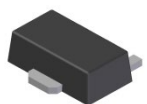


Features

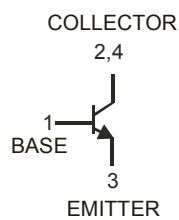
- Epitaxial Planar Die Construction
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**

Mechanical Data

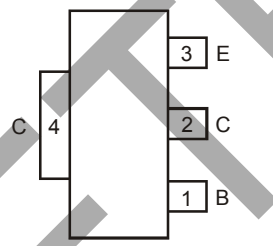
- Case: SOT89-3L
- Case Material: Molded Plastic, "Green" Molding Compound.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — Matte Tin annealed over Copper leadframe
(Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.055 grams (approximate)



Top View



Device Schematic


 Top View
 Pin Out 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 _{CE0}	25	V
Emitter-Base Voltage	V _{EB0}	6.0	V
Collector Current	I _C	2.0	A

Thermal Characteristics

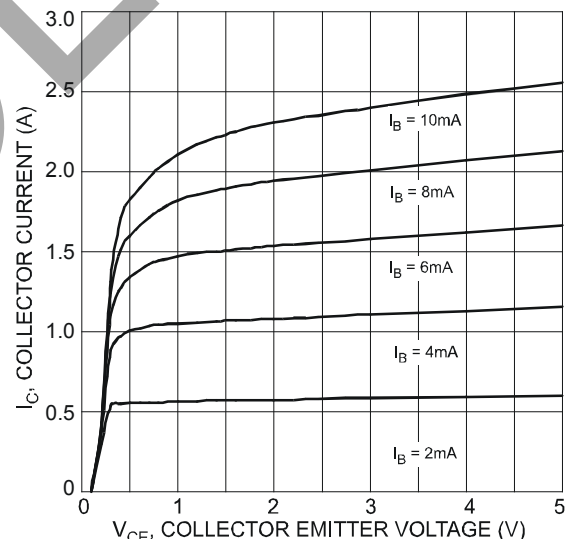
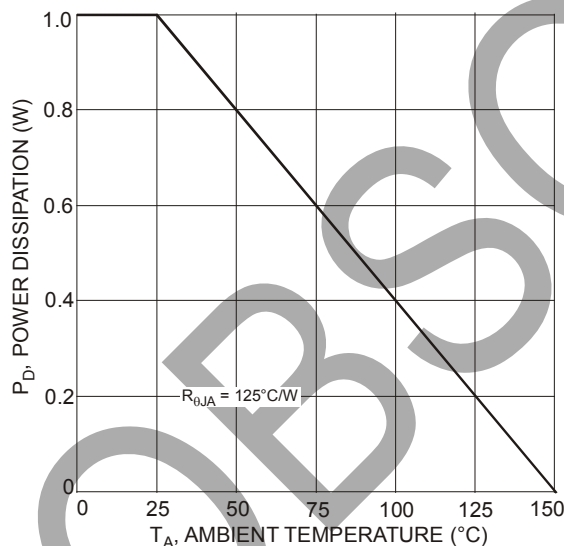
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3) @ T _A = 25°C	P _D	1	W
Thermal Resistance, Junction to Ambient Air (Note 3) @T _A = 25°C	R _{θJA}	125	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- 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 Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

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: 4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.



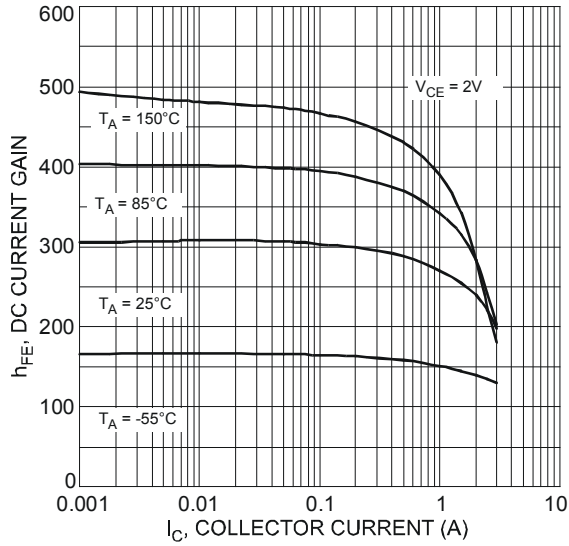


Fig. 3 Typical DC Current Gain vs. Collector Current

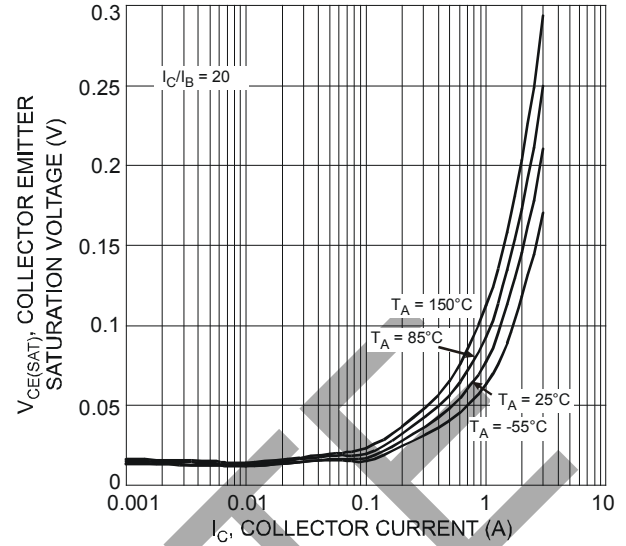


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

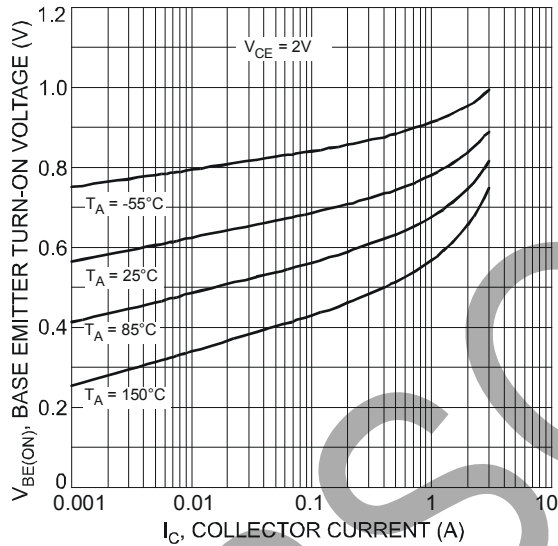


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

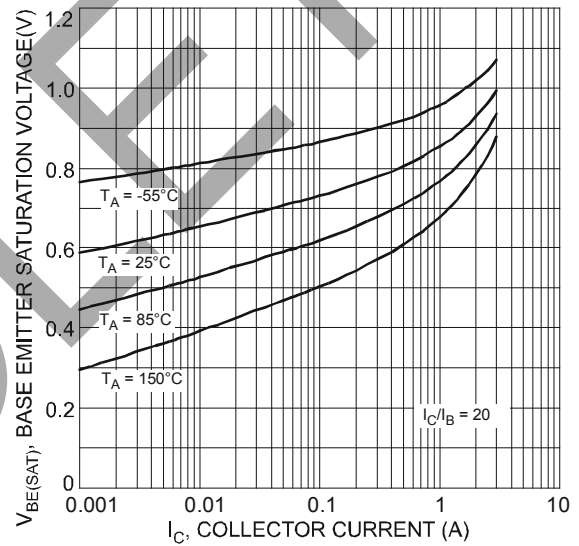


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

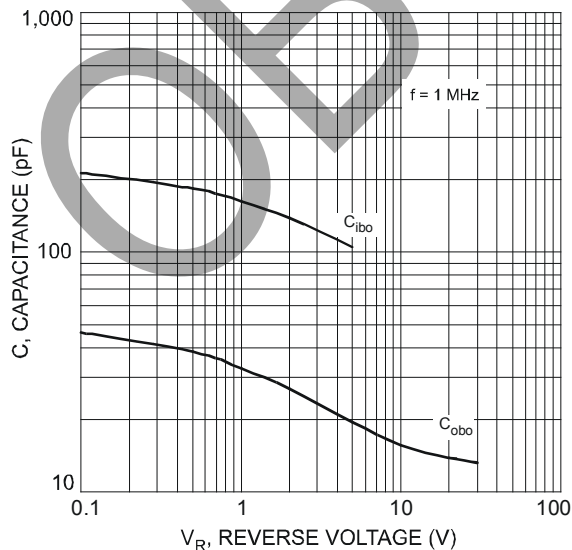


Fig. 7 Typical Junction Capacitance Characteristics

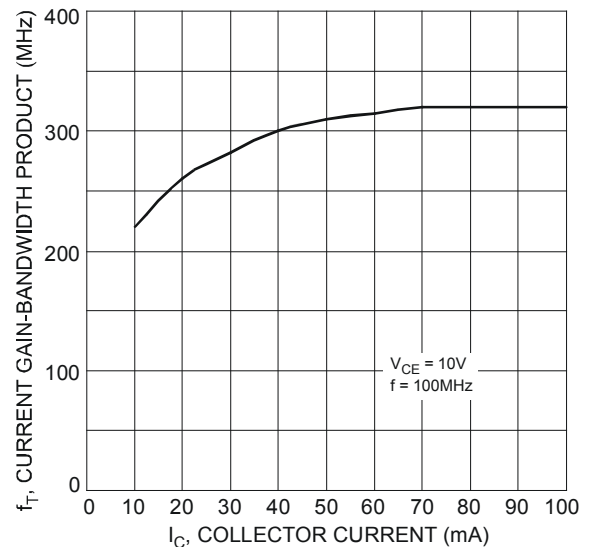


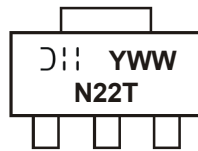
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Ordering Information (Note 5)

Part Number	Case	Packaging
2DD1621T-13	SOT89-3L	2500/Tape & Reel

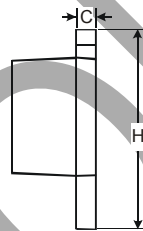
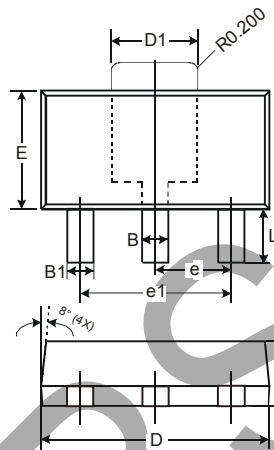
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



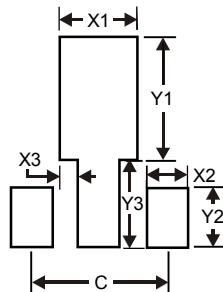
N22T = Product Type Marking Code
YWW = Date Code Marking
Y = Last digit of year (ex: 7 = 2007)
WW = Week code (01 – 53)

Package Outline Dimensions



SOT89-3L		
Dim	Min	Max
A	1.40	1.60
B	0.44	0.62
B1	0.35	0.54
C	0.35	0.43
D	4.40	4.60
D1	1.52	1.83
E	2.29	2.60
e	1.50 Typ	
e1	3.00 Typ	
H	3.94	4.25
L	0.89	1.20
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
X1	1.7
X2	0.9
X3	0.4
Y1	2.7
Y2	1.3
Y3	1.9
C	3.0

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