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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.

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## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: [info@chipsmall.com](mailto:info@chipsmall.com) Web: [www.chipsmall.com](http://www.chipsmall.com)

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## Features

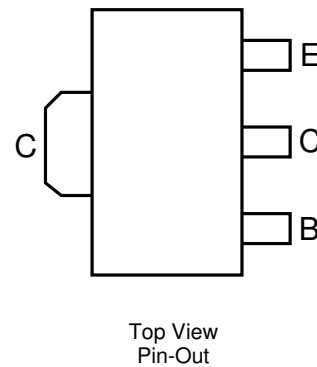
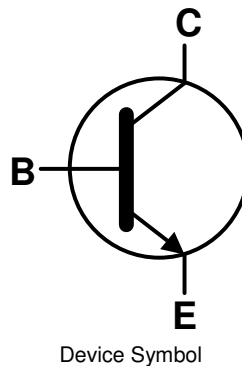
- $BV_{CEO} > 50V$
- $I_C = 3.0A$  Continuous Current
- Complementary PNP Type Available (DPLS350Y)
- Ideally Suited for Automated Assembly Processes
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOT89
- Case Material: Molded Plastic, "Green" Molding Compound  
UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per  
MIL-STD-202, Method 208 Ⓔ③
- Weight: 0.052 grams (Approximate)

## Applications

- Ideal for Medium Power Switching or Amplification Applications

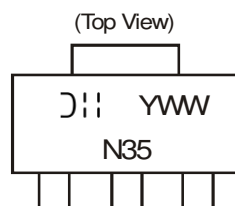



## Ordering Information (Note 4)

Device	Package	Shipping
DNLS350Y-13	SOT89	2500/Tape & Reel

- Notes::
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



 = Manufacturer's Marking  
 N35 = Product Type Marking Code  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 7 = 2017)  
 WW = Week Code (01 to 52)

**Absolute Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Peak Pulse Collector Current	$I_{CM}$	5	A
Continuous Collector Current	$I_C$	3	A
Base Current	$I_B$	0.5	A

**Thermal Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5) @ $T_A = 25^\circ\text{C}$	$P_D$	1	W
Thermal Resistance, Junction to Ambient Air (Note 5) @ $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	125	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

**ESD Ratings** (Note 6)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
- For a device mounted with the collector lead on 15mm x 15mm 1oz copper that is on a single-sided 1.6mm FR-4 PCB; device is measured under still air conditions whilst operating in a steady-state.
  - Refer to JEDEC specification JESD22-A114 and JESD22-A115.

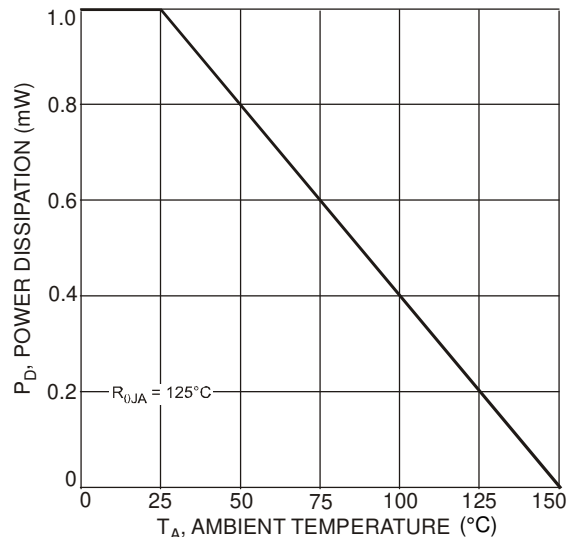
**Thermal Characteristics and Derating Information**


Fig. 1 Max Power Dissipation vs. Ambient Temperature

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>						
Collector-Base Cutoff Current	I <sub>CBO</sub>	—	—	100	nA	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0
Emitter-Base Cutoff Current	I <sub>EBO</sub>	—	—	50	μA	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0, T <sub>A</sub> = +150°C
Collector-Emitter Cutoff Current	I <sub>CES</sub>	—	—	100	nA	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	50	—	—	nA	V <sub>CE</sub> = 50V, V <sub>BE</sub> = 0
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	50	—	—	V	I <sub>C</sub> = 100μA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	5	—	—	V	I <sub>E</sub> = 100μA
<b>ON CHARACTERISTICS (Note 7)</b>						
DC Current Gain	h <sub>FE</sub>	300	—	—	—	V <sub>CE</sub> = 2V, I <sub>C</sub> = 0.1A
		300	—	—		V <sub>CE</sub> = 2V, I <sub>C</sub> = 0.5A
		300	—	700		V <sub>CE</sub> = 2V, I <sub>C</sub> = 1A
		200	—	—		V <sub>CE</sub> = 2V, I <sub>C</sub> = 2A
		100	—	—		V <sub>CE</sub> = 2V, I <sub>C</sub> = 3A
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	—	38	80	mV	I <sub>C</sub> = 0.5A, I <sub>B</sub> = 50mA
		—	70	160		I <sub>C</sub> = 1A, I <sub>B</sub> = 50mA
		—	130	280		I <sub>C</sub> = 2A, I <sub>B</sub> = 100mA
		—	124	260		I <sub>C</sub> = 2A, I <sub>B</sub> = 200mA
		—	180	370		I <sub>C</sub> = 3A, I <sub>B</sub> = 300mA
Equivalent On-Resistance	R <sub>CE(SAT)</sub>	—	62	130	mΩ	I <sub>E</sub> = 2A, I <sub>B</sub> = 200mA
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	—	—	1.1	V	I <sub>C</sub> = 2A, I <sub>B</sub> = 100mA
		—	—	1.2	V	I <sub>C</sub> = 3A, I <sub>B</sub> = 300mA
Base-Emitter Turn-on Voltage	V <sub>BE(ON)</sub>	—	—	1.1	V	V <sub>CE</sub> = 2V, I <sub>C</sub> = 1A
<b>SMALL SIGNAL CHARACTERISTICS</b>						
Transition Frequency	f <sub>T</sub>	100	—	—	MHz	V <sub>CE</sub> = 5V, I <sub>C</sub> = 100mA, f = 100MHz
Output Capacitance	C <sub>obo</sub>	—	—	25	pF	V <sub>CB</sub> = 10V, f = 1MHz

Notes: 7. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.



**Typical Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

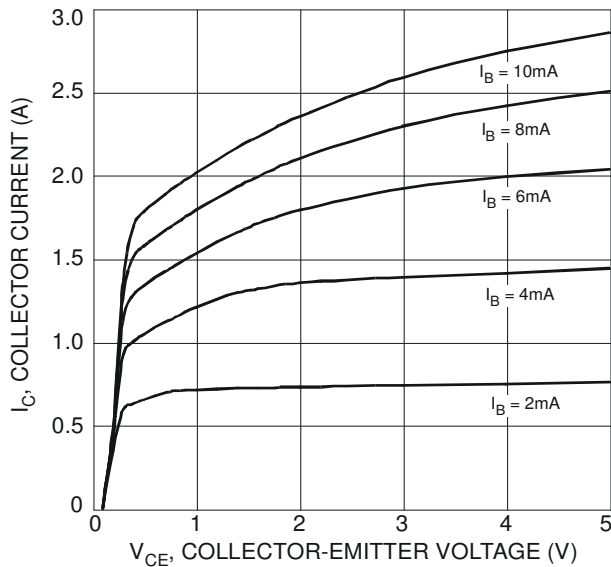


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

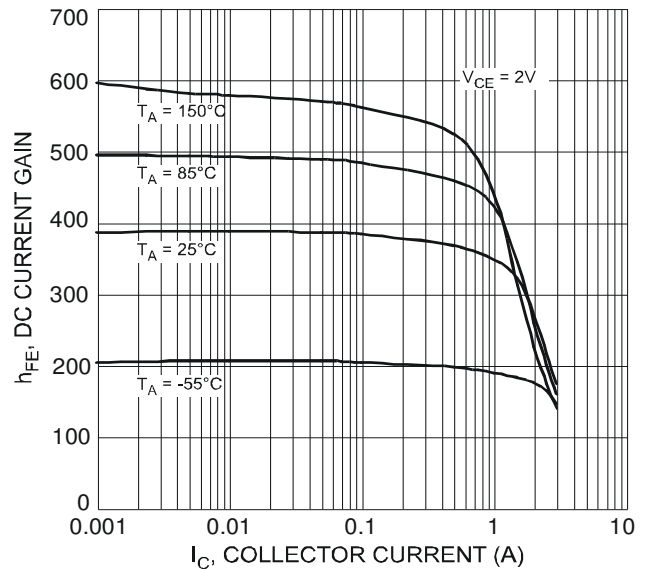


Fig. 3 Typical DC Current Gain vs. Collector Current

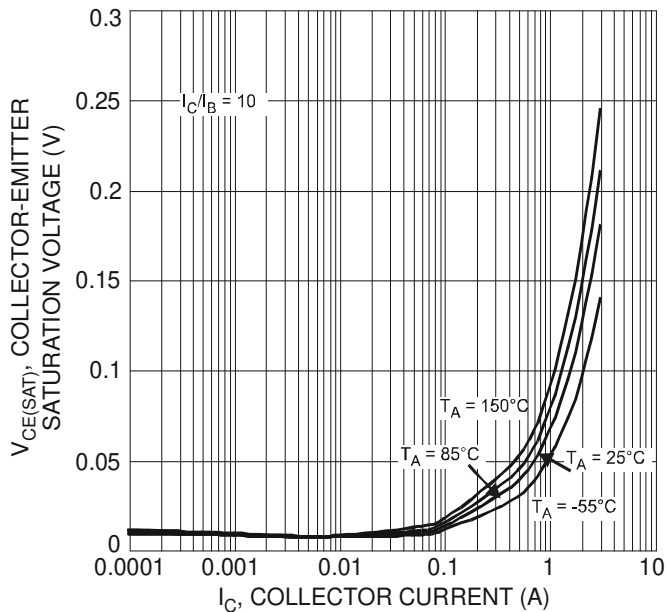


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

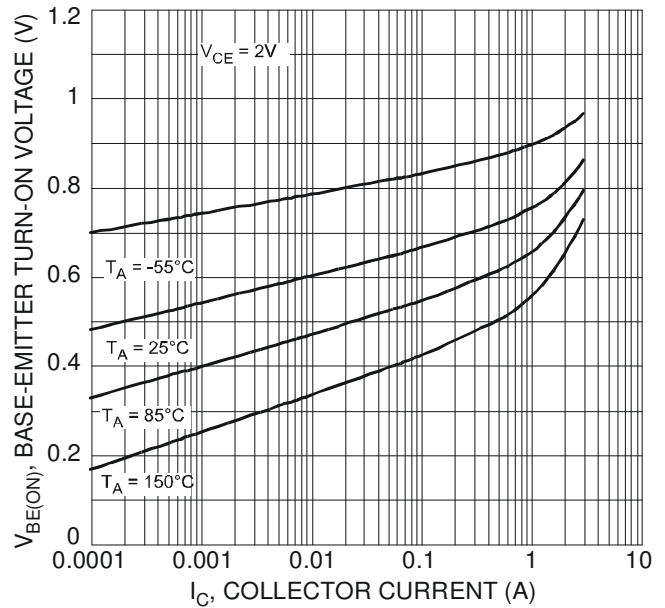


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

**Typical Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.) (Cont.)

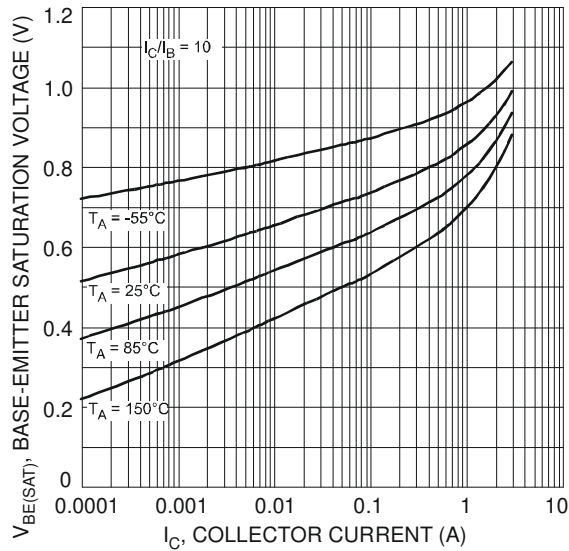


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

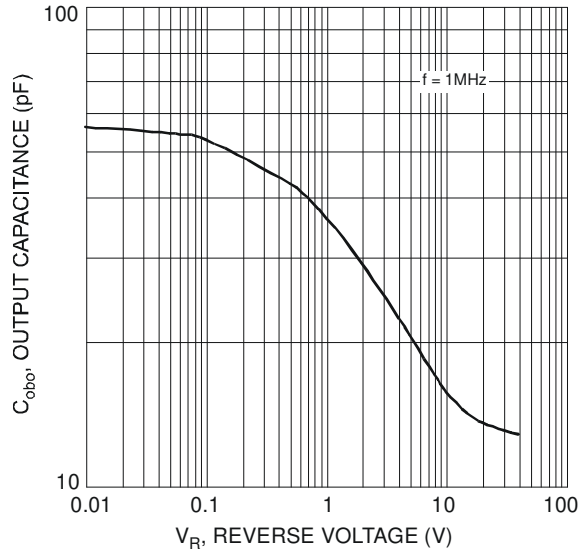


Fig. 7 Typical Output Capacitance Characteristics

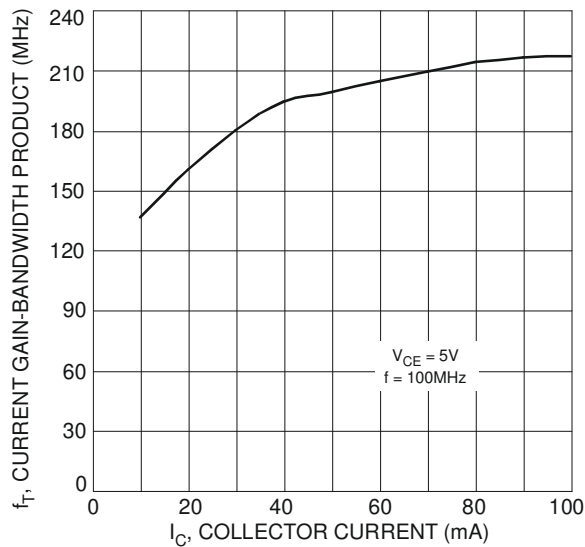
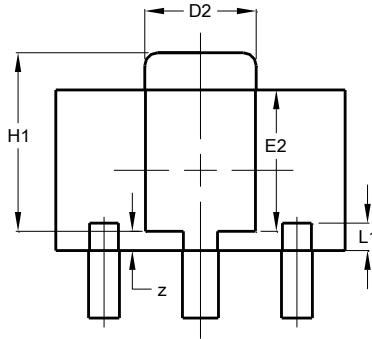
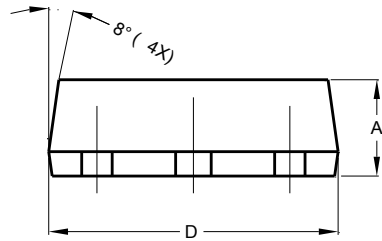
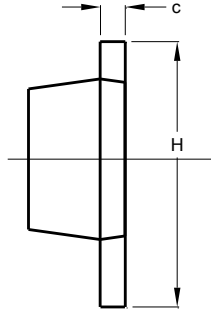
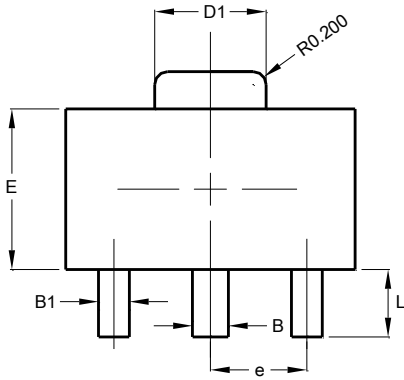


Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT89**

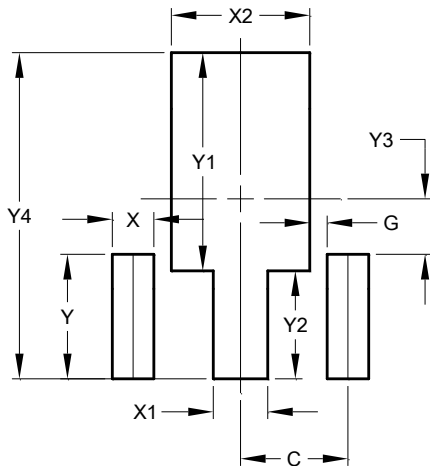


SOT89			
Dim	Min	Max	Typ
A	1.40	1.60	1.50
B	0.50	0.62	0.56
B1	0.42	0.54	0.48
c	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.62	1.83	1.733
D2	1.61	1.81	1.71
E	2.40	2.60	2.50
E2	2.05	2.35	2.20
e	-	-	1.50
H	3.95	4.25	4.10
H1	2.63	2.93	2.78
L	0.90	1.20	1.05
L1	0.327	0.527	0.427
z	0.20	0.40	0.30
All Dimensions in mm			

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT89**



Dimensions	Value (in mm)
C	1.500
G	0.244
X	0.580
X1	0.760
X2	1.933
Y	1.730
Y1	3.030
Y2	1.500
Y3	0.770
Y4	4.530

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