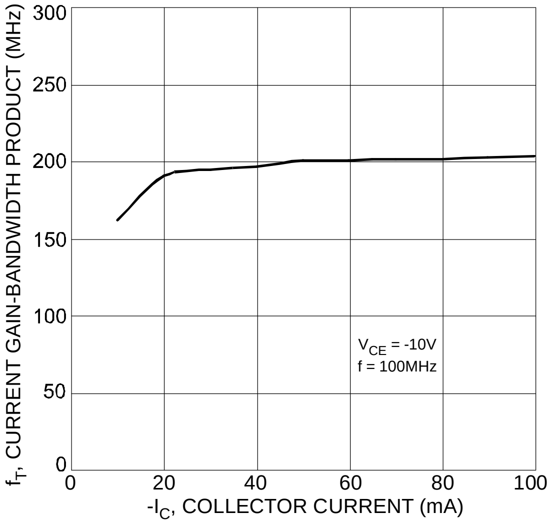
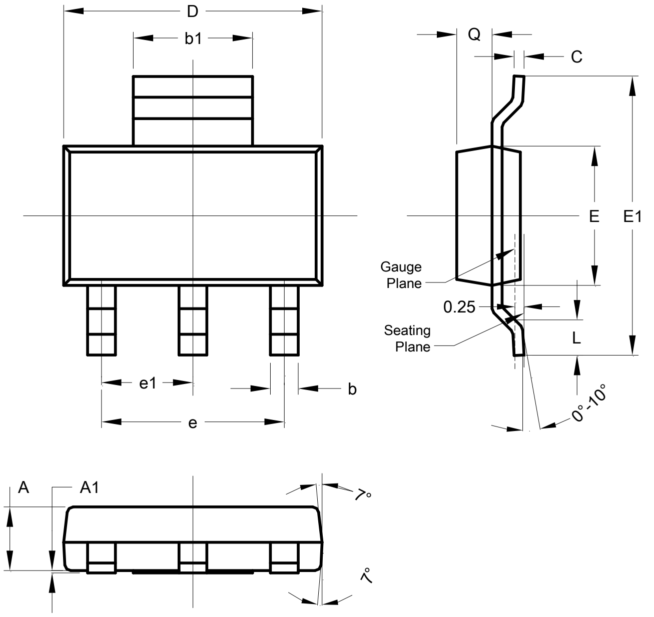


Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Package Outline Dimensions

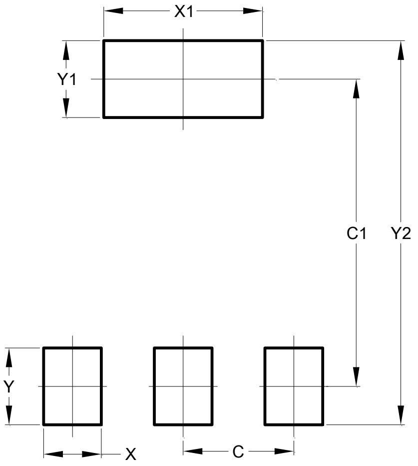
SOT223



SOT223			
Dim	**Min**	**Max**	**Typ**
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b	0.60	0.80	0.70
b1	2.90	3.10	3.00
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	-	-	4.60
e1	-	-	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

Suggested Pad Layout

SOT223



Dimensions	Value (in mm)
C	2.30
C1	6.40
X	1.20
X1	3.30
Y	1.60
Y1	1.60
Y2	8.00