



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Features

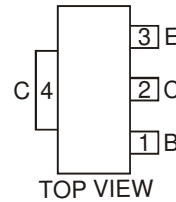
- Epitaxial Planar Die Construction
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**

Mechanical Data

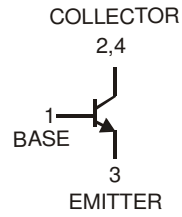
- Case: SOT89-3L
- Case Material: Molded Plastic, "Green" Molding Compound.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish — Matte Tin annealed over Copper leadframe
(Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.072 grams (approximate)



SOT89-3L



TOP VIEW



Schematic and Pin Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	30	V
Collector-Emitter Voltage	V _{CEO}	25	V
Emitter-Base Voltage	V _{EBO}	6.0	V
Collector Current	I _C	2.0	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3) @ T _A = 25°C	P _D	1	W
Thermal Resistance, Junction to Ambient Air (Note 3) @T _A = 25°C	R _{θJA}	125	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
OFF CHARACTERISTICS (Note 4)						
Collector-Base Breakdown Voltage	V _{(BR)CBO}	30	—	—	V	I _C = 10μA, I _E = 0
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	25	—	—	V	I _C = 1mA, I _B = 0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	6.0	—	—	V	I _C = 10μA, I _C = 0
Collector-Base Cutoff Current	I _{CBO}	—	—	100	nA	V _{CB} = 20V, I _E = 0
Emitter-Base Cutoff Current	I _{EBO}	—	—	100	nA	V _{EB} = 4.0V, I _C = 0
ON CHARACTERISTICS (Note 4)						
DC Current Gain	h _{FE}	200 65	— —	400 —	—	V _{CE} = 2.0V, I _C = 0.1A V _{CE} = 2.0V, I _C = 1.5A
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	—	0.12	0.4	V	I _C = 1.5A, I _B = 75mA
Base-Emitter Saturation Voltage	V _{BE(SAT)}	—	0.9	1.2	V	I _C = 1.5A, I _B = 75mA
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product	f _T	—	300	—	MHz	V _{CE} = 10V, I _C = 50mA, f = 100MHz
Output Capacitance	C _{obo}	—	16	—	pF	V _{CB} = 10V, I _E = 0, f = 1MHz
SWITCHING CHARACTERISTICS						
Turn On Time	t _{on}	—	70	—	ns	V _{CE} = 12V, V _{BE} = 5V, I _{B1} = I _{B2} = 25mA, I _C = 500mA
Storage Time	t _{stg}	—	170	—	ns	
Fall Time	t _f	—	25	—	ns	

- Notes:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 3. Device mounted on FR-4 PCB; pad layout as shown on page 4 or in Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.

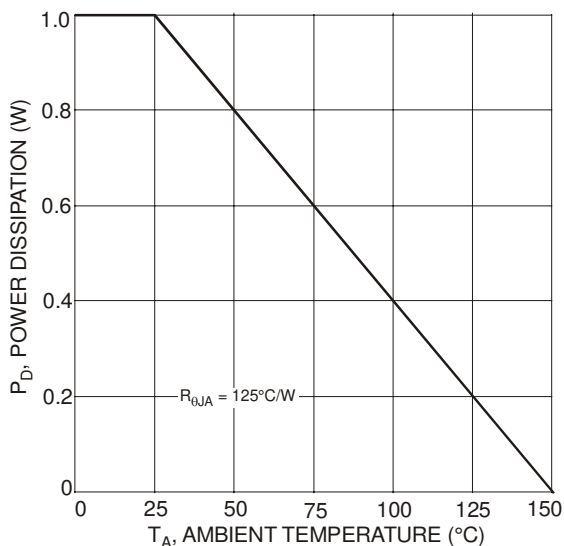


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

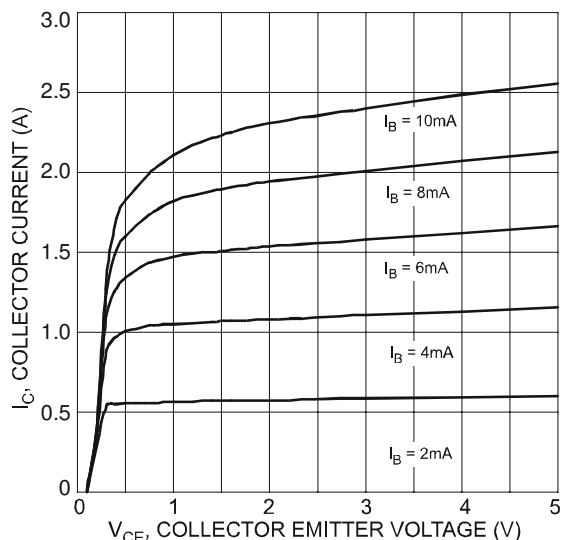


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

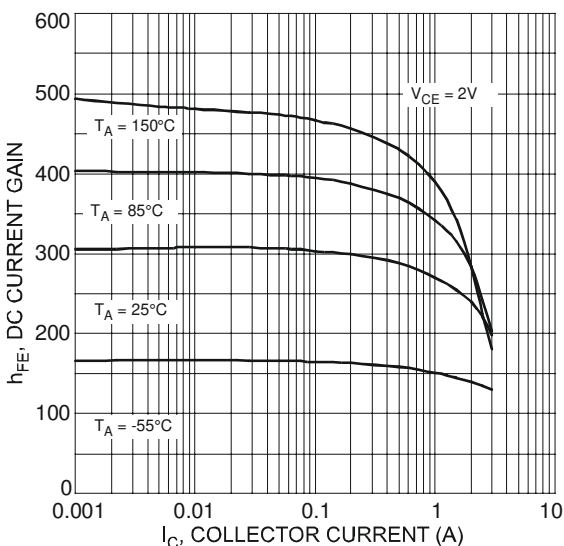


Fig. 3 Typical DC Current Gain vs. Collector Current

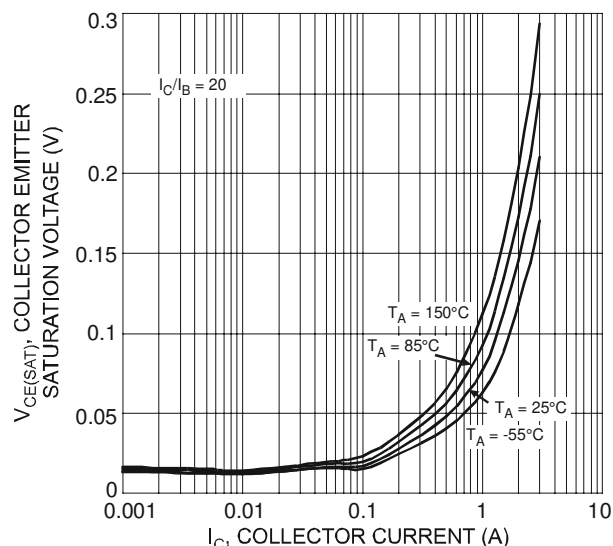


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

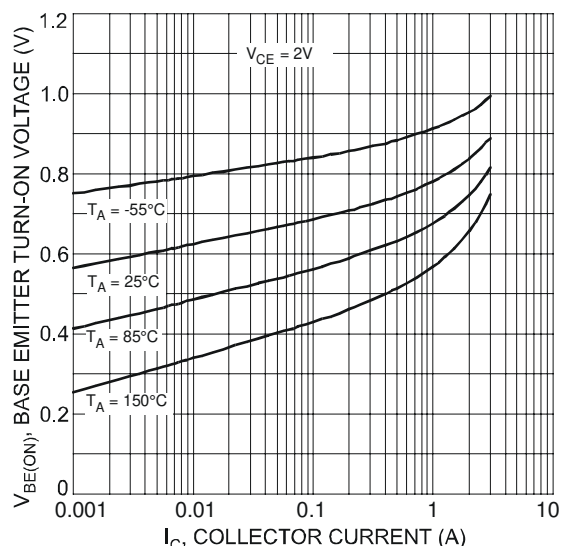


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

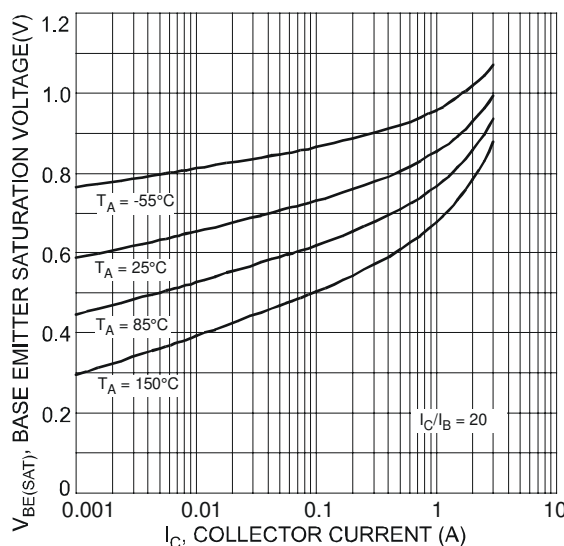


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

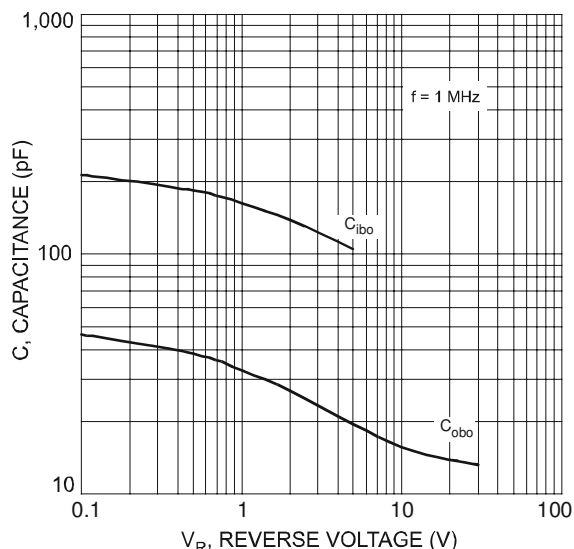


Fig. 7 Typical Junction Capacitance Characteristics

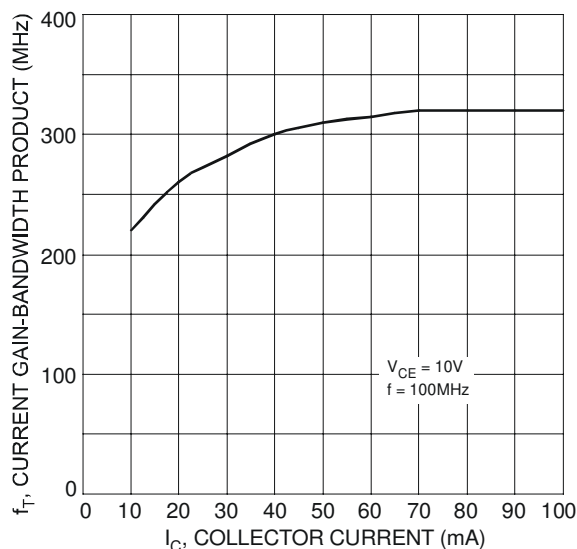


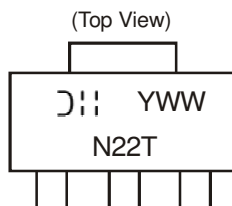
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Ordering Information (Note 5)

Device	Packaging	Shipping
2DD1621T-13	SOT89-3L	2500/Tape & Reel

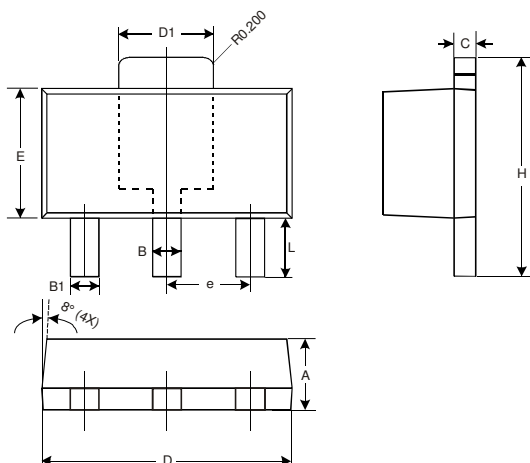
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/ap02007.pdf>.

Marking Information



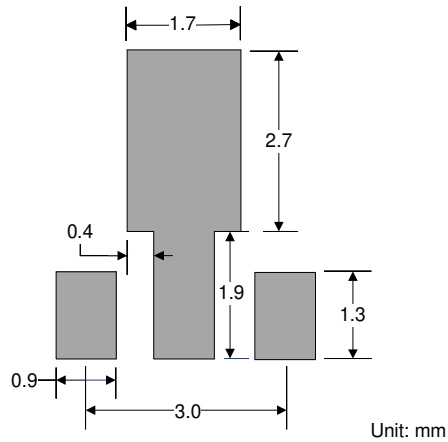
N22T = Product Type Marking Code
YWW = Date Code Marking
Y = Last digit of year ex: 7 = 2007
WW = Week code 01 - 52

Package Outline Dimensions



SOT89-3L			
Dim	Min	Max	Typ
A	1.40	1.60	1.50
B	0.45	0.55	0.50
B1	0.37	0.47	0.42
C	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.50	1.70	1.60
E	2.40	2.60	2.50
e	—	—	1.50
H	3.95	4.25	4.10
L	0.90	1.20	1.05
All Dimensions in mm			

Suggested Pad Layout



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