

Features

- $BV_{CEO} > -32V$
- Max Continuous Current $I_C = -1A$
- Epitaxial Planar Die Construction
- Complementary NPN Type Available (2DD1664)
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free, "Green" Devices (Note 2)**

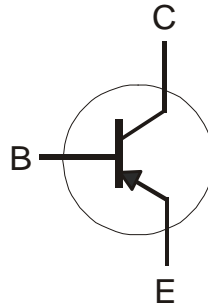
Mechanical Data

- Case: SOT-89
- Case material: molded Plastic. "Green" molding Compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.055 grams (Approximate)

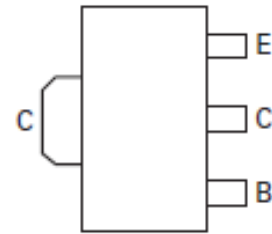
SOT-89



Top View



Device Symbol

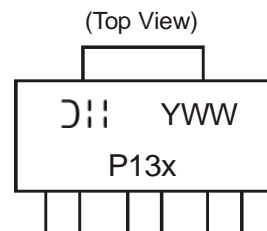


Pin out – Top view

Ordering Information

Product	Grade	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
2DB1132P-13	Commercial	P13P	13	12	2,500
2DB1132Q-13	Commercial	P13Q	13	12	2,500
2DB1132R-13	Commercial	P13R	13	12	2,500

- Notes:
1. No purposefully added lead.
 2. "Green" devices, Halogen and Antimony Free, Diodes Inc's "Green" Policy can be found on our website at <http://www.diodes.com>

Marking Information


P13x = Product Type Marking Code:
 Where P13P = 2DB1132P
 P13Q = 2DB1132Q
 P13R = 2DB1132R

YWW = Date Code Marking
 Y = Last digit of year ex: 7 = 2007
 WW = Week code 01 - 52

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
Continuous Collector Current	I _C	-1	A
Peak Pulse Current (Note 4)	I _{CM}	-2	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	P _D	1	W
Thermal Resistance, Junction to Ambient (Note 3)	R _{θJA}	125	°C/W
Thermal Resistance, Junction to Leads (Note 5)	R _{θJL}	22	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
- 3. For a device surface mounted on FR-4 PCB with minimum suggested pad layout; high coverage of single sided 1 oz copper, in still air conditions
 - 4. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle ≤ 2%.
 - 5. Thermal resistance from junction to solder-point (at the end of the collector lead).

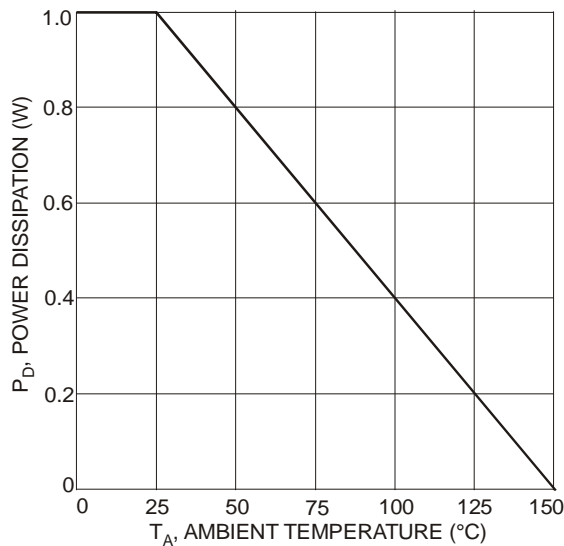


Fig. 1 Power Dissipation vs. Ambient Temperature (Note 3)

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-40	-	-	V	$I_C = -50\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 6)	BV_{CEO}	-32	-	-	V	$I_C = -1\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	-	-	V	$I_E = -50\mu\text{A}$
Collector Cut-off Current	I_{CBO}	-	-	-0.5	μA	$V_{CB} = -20\text{V}$
Emitter Cut-off Current	I_{EBO}	-	-	-0.5	μA	$V_{EB} = -4\text{V}$
Static Forward Current Transfer Ratio (Note 6)	h_{FE}	82	-	180	-	$I_C = -100\text{mA}, V_{CE} = -3\text{V}$
		120		270		
		180		390		
Collector-Emitter saturation Voltage (Note 6)	$V_{CE(sat)}$	-	-125	-500	mV	$I_C = -500\text{mA}, I_B = -50\text{mA}$
Transition frequency	f_T	-	190	-	MHz	$I_E = 50\text{mA}, V_{CE} = -5\text{V}, f = 30\text{MHz}$
Output Capacitance	C_{ob}	-	12	30	pF	$I_E = 0\text{A}, V_{CB} = -10\text{V}, f = 1\text{MHz}$

Notes: 6. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$

Electrical Characteristics

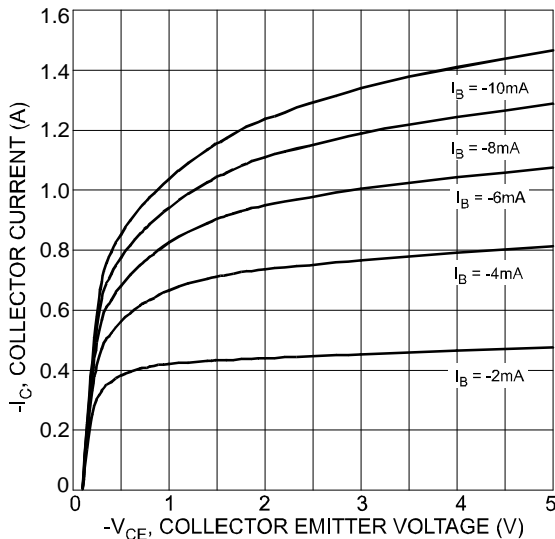


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

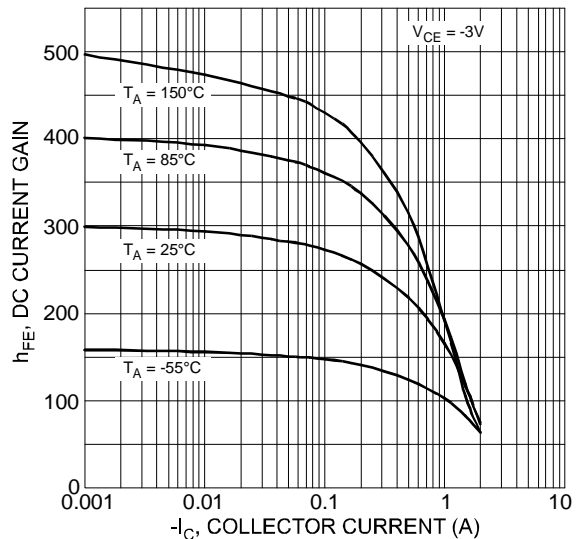


Fig. 3 Typical DC Current Gain vs. Collector Current (2DB1132R)

Electrical Characteristic - (cont.)

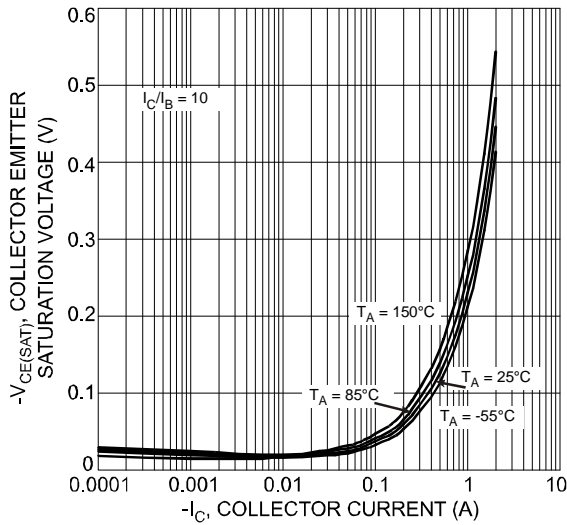


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

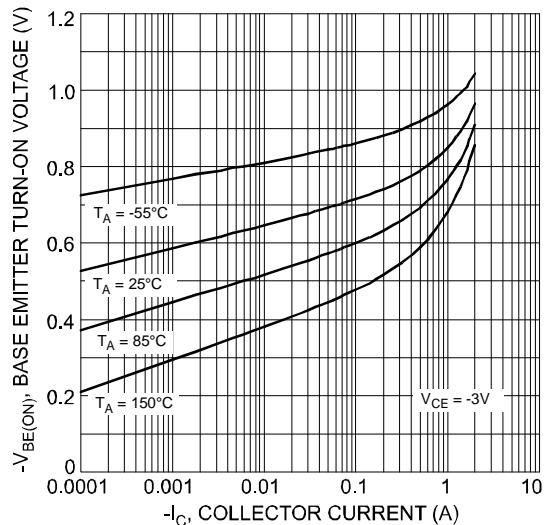


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

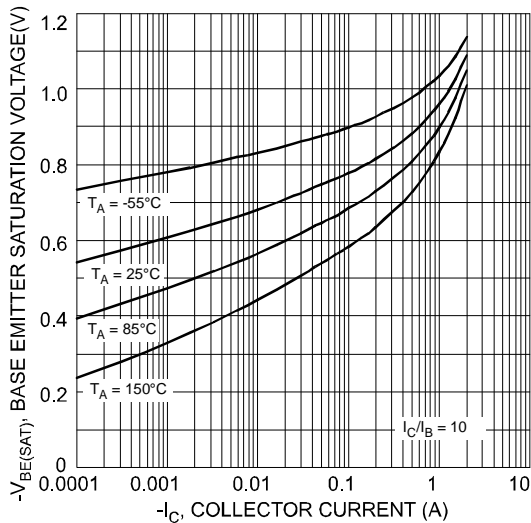


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

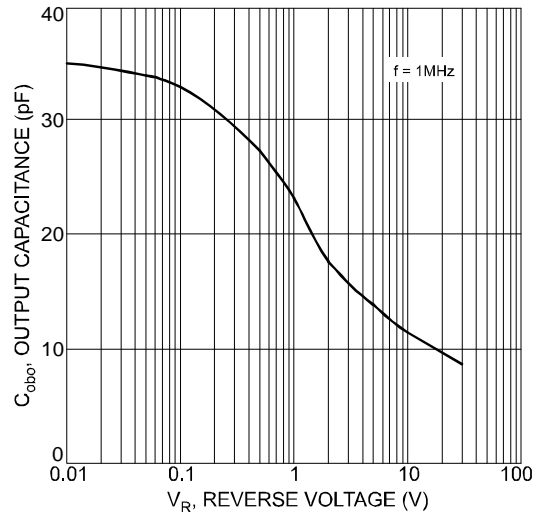


Fig. 7 Typical Output Capacitance Characteristics

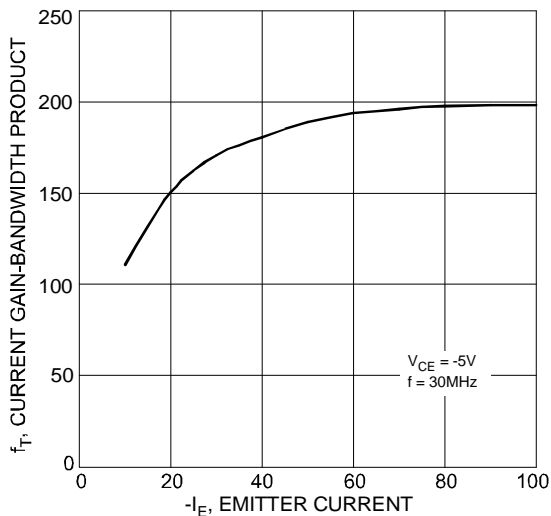
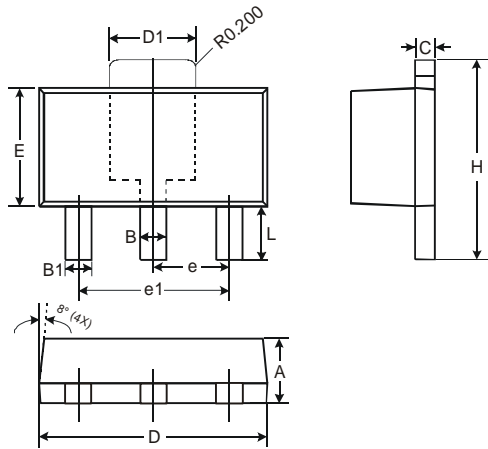


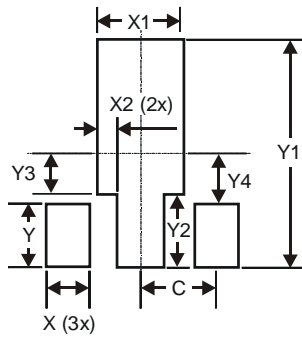
Fig. 8 Typical Gain-Bandwidth Product vs. Emitter Current

Package Outline Dimensions



SOT89		
Dim	Min	Max
A	1.40	1.60
B	0.44	0.62
B1	0.35	0.54
C	0.35	0.43
D	4.40	4.60
D1	1.52	1.83
E	2.29	2.60
e	1.50 Typ	
e1	3.00 Typ	
H	3.94	4.25
L	0.89	1.20
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
X	0.900
X1	1.733
X2	0.416
Y	1.300
Y1	4.600
Y2	1.475
Y3	0.950
Y4	1.125
C	1.500

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