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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Features

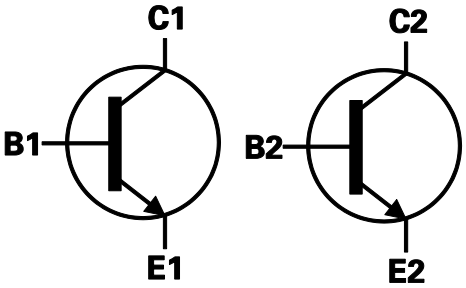
- Ultra-Small Surface-Mount Package
- Epitaxial Planar Die Construction
- Ideal for Low-Power Amplification and Switching

Mechanical Data

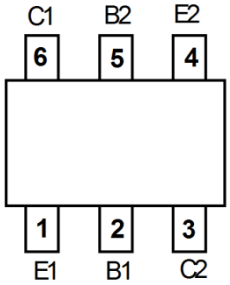
- Package: SOT363
- Package Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — Matte Tin Finish. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.006 grams (Approximate)

SOT363

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}	60	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	600	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 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 the device mounted on minimum recommended pad layout FR-4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
6. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

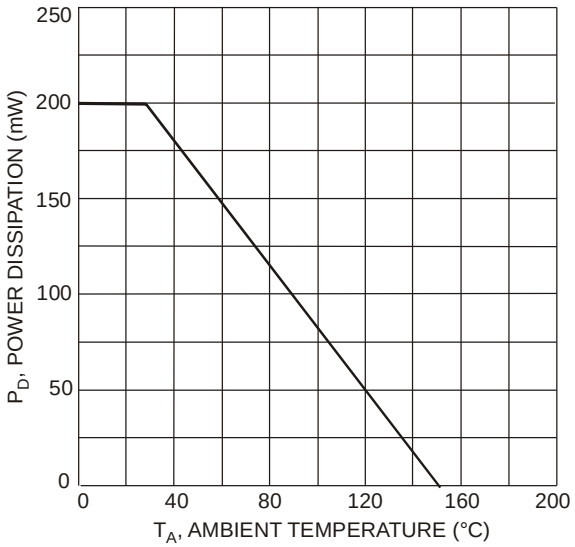


Fig. 1 Power Derating Curve

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}	60	—	—	V	I_C = -10μA, I_B = 0
Collector-Emitter Breakdown Voltage (Note 7)	BV_{CEO}	40	—	—	V	I_C = -10mA, I_B = 0
Emitter-Base Breakdown Voltage	BV_{EBO}	-6.0	—	—	V	I_E = -10μA, I_C = 0
Collector Cutoff Current	I_{CEX}	—	—	100	nA	V_{CE} = 35V, $V_{EB(off)}$ = 0.4V
Base Cutoff Current	I_{BL}	—	—	100	nA	V_{CE} = 35V, $V_{EB(off)}$ = 0.4V
ON CHARACTERISTICS (Note 7)						
DC Current Gain	h_{FE}	20 40 80 100 40	— — — — —	— — — 300 —	—	I_C = 100μA, V_{CE} = 1.0V I_C = 1.0mA, V_{CE} = 1.0V I_C = 10mA, V_{CE} = 1.0V I_C = 150mA, V_{CE} = 1.0V I_C = 500mA, V_{CE} = 2.0V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	— —	— —	0.4 0.75	V	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	0.75 —	— —	0.95 1.2	V	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C_{obo}	—	—	6.5	pF	V_{CB} = 5V, f = 1MHz, I_E = 0
Input Capacitance	C_{ibo}	—	—	30	pF	V_{EB} = 0.5V, f = 1MHz, I_C = 0
Input Impedance	h_{ie}	1.0	—	15	kΩ	V_{CE} = 10V, I_C = 1.0mA f = 1kHz
Voltage Feedback Ratio	h_{re}	0.1	—	8.0	x 10^{-4}	
Small Signal Current Gain	h_{fe}	40	—	500	—	
Output Admittance	h_{oe}	1.0	—	30	μS	
Current Gain Bandwidth Product	f_T	250	—	—	MHz	V_{CE} = 10V, I_C = 20mA f = 100MHz
SMALL SIGNAL CHARACTERISTICS						
Delay Time	t_d	—	—	15	ns	V_{CC} = 30V, I_C = 150mA
Rise Time	t_r	—	—	20	ns	$V_{BE(off)}$ = 2.0V, I_{B1} = 15mA
Storage Time	t_s	—	—	225	ns	V_{CC} = 30V, I_C = 150mA
Fall Time	t_f	—	—	30	ns	I_{B1} = -I_{B2} = 15mA

Note: 7. Short duration pulse test used to minimize self-heating effect.

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

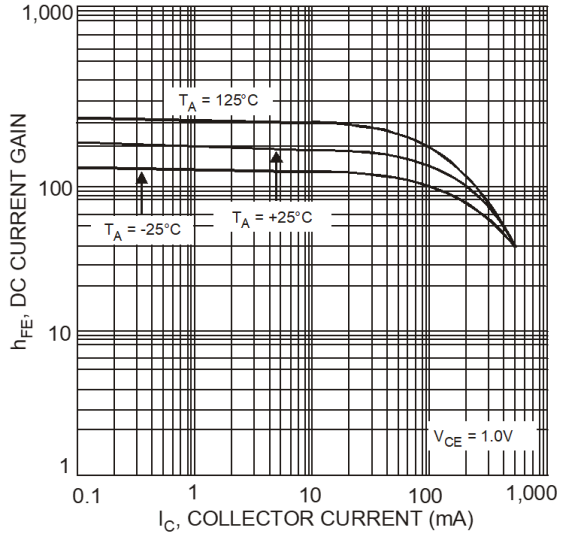


Fig. 2 Typical DC Current Gain vs. Collector Current

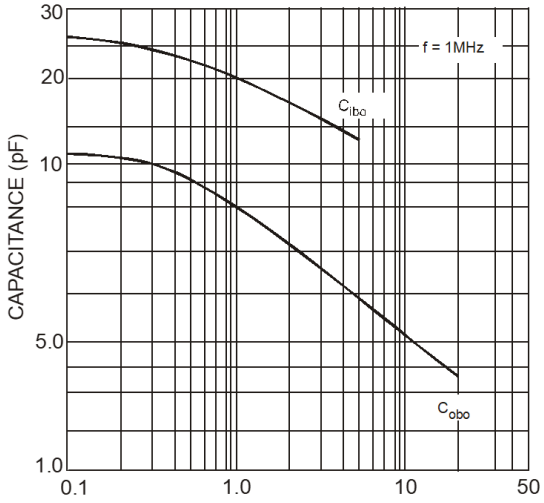


Fig. 3 Typical Capacitance

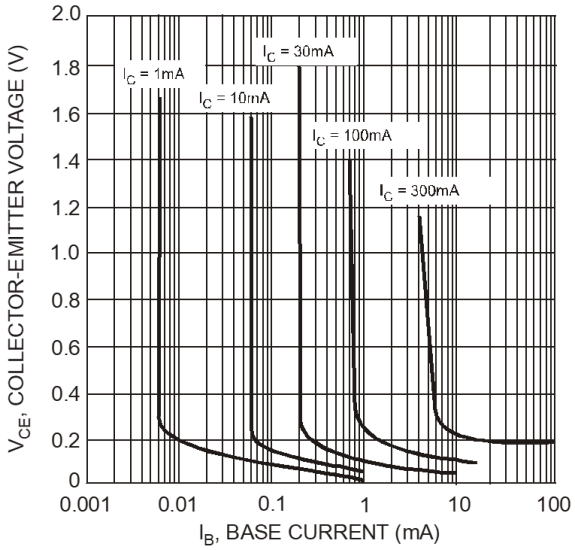


Fig. 4 Typical Collector Saturation Region

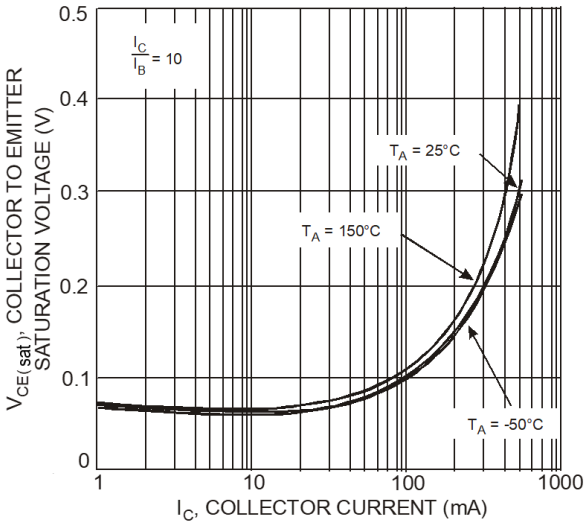


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

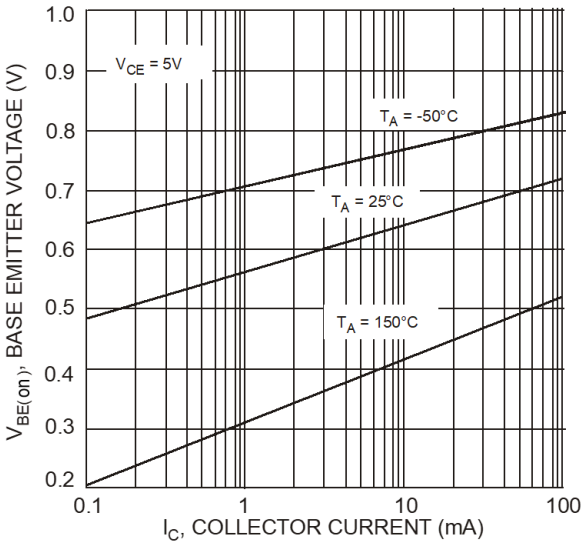


Fig. 6 Base Emitter Voltage vs. Collector Current

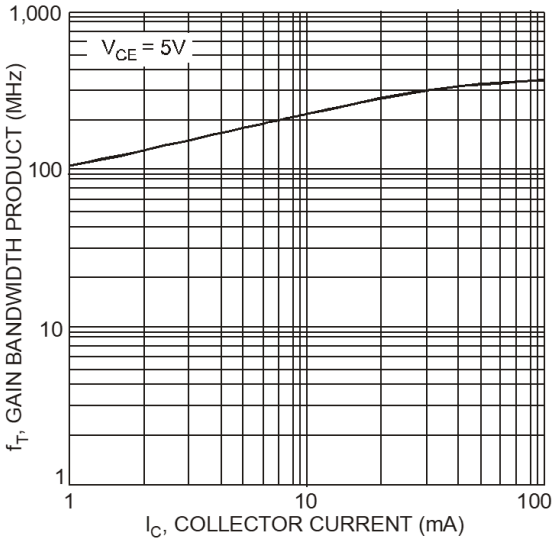
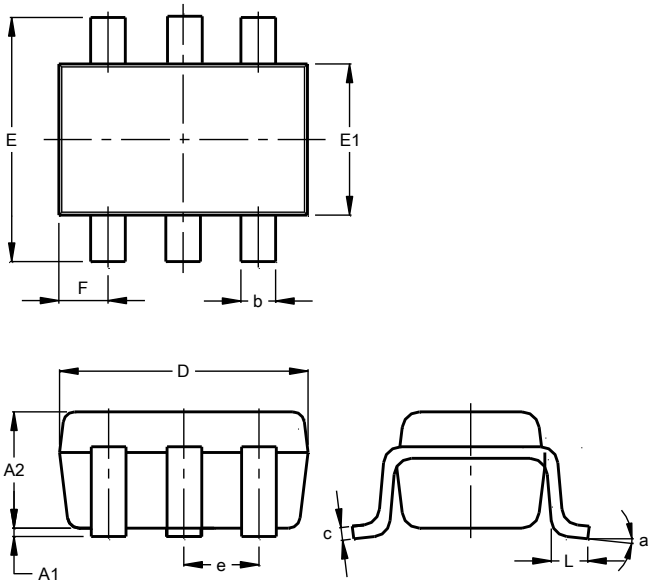


Fig. 7 Gain Bandwidth Product vs. Collector Current

Package Outline Dimensions

SOT363



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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

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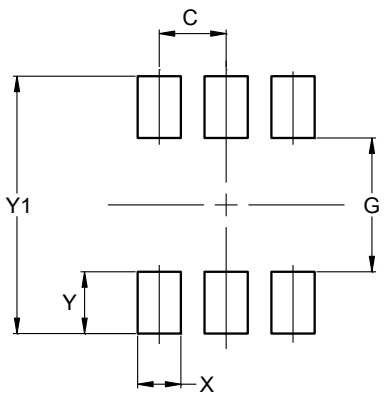

Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500