DIODES INCORPORATED

Lead-free Green

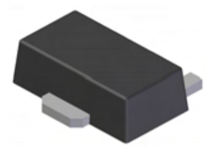
DCX53/-16

PNP SURFACE MOUNT TRANSISTOR

NEW PRODUCT

Features

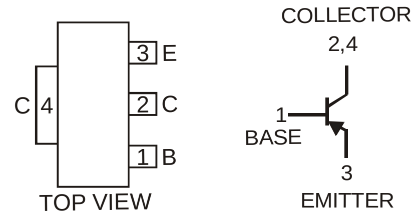
- Epitaxial Planar Die Construction
- Complementary NPN Type Available (DCX56)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**



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)



Schematic and Pin Configuration

Maximum Ratings @T_A = 25°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
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 @ T_A = 25°C (Note 3)	$R_{\theta JA}$	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

Characteristic		Symbol	Min	Typ	Max	Unit	Test Conditions
OFF CHARACTERISTICS (Note 4)							
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	-100	—	—	V	I_C = -100µA, I_E = 0
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	-80	—	—	V	I_C = -10mA, I_B = 0
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	-5	—	—	V	I_E = -10µA, I_C = 0
Collector Cutoff Current		I_{CBO}	—	—	-100 -20	nA µA	V_{CB} = -30V, I_E = 0 V_{CB} = -30V, I_E = 0, T_A = 150°C
Emitter Cutoff Current		I_{EBO}	—	—	-100	nA	V_{EB} = -5V, I_C = 0
ON CHARACTERISTICS (Note 4)							
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	—	—	-0.5	V	I_C = -500mA, I_B = -50mA
Base-Emitter Turn-On Voltage		$V_{BE(SAT)}$	—	—	-1.0	V	I_C = -500mA, V_{CE} = -2V
DC Current Gain	DCX53, DCX53-16	h_{FE}	63 40	— —	— —	— —	I_C = -5mA, V_{CE} = -2V I_C = -500mA, V_{CE} = -2V
	DCX53		63	—	250	—	I_C = -150mA, V_{CE} = -2V
	DCX53-16		100	—	250	—	I_C = -150mA, V_{CE} = -2V
SMALL SIGNAL CHARACTERISTICS							
Current Gain-Bandwidth Product		f_T	—	200	—	MHz	I_C = -50mA, V_{CE} = -5V, f = 100MHz
Output Capacitance		C_{obo}	—	—	25	pF	V_{CB} = -10V, f = 1MHz

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%.

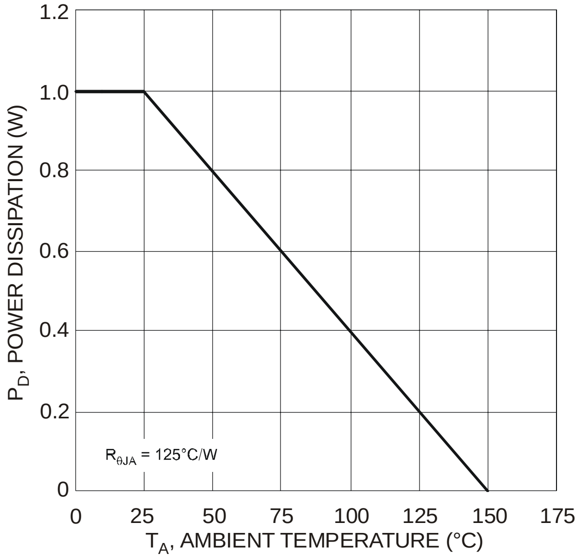


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

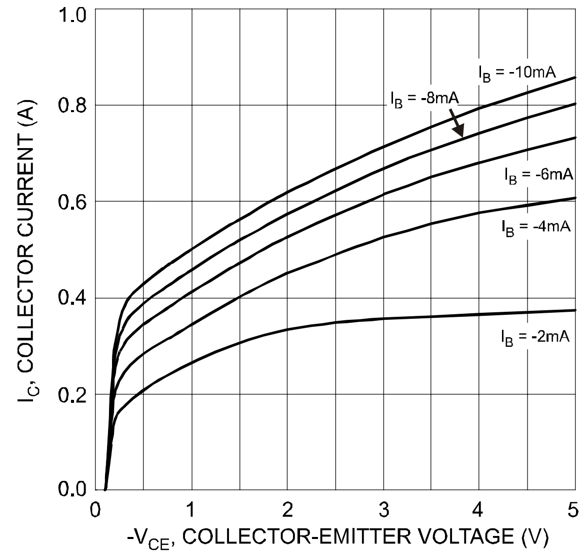


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

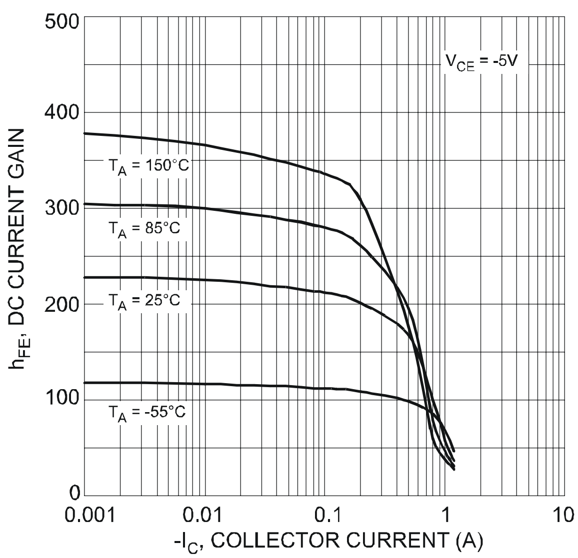


Fig. 3 Typical DC Current Gain vs. Collector Current

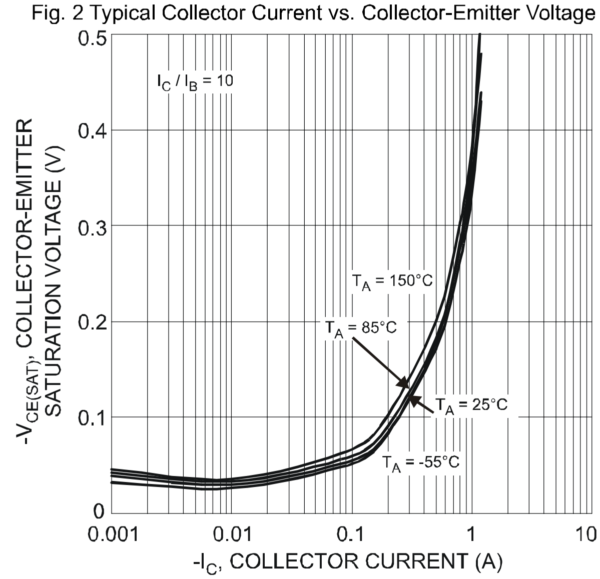


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

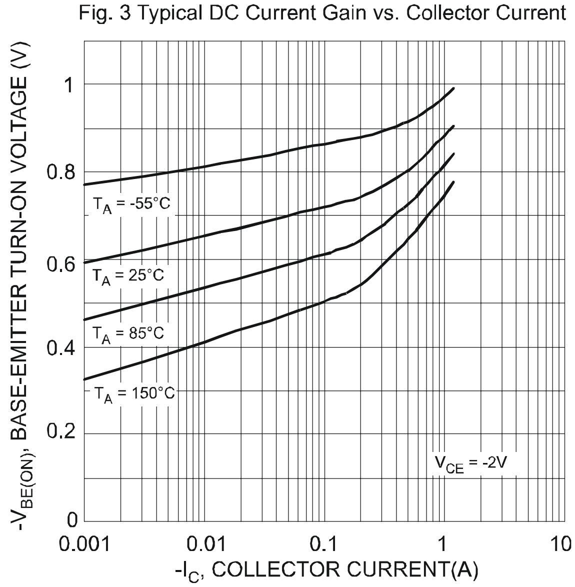


Fig 5. Typical Base-Emitter Turn-On Voltage vs. Collector Current

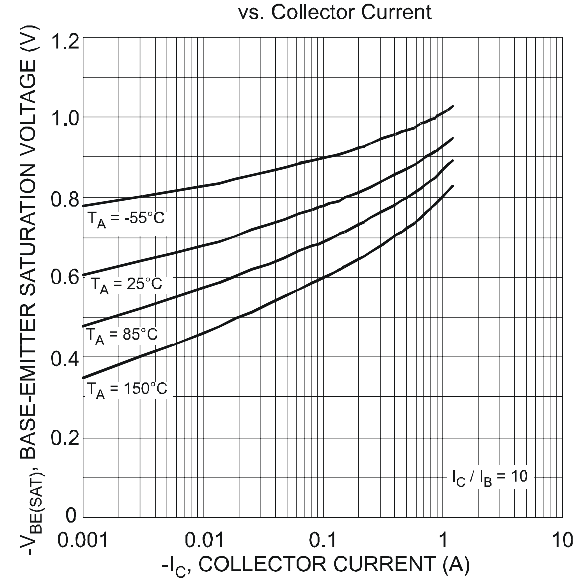


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

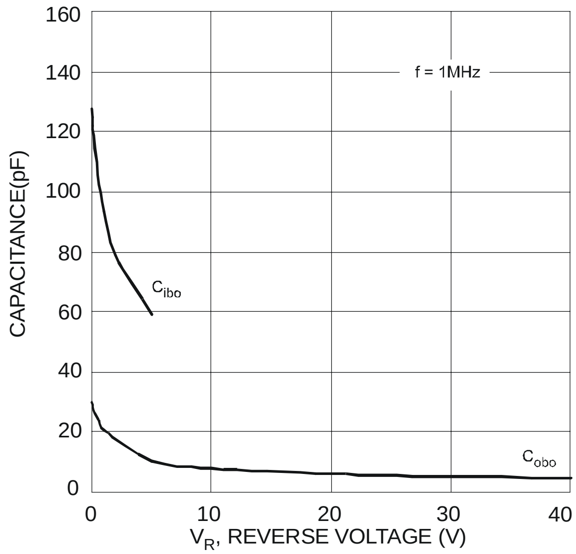


Fig. 7 Typical Capacitance Characteristics

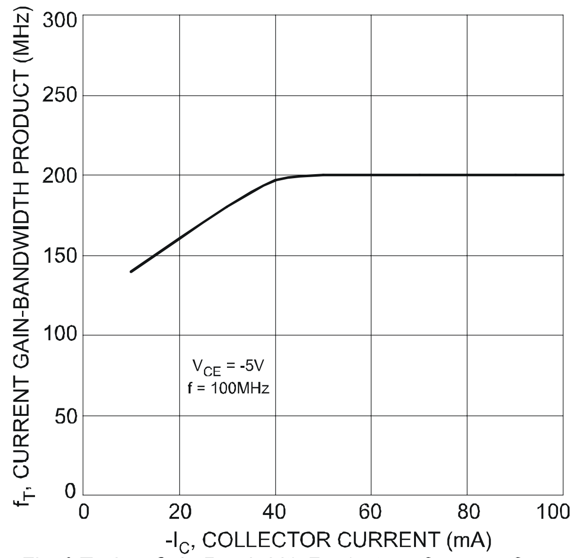


Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

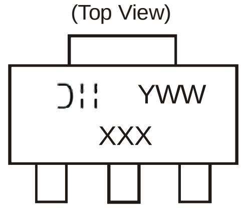
Ordering Information (Note 5)

Device	Packaging	Shipping
DCX53-13	SOT89-3L	2500/Tape & Reel
DCX53-16-13	SOT89-3L	2500/Tape & Reel

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

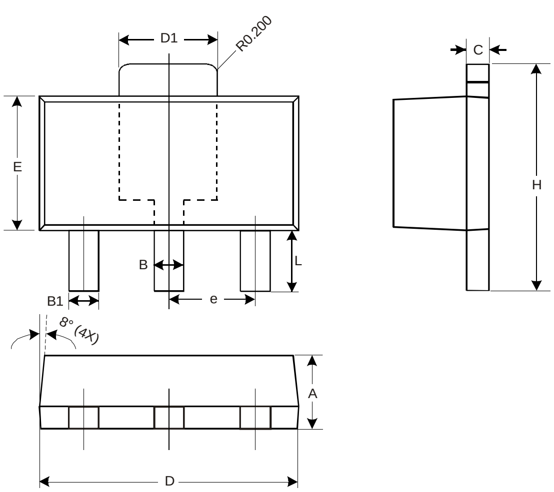
Marking Information

(Top View)



⅃⁝⁝ = Manufacturer's code marking
XXX = Product type marking code Ex: P18 = DCX53
P18-16 = DCX53 -16
YWW = Date code marking
Y = Last digit of year ex: 7 = 2007
WW = Week code 01 - 52

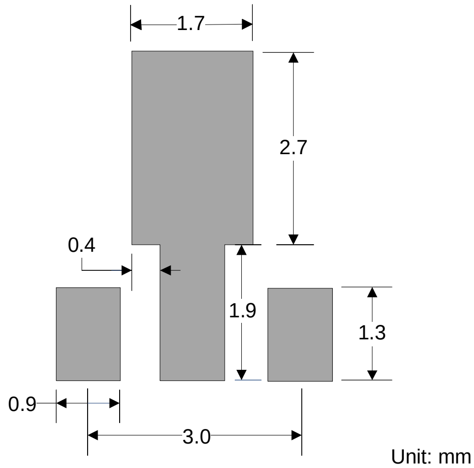
Package Outline Dimensions



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			

NEW PRODUCT

Suggested Pad Layout



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