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} > -12V
- I_C = -3A High Continuous Current
- Low Saturation Voltage $V_{CE(sat)}$ < -0.25V @ -1.5A
- Complementary NPN Type: 2DD2678

Mechanical Data

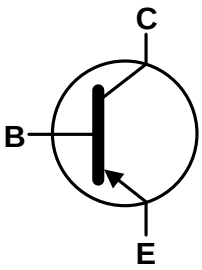
- Package: SOT89
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.052 grams (Approximate)

Application

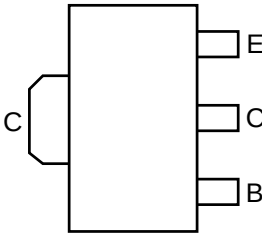
- Medium power switching
- Amplifications

SOT89

Top View



Device Symbol



Pin Out – Top View

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-15	V
Collector-Emitter Voltage	V_{CEO}	-12	V
Emitter-Base Voltage	V_{EBO}	-6	V
Continuous Collector Current	I_C	-3	A
Peak Pulse Current	I_{CM}	-6	A

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	0.9	W
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	139	°C/W
Power Dissipation (Note 6)	P_D	2	W
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{\theta JA}$	62.5	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes: 5. Device mounted on FR-4 PCB with minimum recommended pad layout.
6. Device mounted on FR-4 PCB with 1inch^2 copper pad layout.

Thermal Characteristics and Derating Information

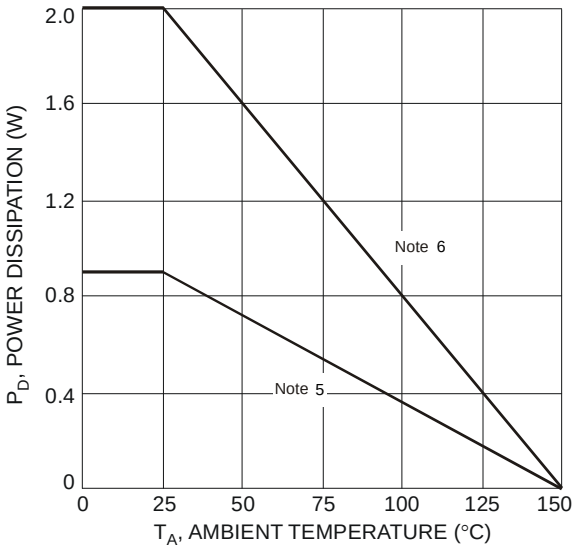


Figure 1. Power Dissipation vs. Ambient Temperature

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

Characteristic	Symbol	Min	Typ	Max	Unit	Conditions
OFF CHARACTERISTICS (Note 7)						
Collector-Base Breakdown Voltage	BV_{CBO}	-15	—	—	V	I_C = -10μA
Collector-Emitter Breakdown Voltage	BV_{CEO}	-12	—	—	V	I_C = -1mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-6	—	—	V	I_E = -10μA
Collector Cut-Off Current	I_{CBO}	—	—	-0.1	μA	V_{CB} = -15V
Emitter Cut-Off Current	I_{EBO}	—	—	-0.1	μA	V_{EB} = -6V
ON CHARACTERISTICS (Note 7)						
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	-120	-250	mV	I_C = -1.5A, I_B = -30mA
DC Current Gain	h_{FE}	270	—	680	—	V_{CE} = -2V, I_C = -500mA
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C_{obo}	—	40	—	pF	V_{CB} = -10V, I_E = 0, f = 1MHz
Current Gain-Bandwidth Product	f_T	—	180	—	MHz	V_{CE} = -2V, I_C = -100mA, f = 100MHz

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

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

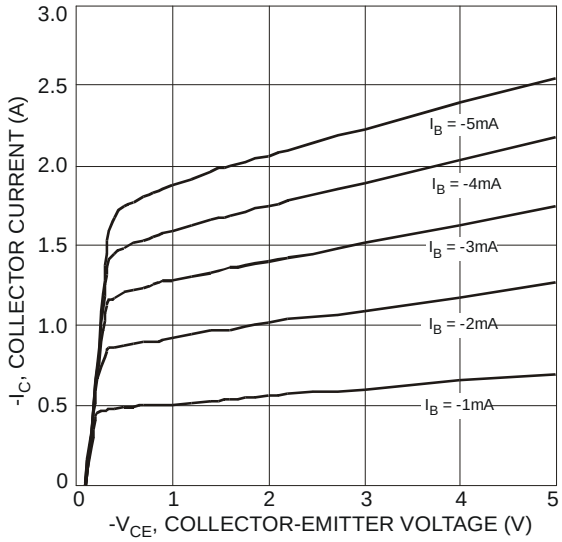


Figure 2. Typical Collector Current vs. Collector-Emitter Voltage

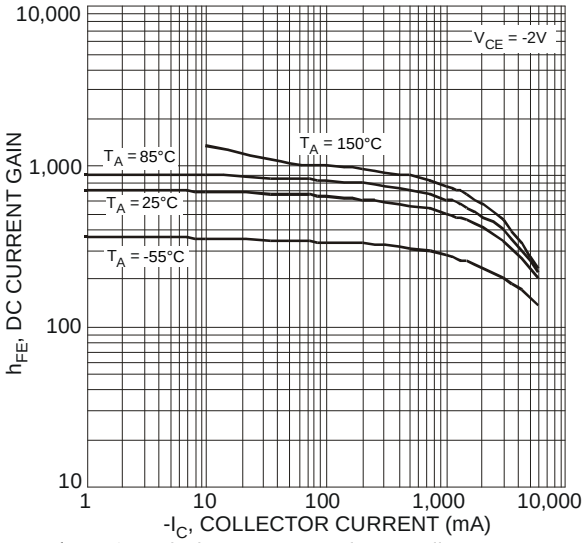


Figure 3. Typical DC Current Gain vs. Collector Current

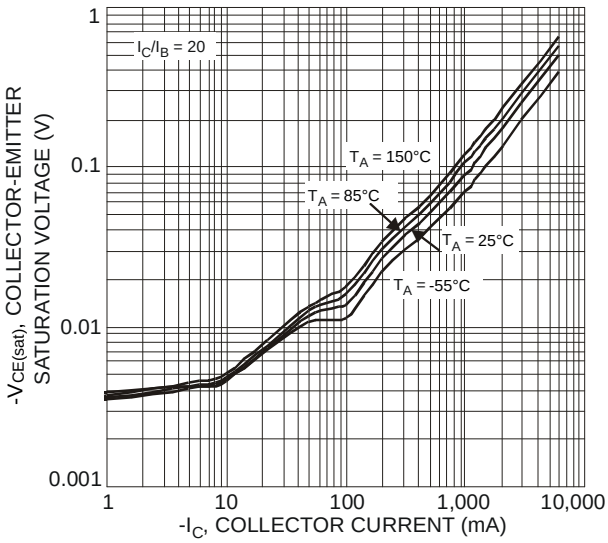


Figure 4. Typical Collector-Emitter Saturation Voltage vs. Collector Current

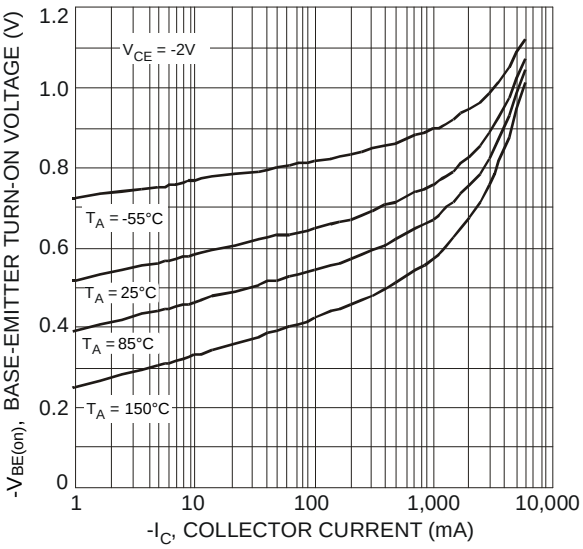


Figure 5. Typical Base-Emitter Turn-On Voltage vs. Collector Current

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

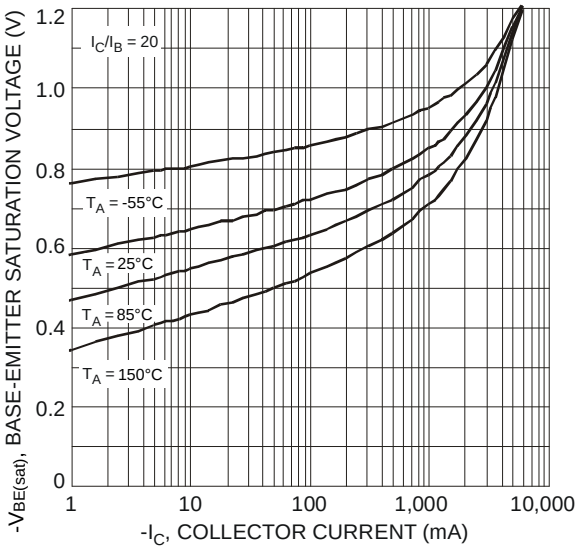


Figure 6. Typical Base-Emitter Saturation Voltage vs. Collector Current

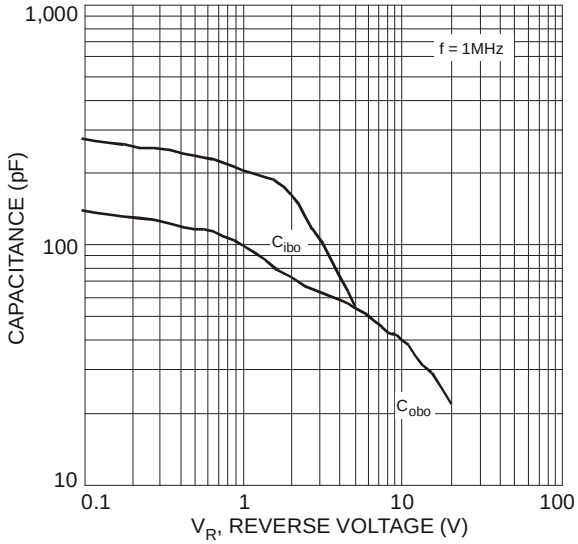


Figure 7. Typical Capacitance Characteristics

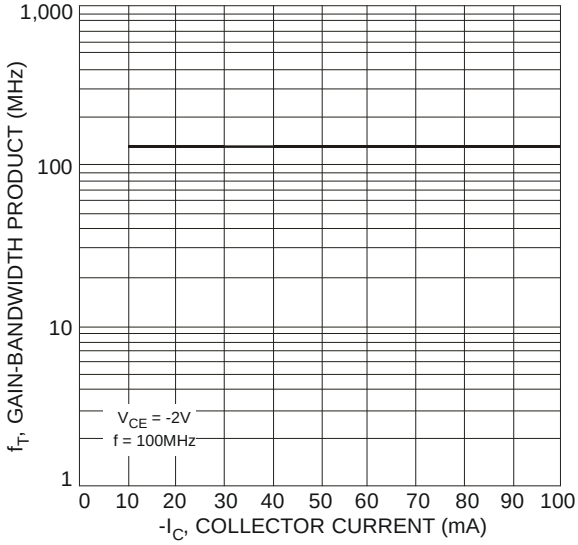
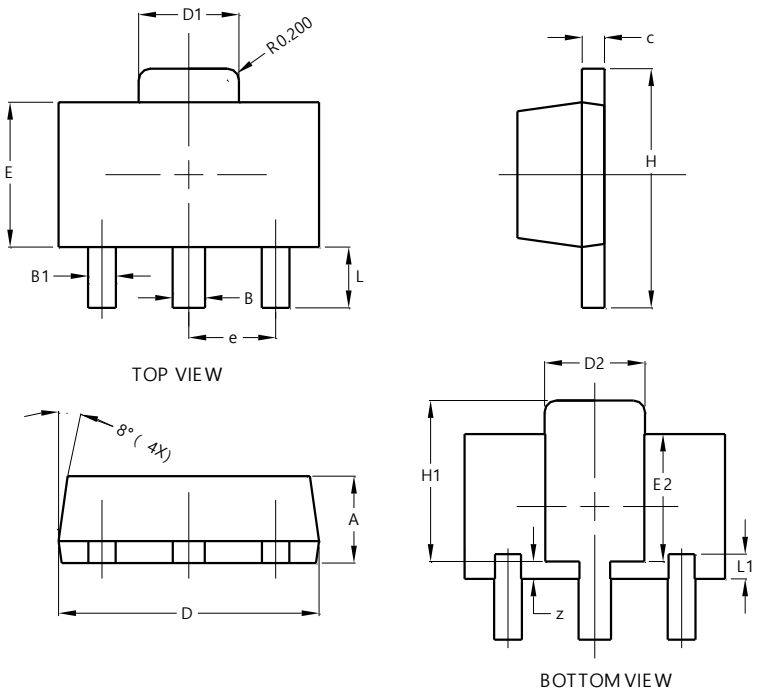


Figure 8. Typical Gain-Bandwidth Product vs. Collector Current

Package Outline Dimensions

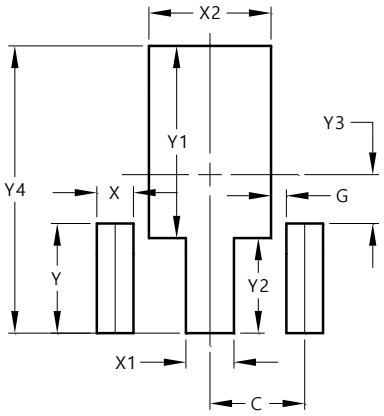
SOT89



SOT89			
Dim	Min	Max	Typ
A	1.40	1.60	1.50
B	0.50	0.62	0.56
B1	0.42	0.54	0.48
c	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.62	1.83	1.733
D2	1.61	1.81	1.71
E	2.40	2.60	2.50
E2	2.05	2.35	2.20
e	-	-	1.50
H	3.95	4.25	4.10
H1	2.63	2.93	2.78
L	0.90	1.20	1.05
L1	0.327	0.527	0.427
z	0.20	0.40	0.30
All Dimensions in mm			

Suggested Pad Layout

SOT89



Dimensions	Value (in mm)
C	1.500
G	0.244
X	0.580
X1	0.760
X2	1.933
Y	1.730
Y1	3.030
Y2	1.500
Y3	0.770
Y4	4.530