



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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企业微信二维码



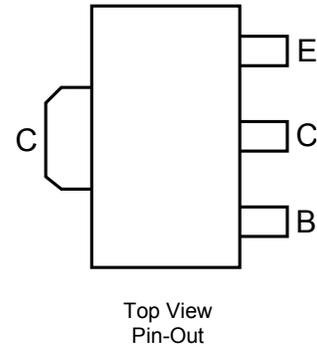
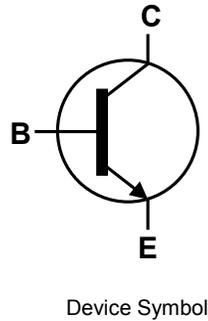
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Features

- $BV_{CEO} > 40V$
- $I_C = 600mA$ High Collector Current
- Complementary PNP Type: NK-DXT2907A
- Ideal for Medium-Power Switching or Amplification Applications

Mechanical Data

- Case: SOT89
- 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 
- Weight: 0.072 grams (Approximate)



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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Peak Pulse Current	I_{CM}	800	mA
Continuous Collector Current	I_C	600	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation	P_D	(Note 5) 0.75	W
		(Note 6) 1.2	
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	(Note 5) 166	$^\circ\text{C/W}$
		(Note 6) 104	
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

ESD Ratings (Note 7)

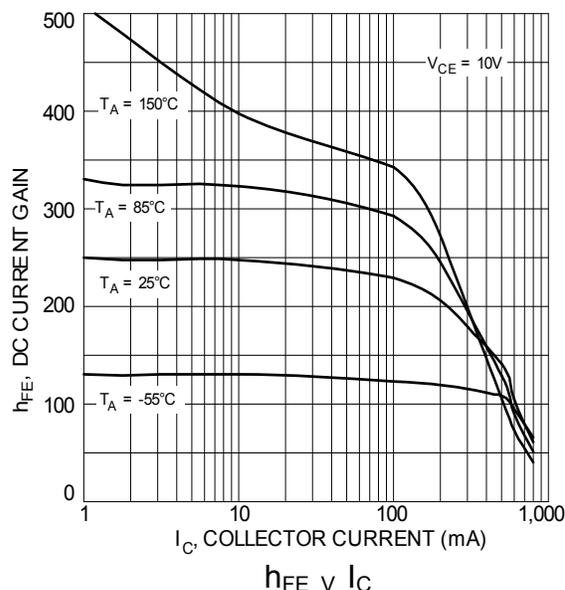
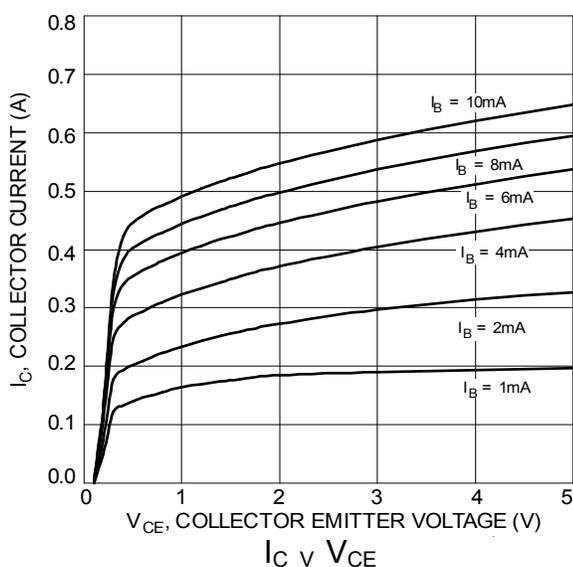
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

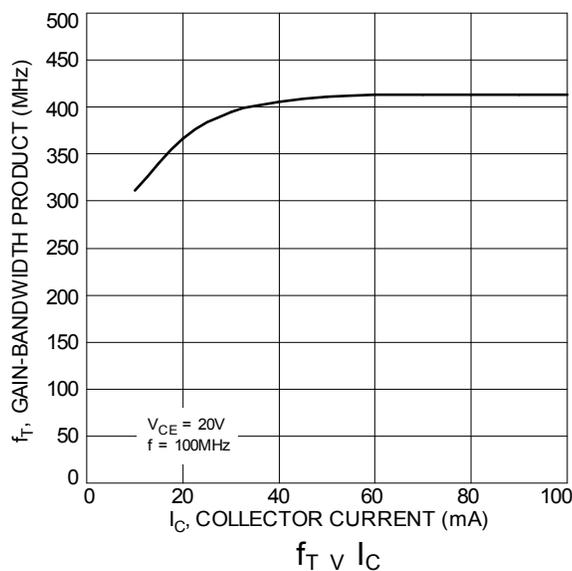
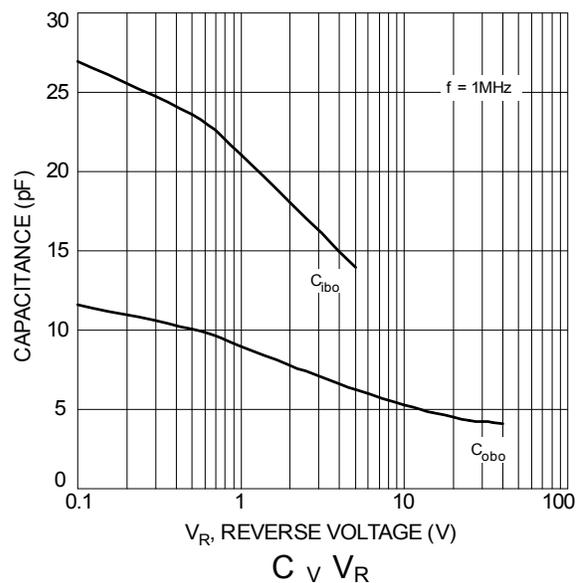
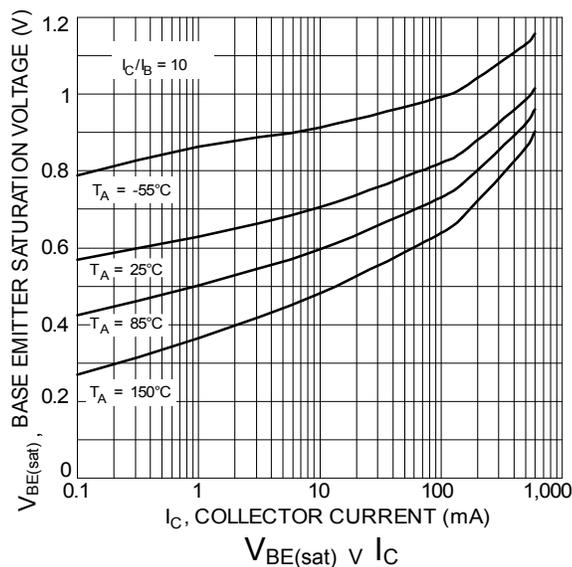
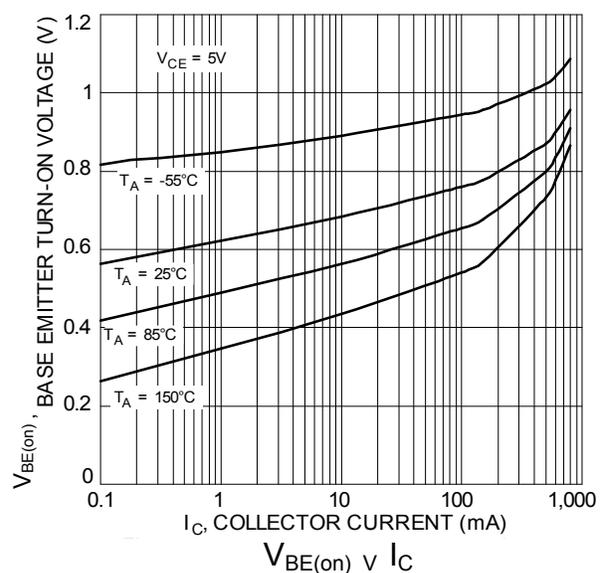
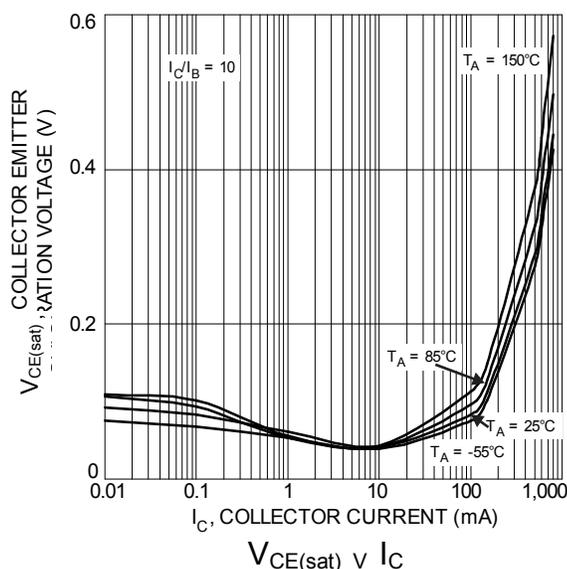
- Notes:
- For a device mounted with the exposed collector pad on minimum recommended pad layout 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 - Same as Note 5, except the device is mounted with the exposed collector pad on 25mm x 25mm 1oz copper.
 - Refer to JEDEC specification JESD22-A114 and JESD22-A115.

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

Characteristic	Symbol	Min	Max	Unit	Test Conditions
OFF CHARACTERISTICS (Note 8)					
Collector-Base Breakdown Voltage	BV_{CBO}	75	—	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CEO}	40	—	V	$I_C = 10\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	6.0	—	V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}	—	10	nA μA	$V_{CB} = 60\text{V}$ $V_{CB} = 60\text{V}, T_A = +150^\circ\text{C}$
Collector Cut-Off Current	I_{CEX}	—	10	nA	$V_{CE} = 60\text{V}, V_{EB(off)} = 3.0\text{V}$
Emitter Cut-Off Current	I_{EBO}	—	10	nA	$V_{EB} = 3.0\text{V}$
Base Cut-Off Current	I_{BL}	—	20	nA	$V_{CE} = 60\text{V}, V_{EB(off)} = 3.0\text{V}$
ON CHARACTERISTICS (Note 8)					
DC Current Gain	h_{FE}	35	—	—	$I_C = 100\mu\text{A}, V_{CE} = 10\text{V}$ $I_C = 1.0\text{mA}, V_{CE} = 10\text{V}$ $I_C = 10\text{mA}, V_{CE} = 10\text{V}$ $I_C = 150\text{mA}, V_{CE} = 10\text{V}$ $I_C = 500\text{mA}, V_{CE} = 10\text{V}$ $I_C = 10\text{mA}, V_{CE} = 10\text{V}, T_A = -55^\circ\text{C}$ $I_C = 150\text{mA}, V_{CE} = 1.0\text{V}$
		50	—		
		75	—		
		100	300		
		40	—		
		35	—		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	0.3 — 1.0	V	$I_C = 150\text{mA}, I_B = 15\text{mA}$ $I_C = 500\text{mA}, I_B = 50\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	0.6 —	1.2 — 2.0	V	$I_C = 150\text{mA}, I_B = 15\text{mA}$ $I_C = 500\text{mA}, I_B = 50\text{mA}$
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}	—	8	pF	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$
Input Capacitance	C_{ibo}	—	25	pF	$V_{EB} = 0.5\text{V}, f = 1.0\text{MHz}$
Transition frequency	f_T	300	—	MHz	$V_{CE} = 20\text{V}, I_C = 20\text{mA}, f = 100\text{MHz}$
Noise Figure	NF	—	4.0	dB	$V_{CE} = 10\text{V}, I_C = 150\mu\text{A}, R_S = 1.0\text{k}\Omega, f = 1.0\text{kHz}$
SWITCHING CHARACTERISTICS					
Delay Time	t_d	—	10	ns	$V_{CC} = 30\text{V}, I_C = 150\text{mA}, V_{EB(off)} = 0.5\text{V}, I_{B1} = 15\text{mA}$
Rise Time	t_r	—	25	ns	
Storage Time	t_s	—	225	ns	$V_{CC} = 30\text{V}, I_C = 150\text{mA}, I_{B1} = I_{B2} = 15\text{mA}$
Fall Time	t_f	—	60	ns	

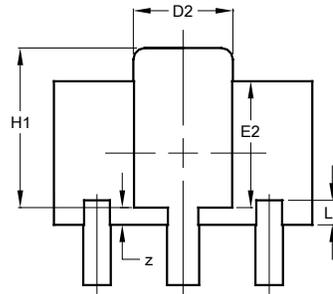
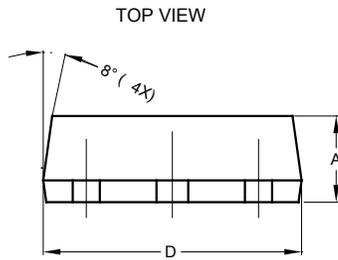
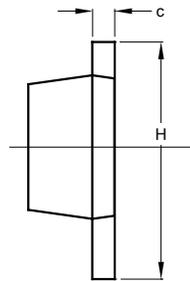
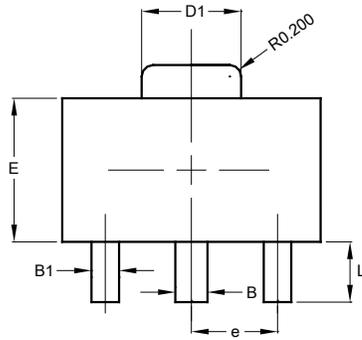
 Note: 8. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$.

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




Package Outline Dimensions

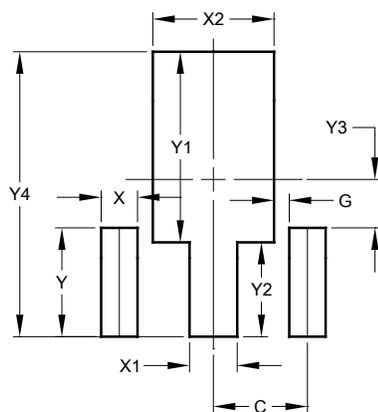
SOT89



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