

Features

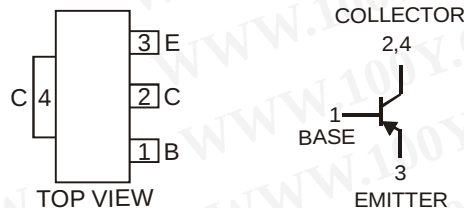
- Epitaxial Planar Die Construction
- Complementary NPN Type Available (2DD1766)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- **Lead Free By Design/RoHS Compliant (Note 1)**
- "Green" Device (Note 2)



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 _{CB0}	-40	V
Collector-Emitter Voltage	V _{CEO}	-32	V
Emitter-Base Voltage	V _{EBO}	-5	V
Peak Pulse Current	I _{CM}	-3	A
Continuous Collector Current	I _C	-2	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 _{θJA}	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	Conditions
OFF CHARACTERISTICS (Note 4)							
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	-40	—	—	V	$I_C = -50\mu A, I_E = 0$
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	-32	—	—	V	$I_C = -1mA, I_B = 0$
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	-5	—	—	V	$I_E = -50\mu A, I_C = 0$
Collector Cut-Off Current		I_{CBO}	—	—	-1	μA	$V_{CB} = -20V, I_E = 0$
Emitter Cut-Off Current		I_{EBO}	—	—	-1	μA	$V_{EB} = -4V, I_C = 0$
ON CHARACTERISTICS (Note 4)							
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	—	-0.35	-0.8	V	$I_C = -2A, I_B = -0.2A$
DC Current Gain	2DB1188P	h_{FE}	82	—	180	—	$V_{CE} = -3V, I_C = -0.5A$
	2DB1188Q		120	—	270	—	
	2DB1188R		180	—	390	—	
SMALL SIGNAL CHARACTERISTICS							
Transition Frequency		f_T	—	120	—	MHz	$I_E = 0.1A, V_{CE} = -5V, f = 30MHz$
Output Capacitance		C_{ob}	—	20	—	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%.

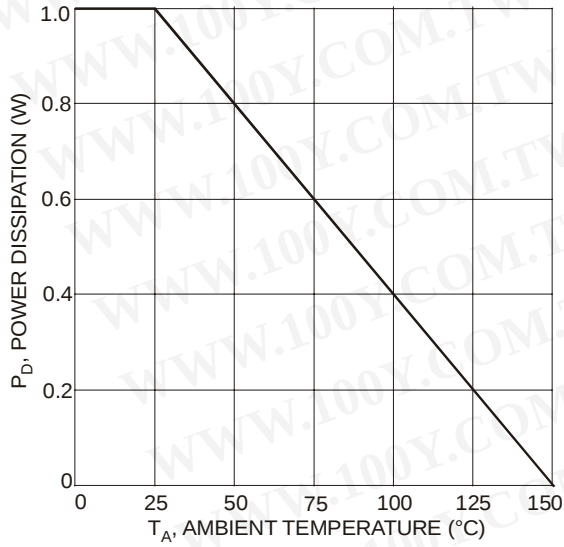


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

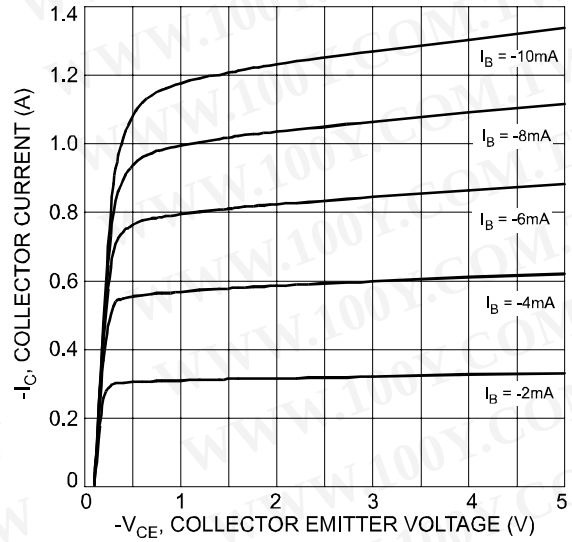


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

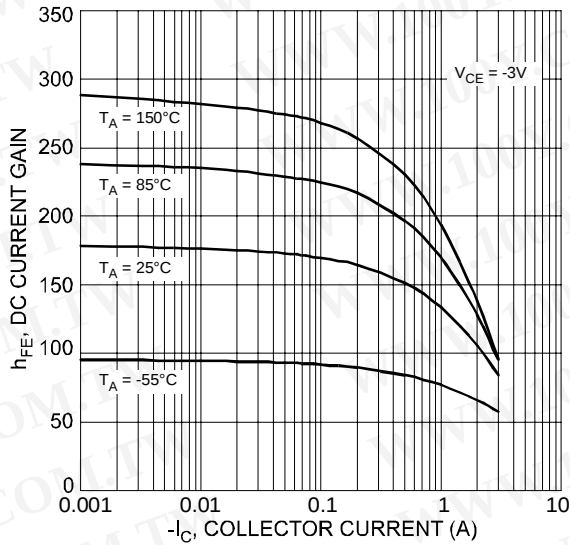


Fig. 3 Typical DC Current Gain vs. Collector Current (2DB1188Q)

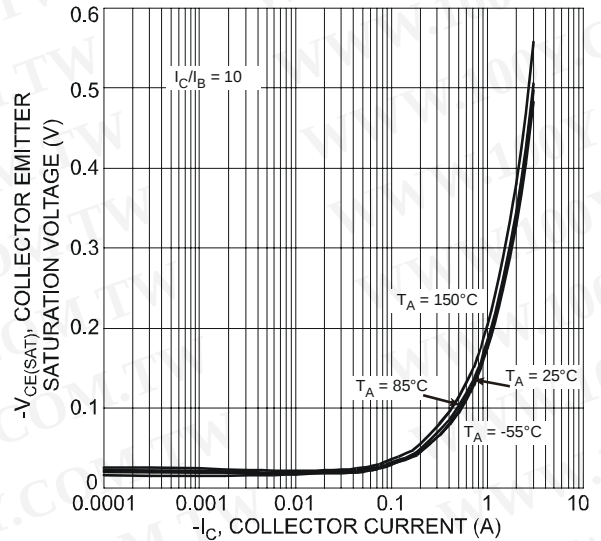


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

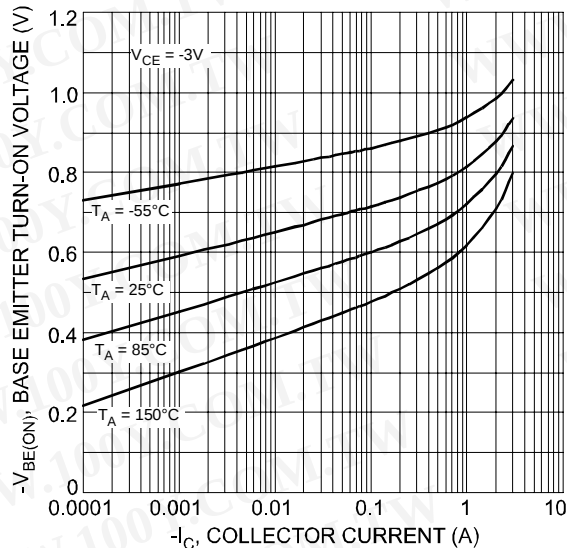


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

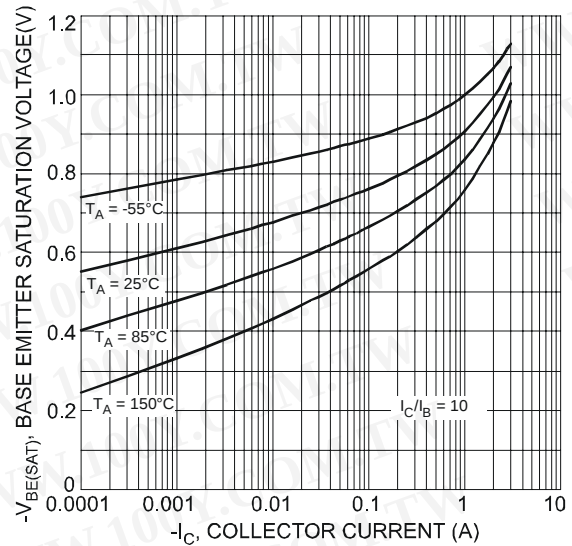


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

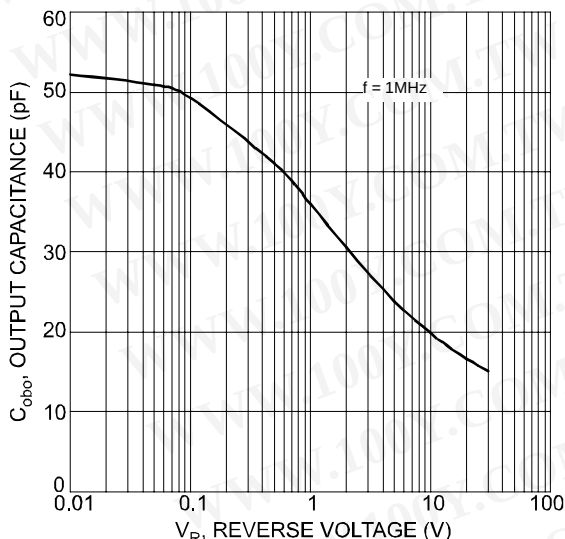


Fig. 7 Typical Output Capacitance Characteristics

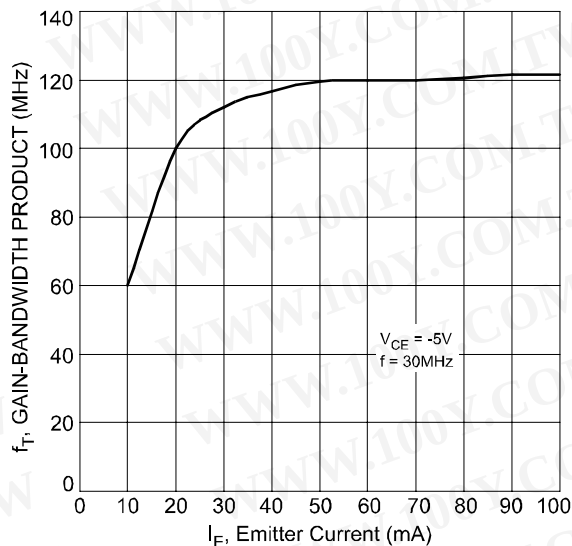


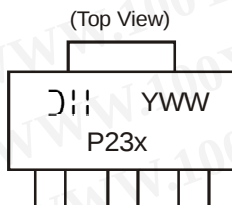
Fig. 8 Typical Gain-Bandwidth Product vs. Emitter Current

Ordering Information (Note 5)

Device	Packaging	Shipping
2DB1188P-13	SOT89-3L	2500/Tape & Reel
2DB1188Q-13	SOT89-3L	2500/Tape & Reel
2DB1188R-13	SOT89-3L	2500/Tape & Reel

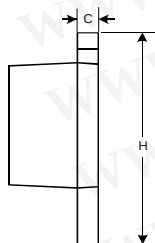
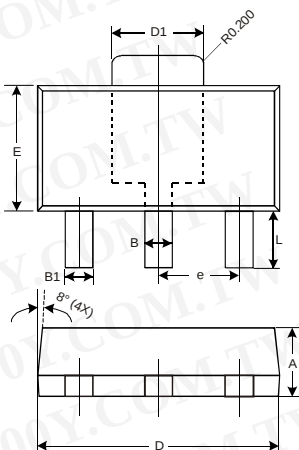
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/ap02007.pdf>.

Marking Information



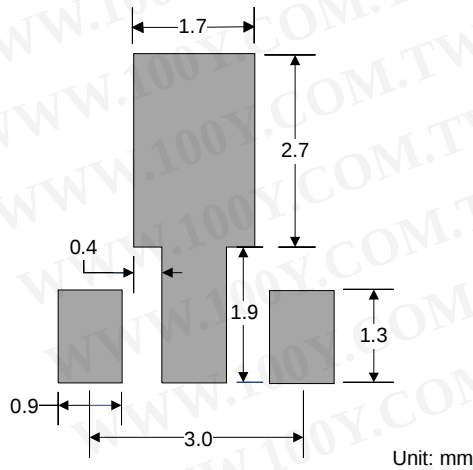
P23x = Product Type Marking Code:
 Where P23P = 2DB1188P
 P23Q = 2DB1188Q
 P23R = 2DB1188R
 YWW = Date Code Marking
 Y = Last digit of year ex: 7 = 2007
 WW = Week code 01 - 52

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



勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

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