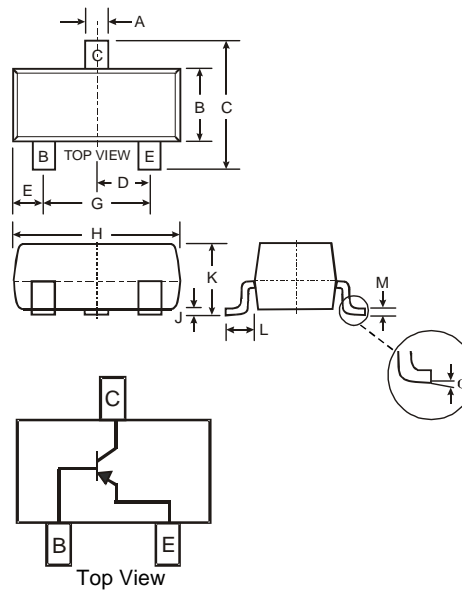


Features

- Epitaxial Planar Die Construction
- Ideal for Medium Power Amplification and Switching
- High Collector Current Rating
- Complementary Version Available (DNBT8105)
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 2, 3 and 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT-23
- 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. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: K82, See Page 3
- Ordering & Date Code Information: See Page 3
- Weight: 0.008 grams (approximate)



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-80	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current - Continuous	I_C	-1	A
Peak Pulse Collector Current	I_{CM}	-2	A

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P_D	600	mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	209	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

- Notes:
1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 2. No purposefully added lead. Halogen and Antimony Free.
 3. Diode's Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 4. Product is manufactured with Green Molding Compound and does not contain Halogens or Sb_2O_3 Fire Retardants.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)					
Collector-Base Breakdown Voltage	V _{(BR)CBO}	-80	—	V	I _C = -100μA, I _E = 0
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	-60	—	V	I _C = -10mA, I _B = 0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	-5	—	V	I _E = -100μA, I _C = 0
Collector Cutoff Current	I _{CBO}	—	-100	nA	V _{CB} = -60V, I _E = 0
Collector Cutoff Current	I _{CES}	—	-100	nA	V _{CE} = -60V
Emitter Cutoff Current	I _{EBO}	—	-100	nA	V _{EB} = -4V, I _C = 0
ON CHARACTERISTICS (Note 5)					
DC Current Gain	h _{FE}	100	—	V	I _C = -1mA, V _{CE} = -5V
		100	300		
		80	—		
		30	—		
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	—	-0.3 -0.6	V	I _C = -500mA, I _B = -50mA I _C = -1A, I _B = -100mA
Base-Emitter Saturation Voltage	V _{BE(SAT)}	—	-1.2	V	I _C = -1A, I _B = -100mA
Base-Emitter Turn On Voltage	V _{BE(ON)}	—	-1.0	V	I _C = -1A, V _{CE} = -5V
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C _{obo}	—	12	pF	V _{CB} = -10V, f = 1.0MHz
Current Gain-Bandwidth Product	f _T	150	—	MHZ	V _{CE} = -10V, I _C = -50mA, f = 100MHz

Notes: 5. Short duration pulse test used to minimize self-heating effect.

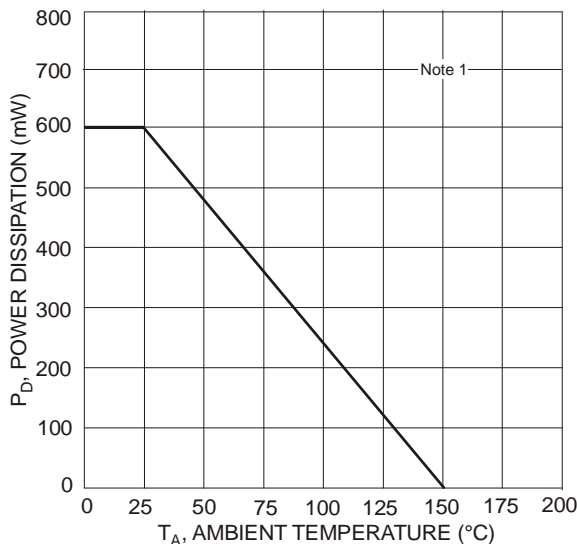


Fig. 1, Max Power Dissipation vs. Ambient Temperature

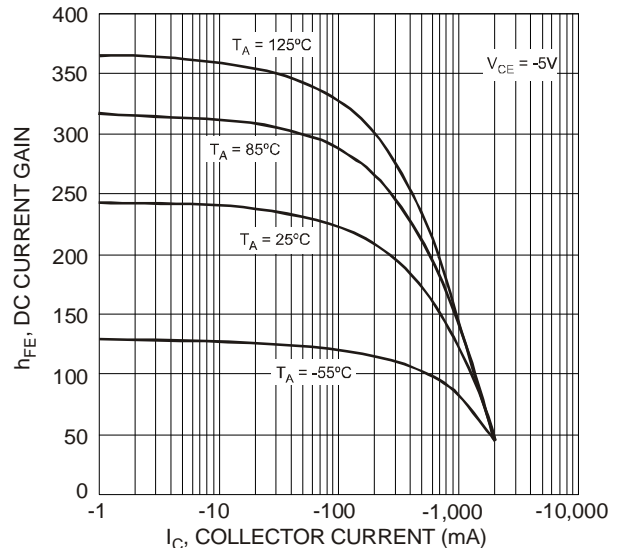


Fig. 2, DC Current Gain vs. Collector Current

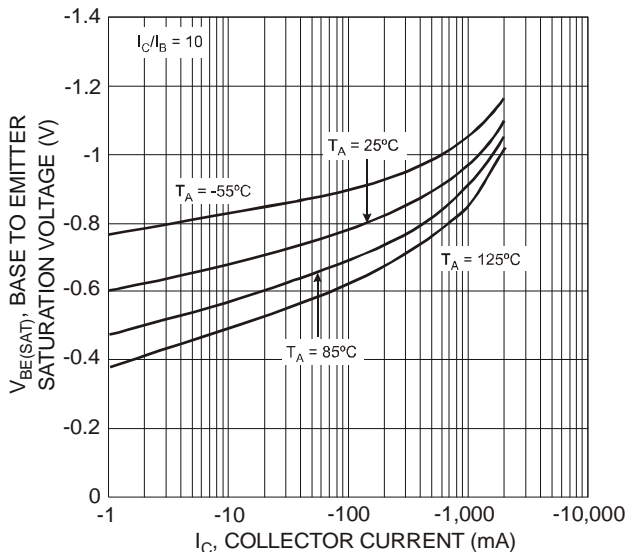


Fig. 3, Base-Emitter Saturation Voltage vs. Collector Current

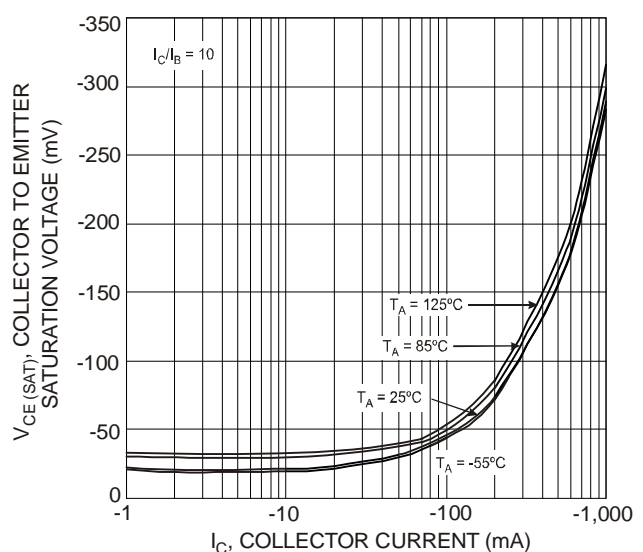


Fig. 4, Collector-Emitter Saturation Voltage vs. Collector Current

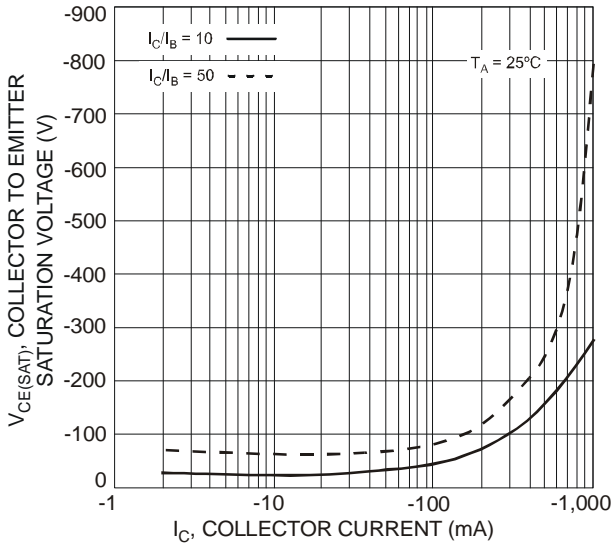


Fig. 5, Collector-Emitter Saturation Voltage vs. Collector Current

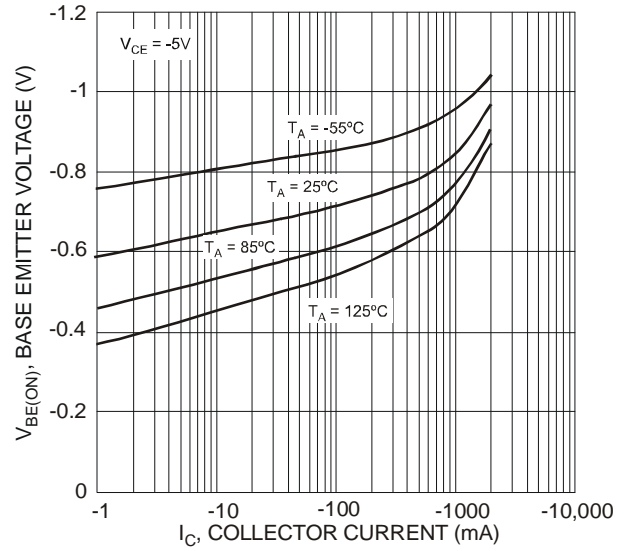


Fig. 6, Base-Emitter Voltage vs. Collector Current

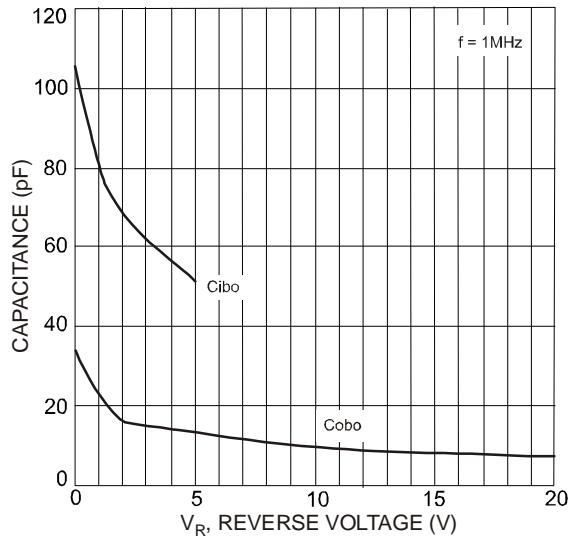


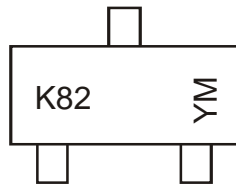
Fig. 7, Capacitance vs. Reverse Voltage

Ordering Information (Note 6)

Device	Packaging	Shipping
DPBT8105-7	SOT-23	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



K82 = Product Type Marking Code
YM = Date Code Marking
Y = Year ex: S = 2005
M = Month ex: 9 = September

Date Code Key

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	R	S	T	U	V	W	X	Y	Z

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.