





NPN SURFACE MOUNT TRANSISTOR

Features

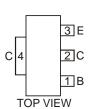
- **Epitaxial Planar Die Construction**
- Complementary PNP Type Available (DCX52)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- Lead Free By Design/RoHS Compliant (Note 1)
- "Green" Device (Note 2)

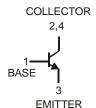
Mechanical Data

- Case: SOT89-3L
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-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)









Schematic and Pin Configuration

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}	60	V
Emitter-Base Voltage	V _{EBO}	5	V
Peak Pulse Current	I _{CM}	1.5	A
Continuous Collector Current	I _C	1	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	$R_{ heta JA}$	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

Charac	teristic	Symbol	Min	Тур	Max	Unit	Test Conditions
OFF CHARACTERISTICS (Note 4)							
Collector-Base Breakdown Voltage		V _{(BR)CBO}	60	_	_	V	$I_C = 100 \mu A, I_E = 0 A$
Collector-Emitter Breakdown Voltage		V _{(BR)CEO}	60	_	_	V	I _C = 10mA, I _B = 0A
Emitter-Base Breakdown Voltage		V _{(BR)EBO}	5	_	_	V	$I_E = 10\mu A, I_C = 0A$
Collector Cut-off Current		_	_	_	100	nA	$V_{CB} = 30V, I_{E} = 0$
		I _{CBO}		_	20	μΑ	$V_{CB} = 30V, I_E = 0, T_A = 150^{\circ}C$
Emitter Cut-off Current		I _{EBO}	_	_	100	nA	$V_{EB} = 5V, I_{C} = 0A$
ON CHARACTERISTICS (No	ON CHARACTERISTICS (Note 4)						
Collector-Emitter Saturation Voltage		V _{CE(SAT)}		_	0.5	V	$I_C = 500 \text{mA}, I_B = 50 \text{mA}$
Base-Emitter Turn-On Voltage		V _{BE(ON)}		_	1.0	V	$I_C = 500 \text{mA}, V_{CE} = 2 \text{V}$
DC Current Gain	DCX55, DCX55-16		63	_	_	_	$I_C = 5mA$, $V_{CE} = 2V$
	DCX93, DCX93-10		40	_	_		$I_C = 500 \text{mA}, V_{CE} = 2V$
	DCX55		63	_	250		$I_C = 150 \text{mA}, V_{CE} = 2V$
	DCX55-16		100	_	250	_	I _C = 150mA, V _{CE} = 2V
SMALL SIGNAL CHARACTERISTICS							
Transition Frequency		f⊤		200	_	MHz	$I_{C} = 50 \text{mA}, V_{CE} = 5 \text{V},$ f = 100MHz
Output Capacitance		C_{obo}	_	_	15	pF	V _{CB} = 10V, f = 1MHz

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



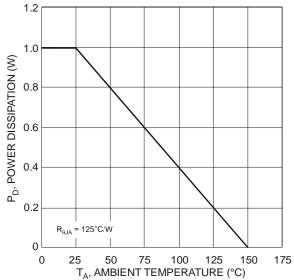


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

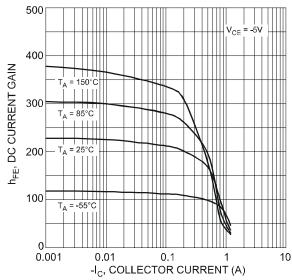


Fig. 3 Typical DC Current Gain vs. Collector Current

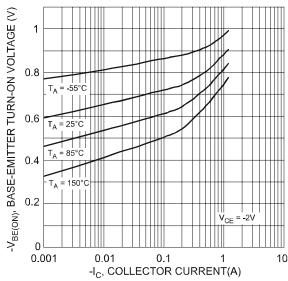


Fig 5. Typical Base-Emitter Turn-On Voltage vs. Collector Current

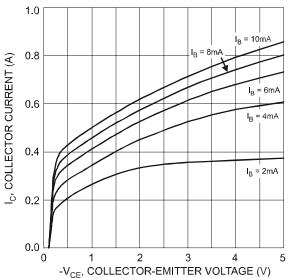


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

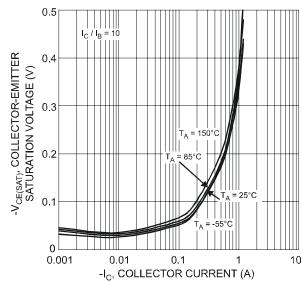


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

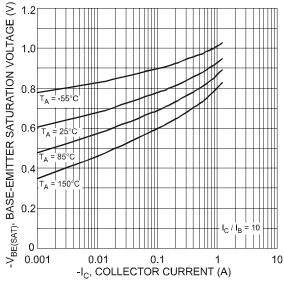
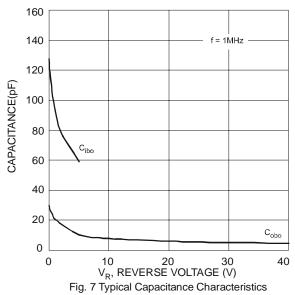


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current





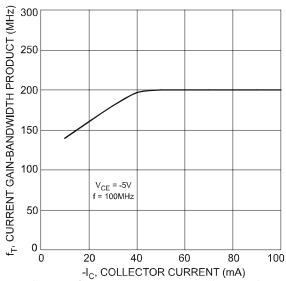


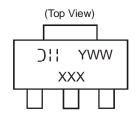
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Ordering Information (Note 5)

Device	Packaging	Shipping
DCX55-13	SOT89-3L	2500/Tape & Reel
DCX55-16-13	SOT89-3L	2500/Tape & Reel

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

Marking Information



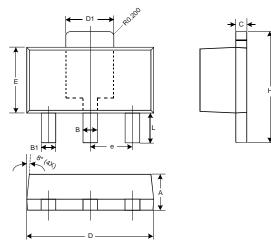
☐☐ = Manufacturer's code marking XXX = Product type marking code Ex:

YWW = Date code marking Y = Last digit of year ex: 7 = 2007

WW = Week code 01 - 52

N16 = DCX55 N16-16 = DCX55 -16

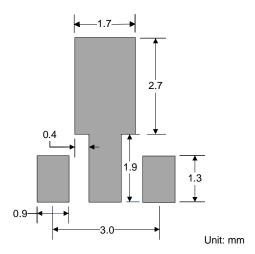
Package Outline Dimensions



SOT89-3L					
Dim	Min	Max	Тур		
Α	1.40	1.60	1.50		
В	0.45	0.55	0.50		
B1	0.37	0.47	0.42		
С	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		
е	_	_	1.50		
Н	3.95	4.25	4.10		
L	0.90	1.20	1.05		
All Dimensions in mm					



Suggested Pad Layout



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