



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



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## Features

- Ultra-Small Surface Mount Package
- Current Gain Matching
- Base-Emitter Voltage Matching
- Ideally Suited for Automated Insertion
- For Switching and AF Amplifier Application

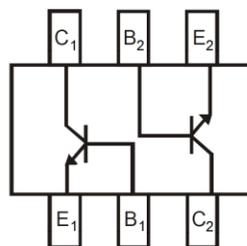
## Mechanical Data

- 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)

SOT363



Top View



Device Schematic  
Top View

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	80	V
Collector-Emitter Voltage	$V_{CEO}$	65	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	100	mA
Peak Collector Current	$I_{CM}$	200	mA
Peak Base Current	$I_{BM}$	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 6)	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

**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

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

Characteristic (Note 7)	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	$BV_{CBO}$	80	—	—	V	$I_C = 100\mu\text{A}, I_B = 0$
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	65	—	—	V	$I_C = 10\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	$BV_{EBO}$	6	—	—	V	$I_E = 100\mu\text{A}, I_C = 0$
DC Current Gain	$h_{FE}$	200	—	450	—	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$
DC Current Gain Matching	$h_{FE1}/h_{FE2}$	0.9	1	1.1	—	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	—	100 400	mV	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	—	755	—	mV	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$
		—	905	—	mV	$I_C = 100\text{mA}, I_B = 5\text{mA}$
Base-Emitter Voltage	$V_{BE(ON)}$	610	665	710	mV	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$
Base-Emitter Voltage Matching	$V_{BE1(ON)} - V_{BE2(ON)}$	-2	—	2	mV	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$
Collector-Cutoff Current	$I_{CBO}$	—	—	15 5	nA $\mu\text{A}$	$V_{CB} = 40\text{V}$ $V_{CB} = 40\text{V}, T_A = +125^\circ\text{C}$
Emitter-Cutoff Current	$I_{EBO}$	—	—	20	nA	$V_{EB} = 5\text{V}, I_C = 0$
Gain Bandwidth Product	$f_T$	100	—	—	MHz	$V_{CE} = 5\text{V}, I_C = 10\text{mA}, f = 100\text{MHz}$
Collector-Base Capacitance	$C_{CBO}$	—	2	3	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Emitter-Base Capacitance	$C_{EBO}$	—	11	—	pF	$V_{EB} = 0.5\text{V}, f = 1\text{MHz}$

- Notes:
- For a device mounted with the collector lead on minimum recommended pad 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.
  - Refer to JEDEC specification JESD22-A114 and JESD22-A115.
  - Short duration pulse test used to minimize self-heating effect.

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

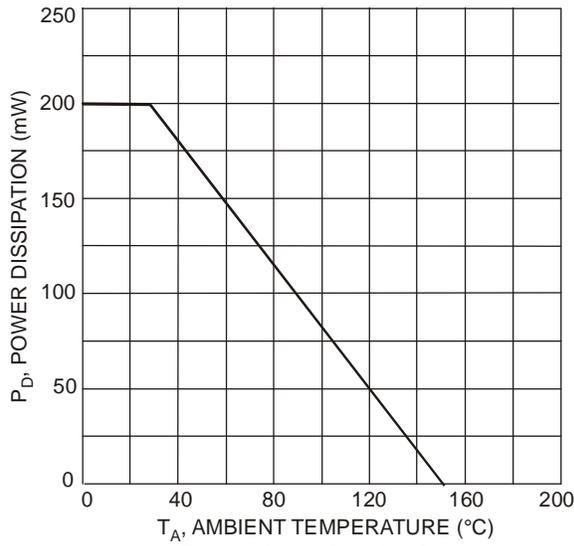


Figure 1 Power Derating Curve

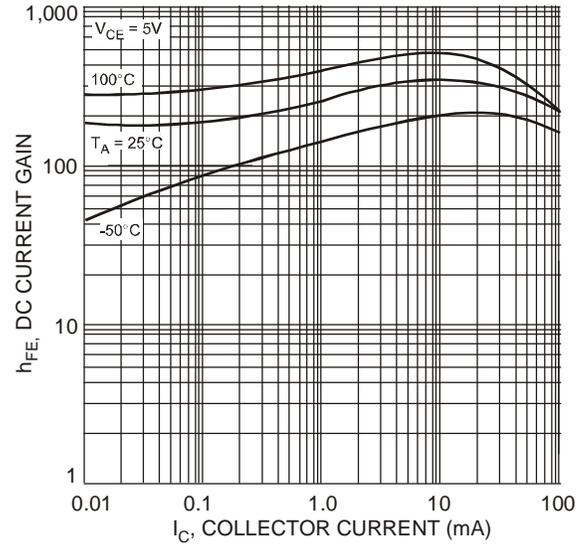


Figure 2 Typical DC Current Gain vs. Collector Current

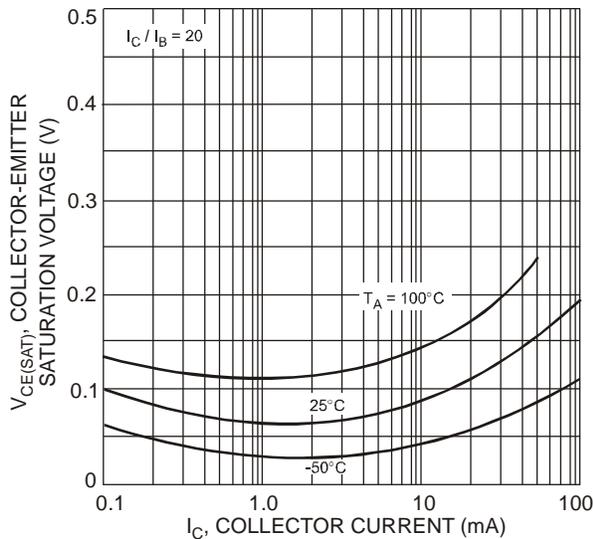


Figure 3 Typical Collector-Emitter Saturation Voltage vs. Collector Current

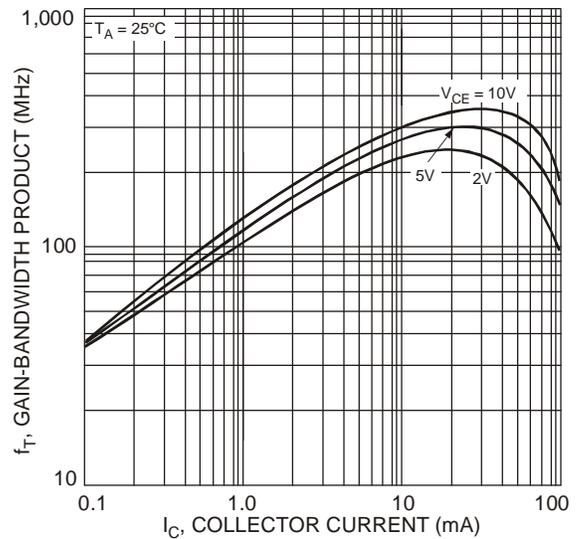
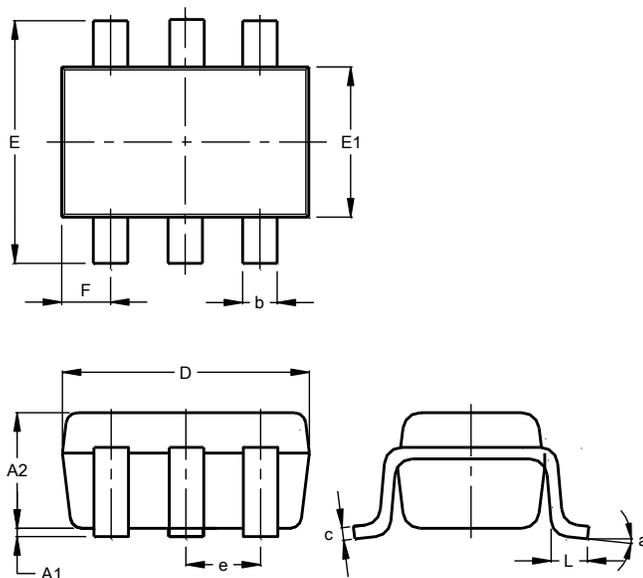


Figure 4 Typical Gain-Bandwidth Product vs. Collector Current

## Package Outline Dimensions

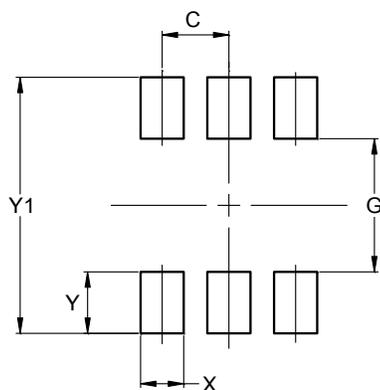
SOT363



SOT363			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
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