12V LOW $V_{CE(sat)}$ PNP SURFACE MOUNT TRANSISTOR

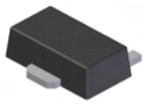
Features

- Epitaxial Planar Die Construction
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications
- Complementary NPN Type Available (2DD2661)
- **Totally Lead-Free & Fully RoHS compliant (Note 1)**
- **Halogen and Antimony Free. "Green" Device (Note 2)**

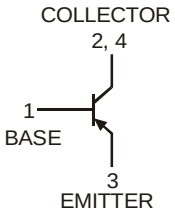
Mechanical Data

- Case: SOT89
- 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
- Weight: 0.052 grams (approximate)

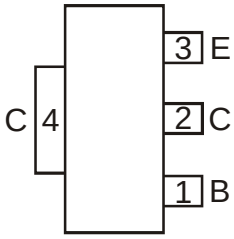
SOT89



Top View



Device Schematic



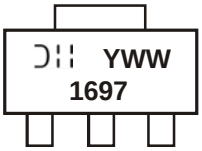
Top View
Pin Out Configuration

Ordering Information (Note 3)

Part Number	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
2DB1697-13	1697	13	12	2500

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
3. For packaging details, go to our website at http://www.diodes.com.

Marking Information



1697 = Product Type Marking Code
YWW = Date Code Marking
Y = Last digit of year (ex: 8 = 2008)
WW = Week code (01 – 53)

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-15	V
Collector-Emitter Voltage	V_{CEO}	-12	V
Emitter-Base Voltage	V_{EBO}	-6	V
Peak Pulse Current	I_{CM}	-4	A
Continuous Collector Current	I_C	-2	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	P_D	0.9	W
Thermal Resistance, Junction to Ambient Air (Note 4)	$R_{\theta JA}$	139	°C/W
Power Dissipation (Note 5)	P_D	2	W
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	62.5	°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						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-15	—	—	V	I_C = -100μA, I_E = 0
Collector-Emitter Breakdown Voltage (Note 6)	$V_{(BR)CEO}$	-12	—	—	V	I_C = -10mA, I_B = 0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6	—	—	V	I_E = -100μA, I_C = 0
Collector Cut-Off Current	I_{CBO}	—	—	-0.1	μA	V_{CB} = -15V, I_E = 0
Emitter Cut-Off Current	I_{EBO}	—	—	-0.1	μA	V_{EB} = -6V, I_C = 0
ON CHARACTERISTICS (Note 6)						
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	-65	-180	mV	I_C = -1A, I_B = -50mA
DC Current Gain	h_{FE}	270	—	680	—	V_{CE} = -2V, I_C = -200mA
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C_{obo}	—	40	—	pF	V_{CB} = -10V, I_E = 0, f = 1MHz
Current Gain-Bandwidth Product	f_T	—	140	—	MHz	V_{CE} = -2V, I_C = -100mA, f = 100MHz

Notes: 4. Device mounted on FR-4 PCB with minimum recommended pad layout.
5. Device mounted on FR-4 PCB with 1 inch^2 copper pad layout.
6. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.

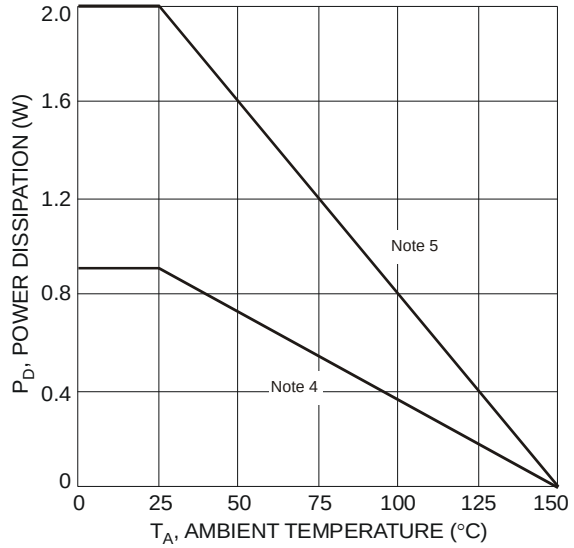


Fig. 1 Power Dissipation vs. Ambient Temperature

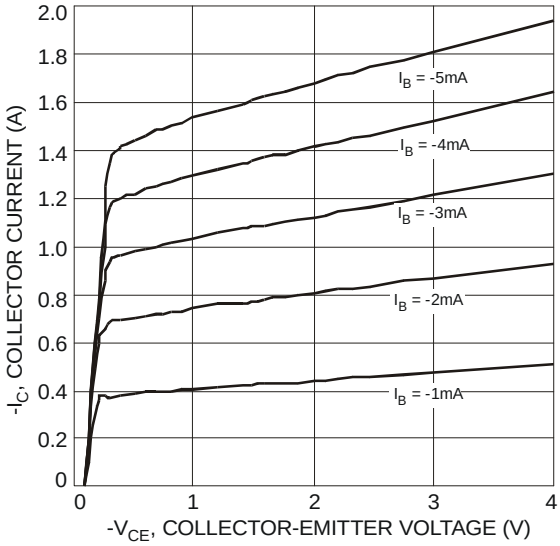


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

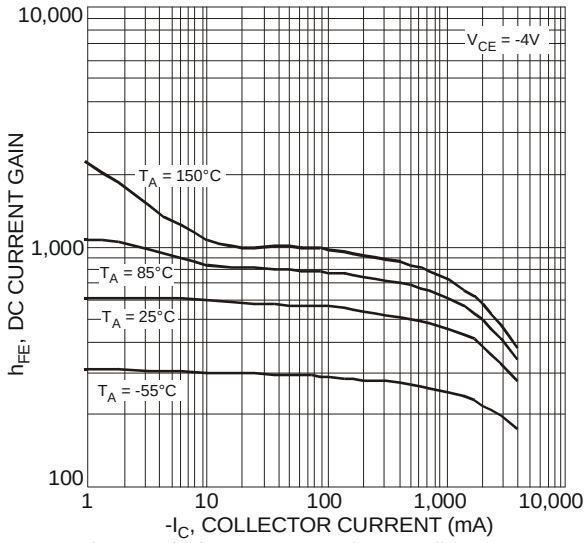


Fig. 3 Typical DC Current Gain vs. Collector Current

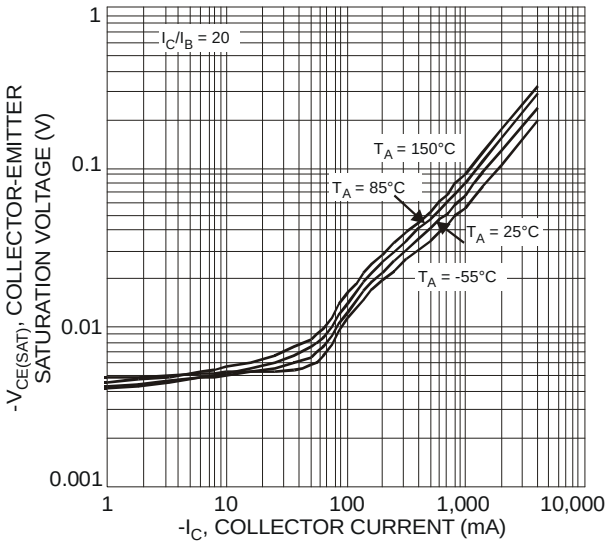


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

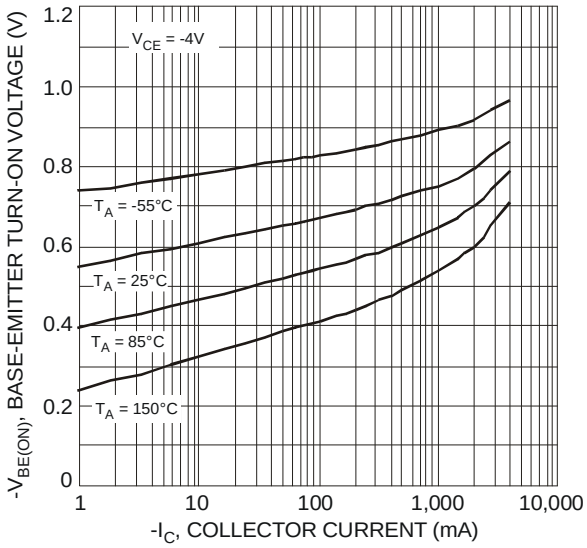


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

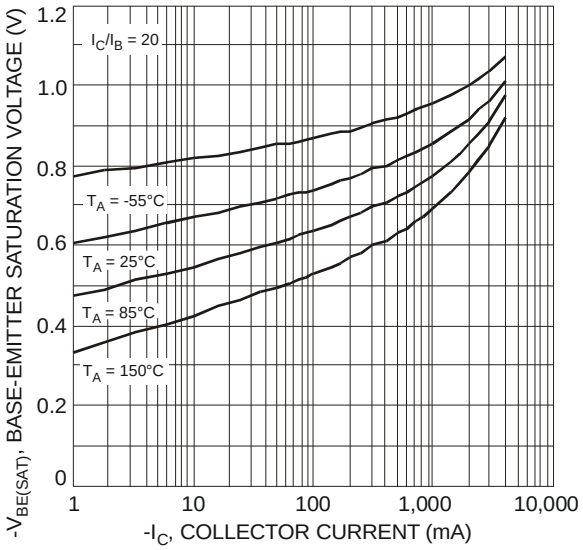


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

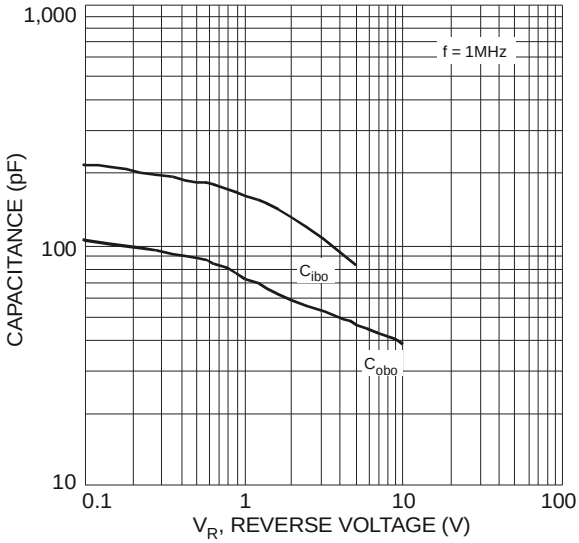


Fig. 7 Typical Capacitance Characteristics

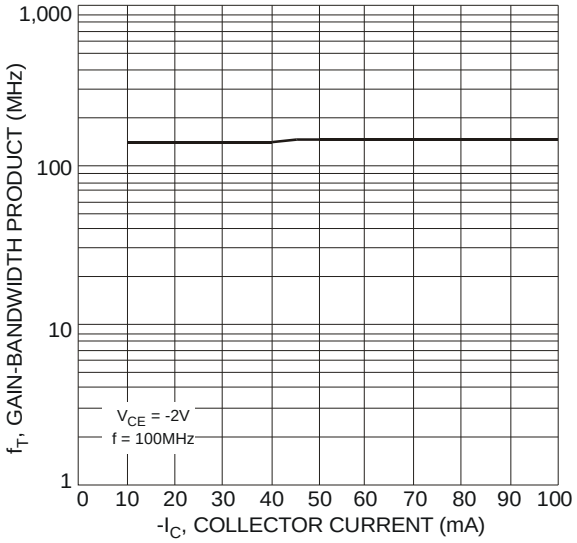
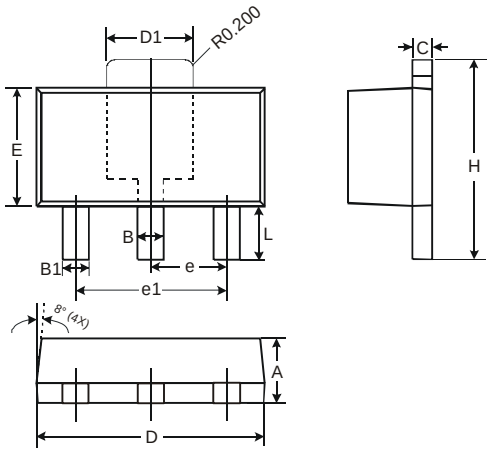


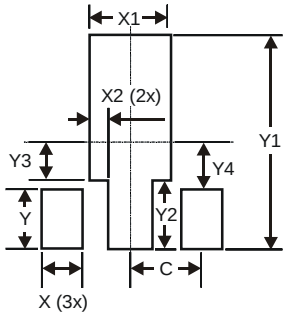
Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current

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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