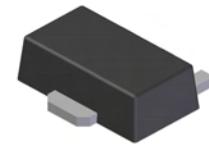


Features

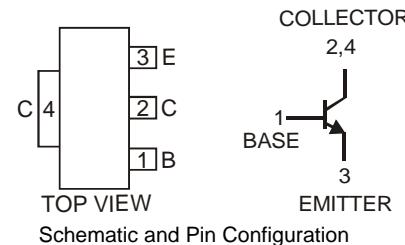
- Epitaxial Planar Die Construction
- Complementary PNP Type Available (DCX53)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- Lead Free By Design/RoHS Compliant (Note 1)**
- "Green" Device (Note 2)**



SOT89-3L

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-020C
- Terminals: Finish — Matte Tin annealed over Copper leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Marking & Type Code Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.072 grams (approximate)



Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Peak Pulse Current	I_{CM}	1.5	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3) @ $T_A = 25^\circ\text{C}$	P_D	1	W
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Ambient Air (Note 3) @ $T_A = 25^\circ\text{C}$	R_{JJA}	125	°C/W

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions	
OFF CHARACTERISTICS (Note 4)							
Collector-Base Breakdown Voltage	$V_{(\text{BR})\text{CBO}}$	100	—	—	V	$I_C = 100\mu\text{A}, I_E = 0$	
Collector-Emitter Breakdown Voltage	$V_{(\text{BR})\text{CEO}}$	80	—	—	V	$I_C = 10\text{mA}, I_B = 0$	
Emitter-Base Breakdown Voltage	$V_{(\text{BR})\text{EBO}}$	5.0	—	—	V	$I_E = 10\mu\text{A}, I_C = 0$	
Collector-Base Cutoff Current	I_{CBO}	—	—	0.1 20	μA	$V_{\text{CB}} = 30\text{V}, I_E = 0$ $V_{\text{CB}} = 30\text{V}, I_E = 0, T_A = 150^\circ\text{C}$	
Emitter-Base Cutoff Current	I_{EBO}	—	—	100	nA	$V_{\text{EB}} = 5.0\text{V}, I_C = 0$	
ON CHARACTERISTICS (Note 4)							
DC Current Gain	DCX56, DCX56-16		h_{FE}	63	—	—	
	DCX56			40	—	—	
	DCX56-16			63	—	250	
	DCX56-16			100	—	250	
Collector-Emitter Saturation Voltage	$V_{\text{CE}(\text{SAT})}$	—	—	0.5	V	$I_C = 500\text{mA}, I_B = 50\text{mA}$	
Base-Emitter Turn-On Voltage	$V_{\text{BE}(\text{ON})}$	—	—	1.0	V	$I_C = 500\text{mA}, V_{\text{CE}} = 2.0\text{V}$	
SMALL SIGNAL CHARACTERISTICS							
Current Gain-Bandwidth Product	f_T	—	200	—	MHz	$I_C = 50\text{mA}, V_{\text{CE}} = 5\text{V}, f = 100\text{MHz}$	
Output Capacitance	C_{obo}	—	—	15	pF	$V_{\text{CB}} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	

Notes:

- No purposefully added lead.
- Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- 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>.
- Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.

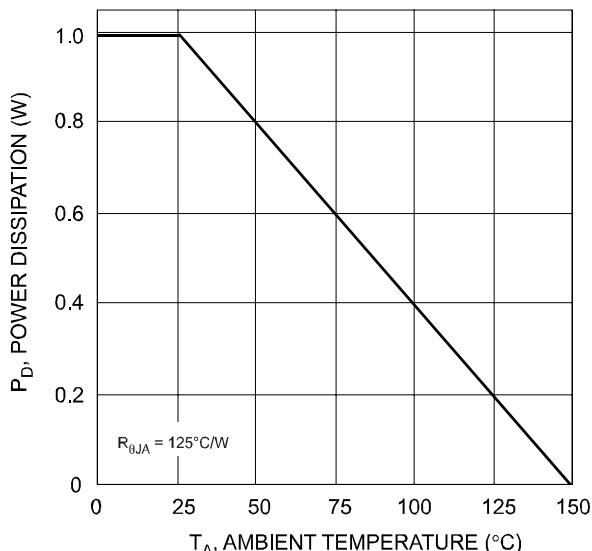


Fig. 1 Power Dissipation vs. Ambient Temperature

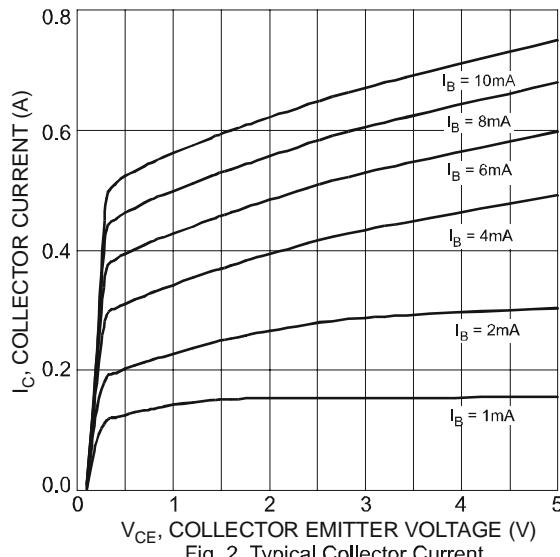


Fig. 2 Typical Collector Current vs. Collector Emitter Voltage

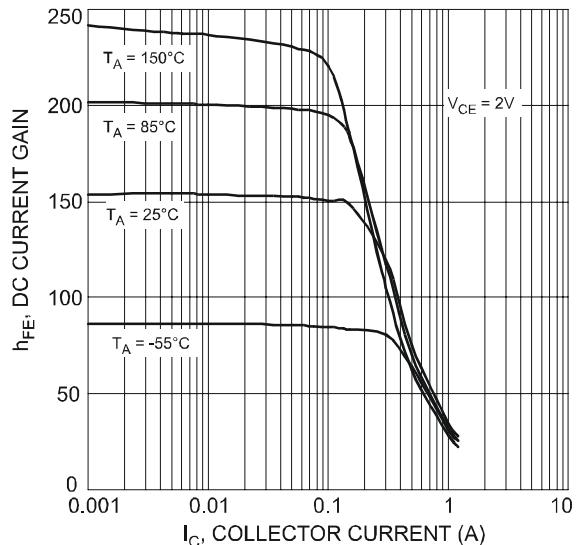


Fig. 3 Typical DC Current Gain vs. Collector Current

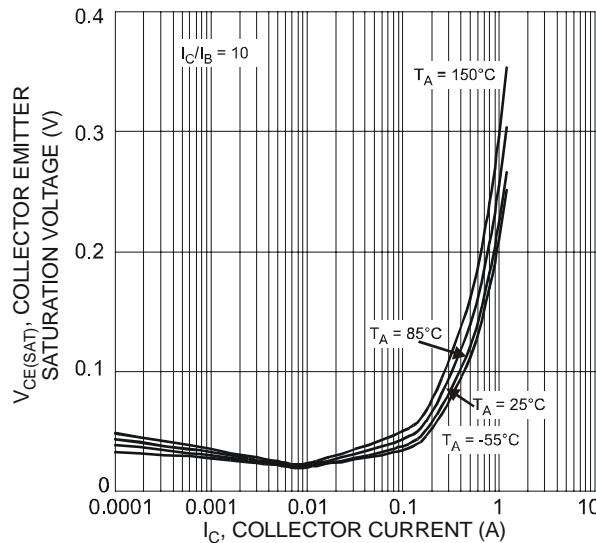


Fig. 4 Typical Collector Emitter Saturation Voltage vs. Collector Current

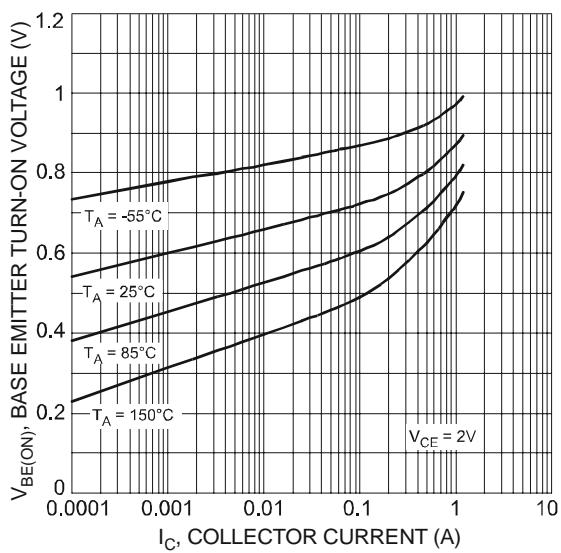


Fig. 5 Typical Base Emitter Turn-On Voltage vs. Collector Current

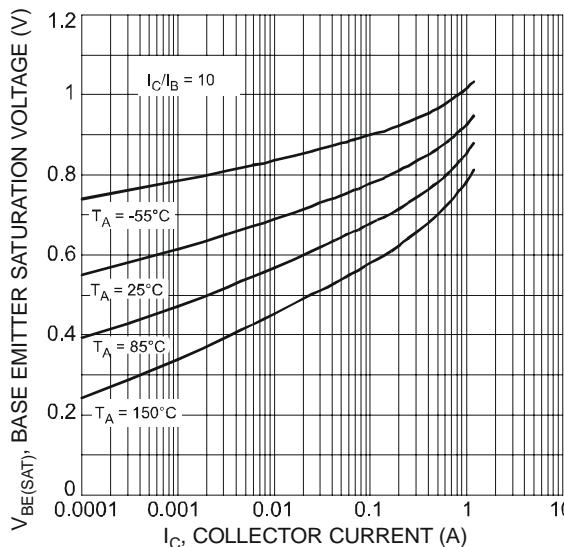


Fig. 6 Typical Base Emitter Saturation Voltage vs. Collector Current

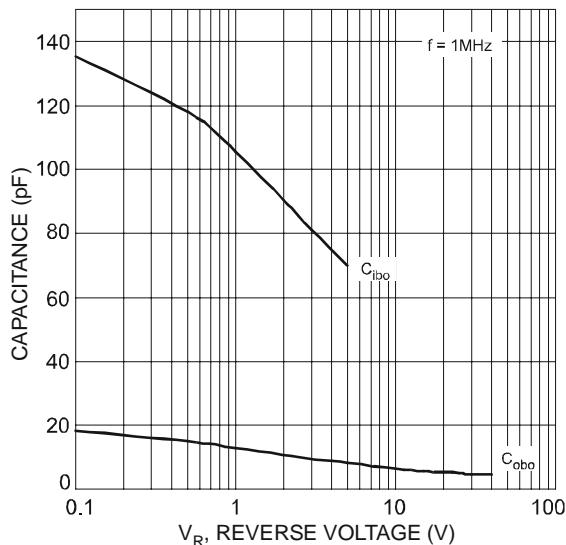


Fig. 7 Typical Capacitance Characteristics

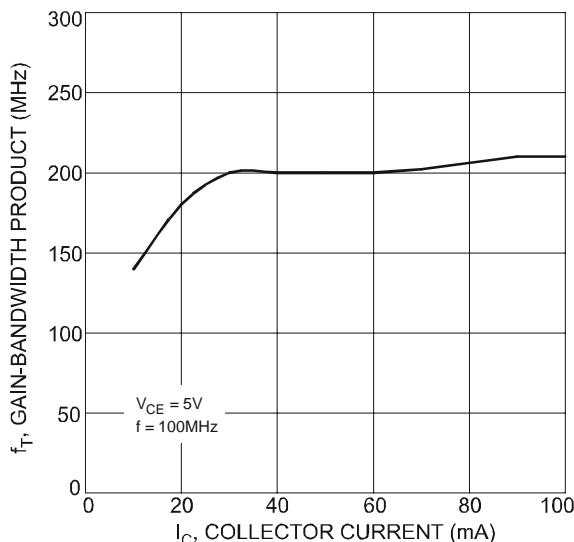


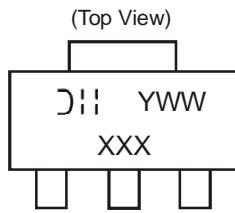
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Ordering Information (Note 5)

Device	Packaging	Shipping
DCX56-13	SOT89-3L	2500/Tape & Reel
DCX56-16-13	SOT89-3L	2500/Tape & Reel

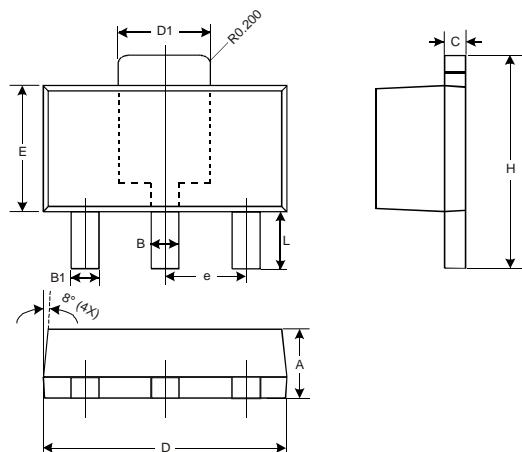
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/ap02007.pdf>.

Marking Information



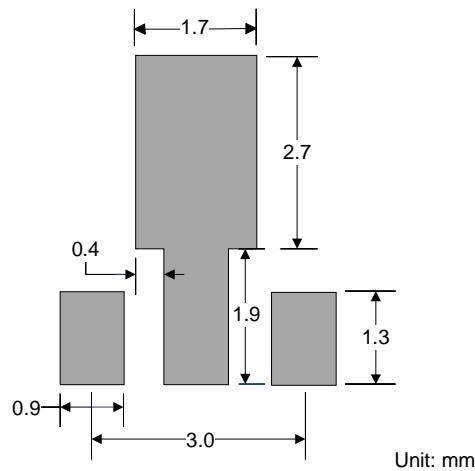
XXX = Product Type Marking Code ex. N18 = DCX56
N18-16 = DCX56-16
DII = Manufacturer's code marking
YWW = Date Code Marking
Y = Last digit of year ex: 7 = 2007
WW = Week code 01 - 52

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**IMPORTANT NOTICE**

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