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

NEW PRODUCT

DCX68/-25

NPN SURFACE MOUNT TRANSISTOR

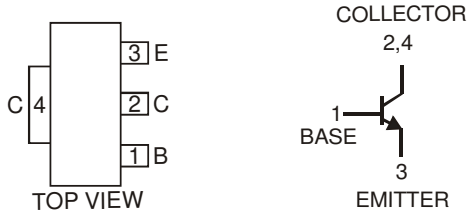
Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (DCX69)
- 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-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)



Schematic and Pin Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	25	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	1.0	A
Peak Pulse Current	I_{CM}	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	$R_{\theta JA}$	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		$V_{(BR)CBO}$	25	—	—	V	I_C = 100μA, I_E = 0
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	20	—	—	V	I_C = 10mA, I_B = 0
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	5.0	—	—	V	I_E = 100μA, I_C = 0
Collector-Base Cutoff Current		I_{CBO}	—	—	0.1 10	μA	V_{CB} = 25V, I_E = 0 V_{CB} = 25V, I_E = 0, T_A = 150°C
Emitter-Base Cutoff Current		I_{EBO}	—	—	10	μA	V_{EB} = 5.0V, I_C = 0
ON CHARACTERISTICS (Note 4)							
DC Current Gain	DCX68, DCX68-25	h_{FE}	50 60	—	— —	—	V_{CE} = 10V, I_C = 5.0mA V_{CE} = 1.0V, I_C = 1.0A
	DCX68		85		375		V_{CE} = 1.0V, I_C = 500mA
	DCX68-25		160		375		V_{CE} = 1.0V, I_C = 500mA
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	—	—	0.5	V	I_C = 1.0A, I_B = 100mA
Base-Emitter Turn-On Voltage		$V_{BE(ON)}$	—	—	1.0	V	I_C = 1.0A, V_{CE} = 1.0V
SMALL SIGNAL CHARACTERISTICS							
Current Gain-Bandwidth Product		f_T	—	330	—	MHz	V_{CE} = 5.0V, I_C = 100mA, f = 100MHz
Output Capacitance		C_{obo}	—	—	25	pF	V_{CB} = 10V, I_E = 0, 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%.

NEW PRODUCT

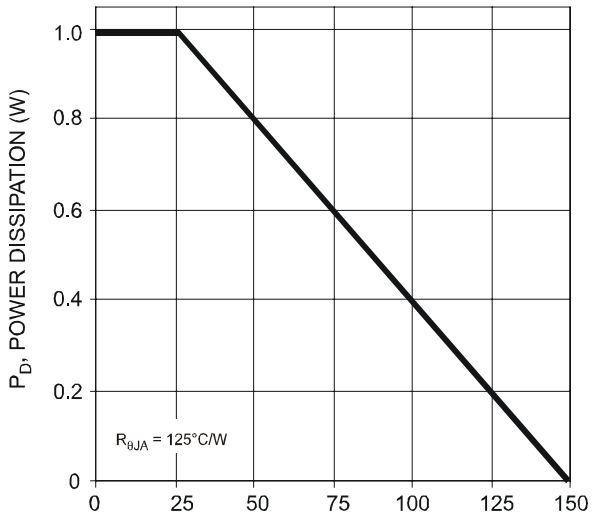


Fig. 1 Power Dissipation vs. Ambient Temperature

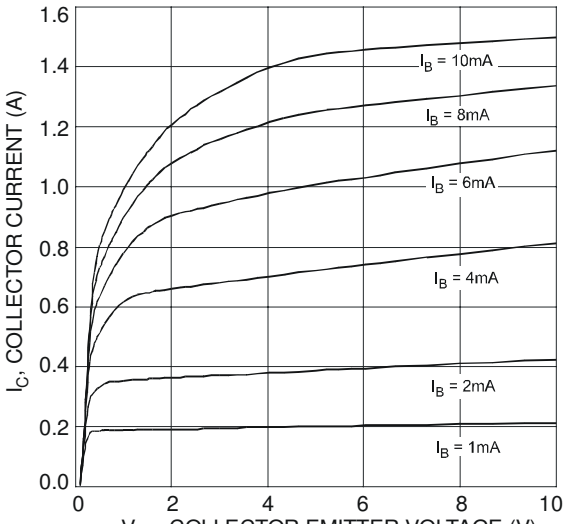


Fig. 2 Typical Collector Current vs. Collector Emitter Voltage

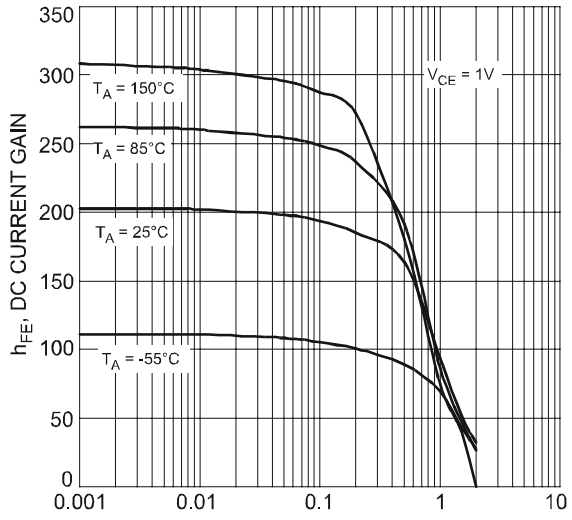


Fig. 3 Typical DC Current Gain vs. Collector Current (DCP68)

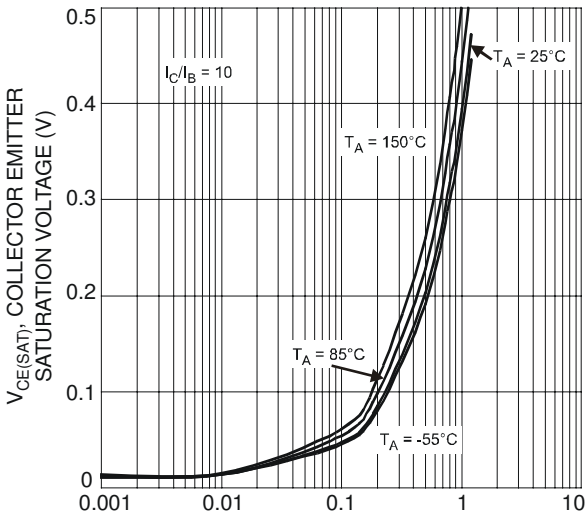


Fig. 4 Typical Collector Emitter Saturation Voltage vs. Collector Current

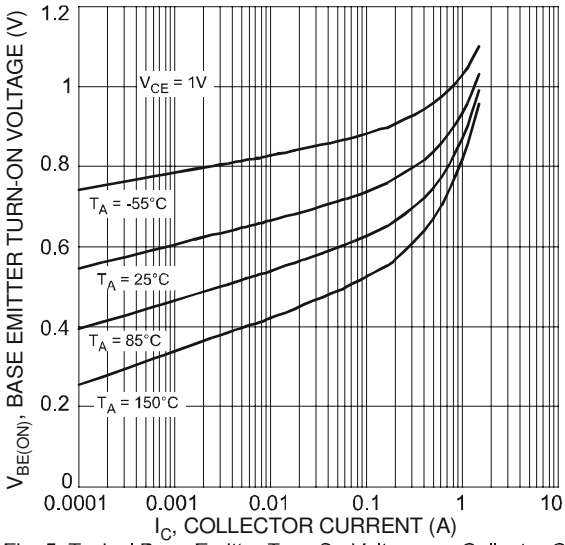


Fig. 5 Typical Base Emitter Turn-On Voltage vs. Collector Current

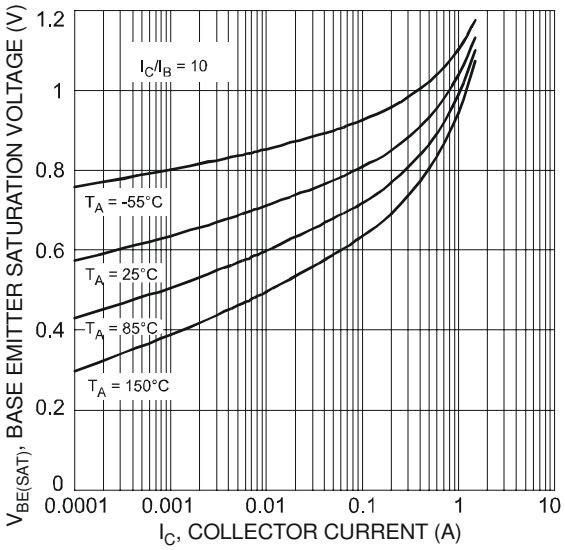


Fig. 6 Typical Base Emitter Saturation Voltage vs. Collector Current

NEW PRODUCT

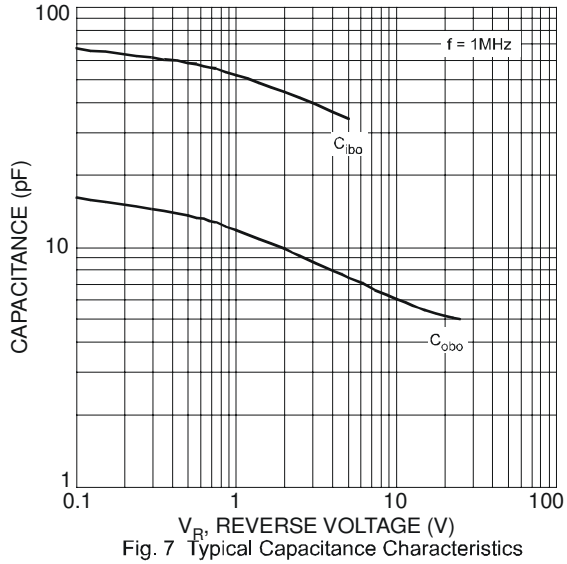


Fig. 7 Typical Capacitance Characteristics

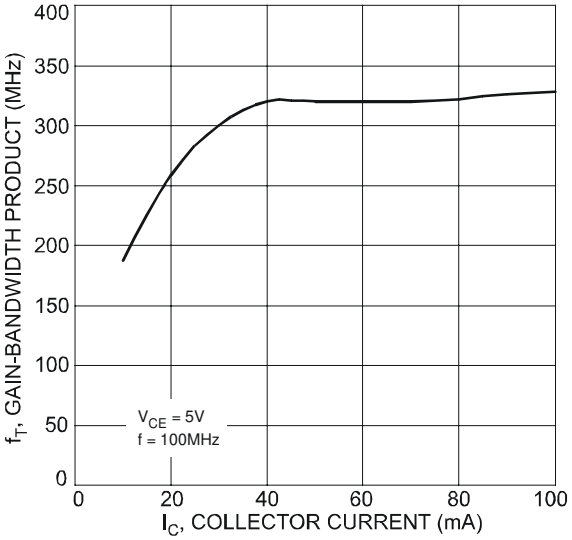


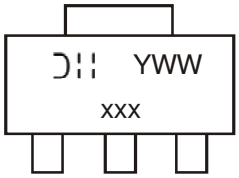
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

Ordering Information (Note 5)

Device	Packaging	Shipping
DCX68-13	SOT89-3L	2500/Tape & Reel
DCX68-25-13	SOT89-3L	2500/Tape & Reel

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

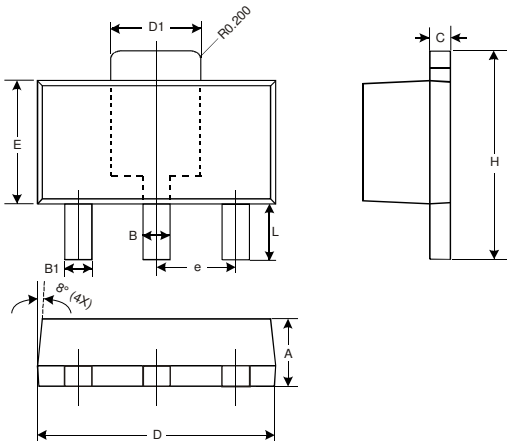
Marking Information



(Top View)

xxx = Product Type Marking Code:
N12 = DCX68
N12-25 = DCX68-25
YWW = Date Code Marking
Y = Last digit of year ex: 7 = 2007
WW = Week code 01 - 52

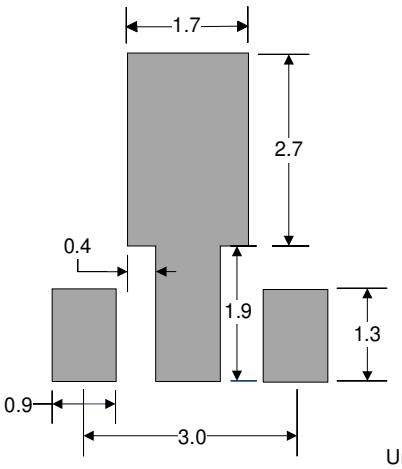
Package Outline Dimensions



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



Unit: mm