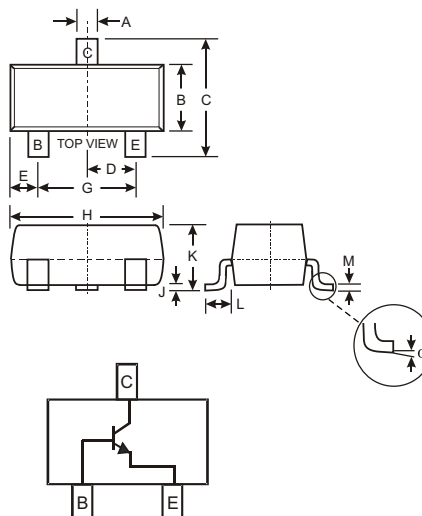


Features

Epitaxial Planar Die Construction
 Ideal for Low Power Amplification and Switching
 High Collector Current Rating
 Complementary Version Available (DPBT8105)
Lead Free By Design/RoHS Compliant (Note 2)
"Green Device" (Note 3)
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-020C
 Terminals: Finish Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
 Terminal Connections: See Diagram
 Marking (See Page 4): K81
 Ordering & Date Code Information: See Page 4
 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
	0	8
All Dimensions in mm		

Maximum Ratings @ T_A = 25 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

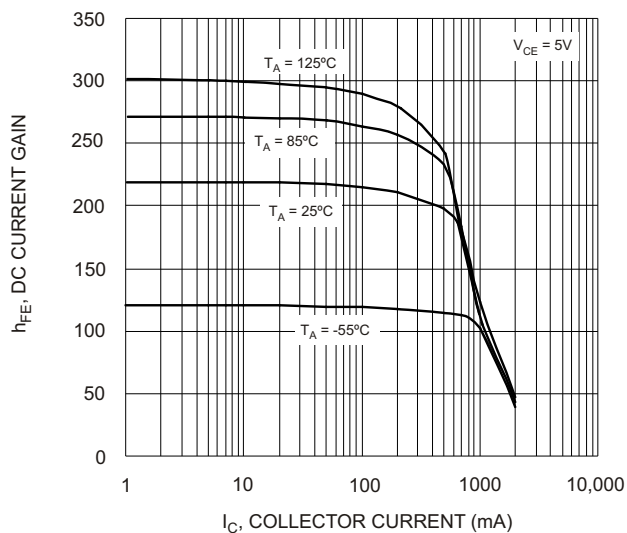
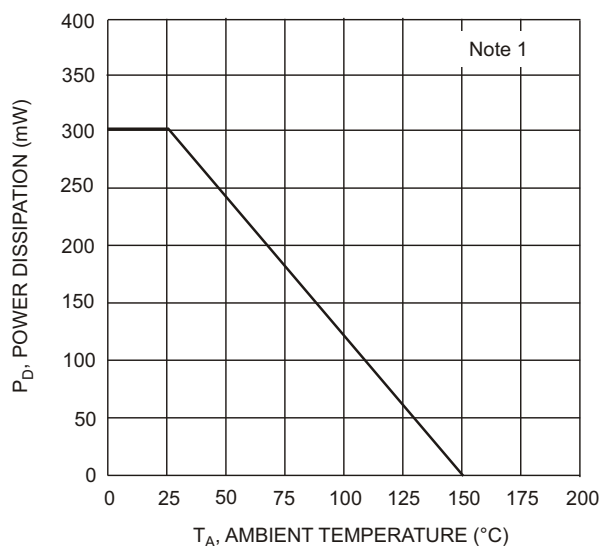
Characteristic	Symbol	Typ	Max	Unit
Power Dissipation (Note 1) @ T _A = 25 C	P _d		300	mW
Thermal Resistance, Junction to Ambient (Note 1) @ T _A = 25 C	R _{JA}		417	C/W
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150		C

- Notes:
- 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>.
 - No purposefully added lead.
 - Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

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

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80		V	$I_C = 100\text{ A}, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	60		V	$I_C = 10\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5		V	$I_E = 100\text{ A}, I_C = 0$
Collector Cutoff Current	I_{CBO}		100	nA	$V_{CB} = 60\text{V}, I_E = 0$
Collector Cutoff Current	I_{CES}		100	nA	$V_{CES} = 60\text{V}$
Emitter Cutoff Current	I_{EBO}		100	nA	$V_{EB} = 4\text{V}, I_C = 0$
ON CHARACTERISTICS (Note 4)					
DC Current Gain	h_{FE}	100 100 80 30	300	V	$I_C = 1\text{mA}, V_{CE} = 5\text{V}$ $I_C = 500\text{mA}, V_{CE} = 5\text{V}$ $I_C = 1\text{A}, V_{CE} = 5\text{V}$ $I_C = 2\text{A}, V_{CE} = 5\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		0.25 0.5	V	$I_C = 500\text{mA}, I_B = 50\text{mA}$ $I_C = 1\text{A}, I_B = 100\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$		1.1	V	$I_C = 1\text{A}, I_B = 100\text{mA}$
Base-Emitter Turn On Voltage	$V_{BE(ON)}$		1.0	V	$I_C = 1\text{A}, V_{CE} = 5\text{V}$
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}		10	pF	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$
Current Gain-Bandwidth Product	f_T	150		MHz	$V_{CE} = 10\text{V}, I_C = 50\text{mA}, f = 100\text{MHz}$

Note: 4. Short duration pulse test used to minimize self-heating effect.

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


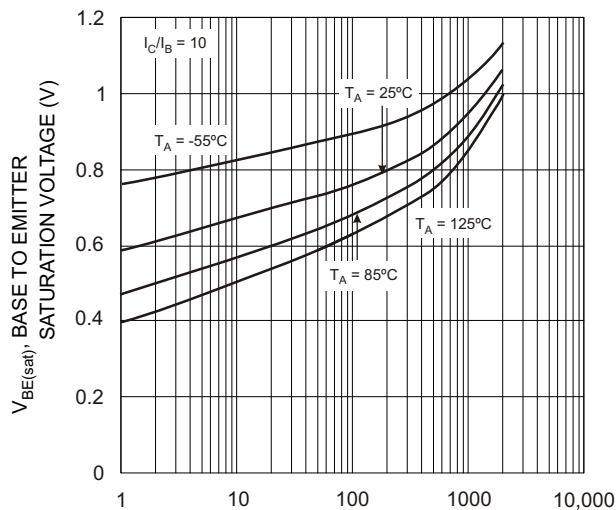


Fig. 3, Base-Emitter Saturation Voltage vs. Collector Current

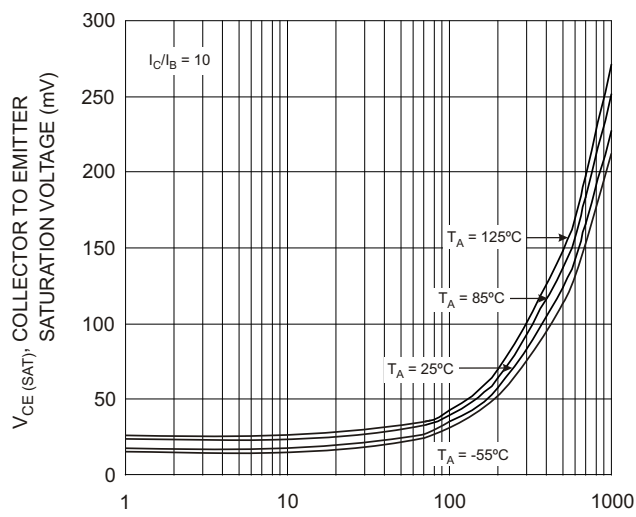


Fig. 4, Collector-Emitter Saturation Voltage vs. Collector Current

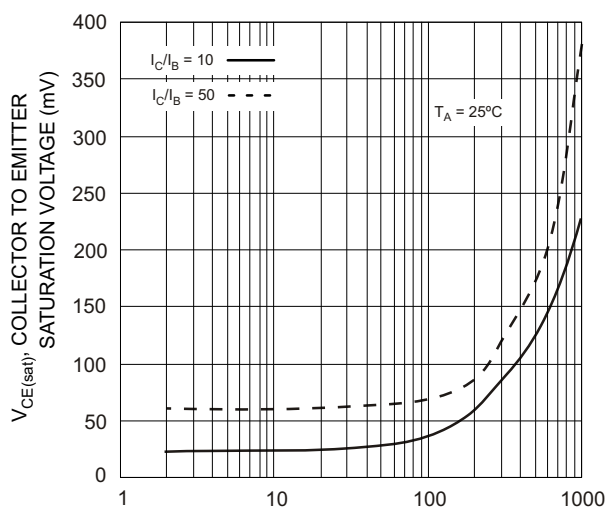


Fig. 5, Collector-Emitter Saturation Voltage vs. Collector Current

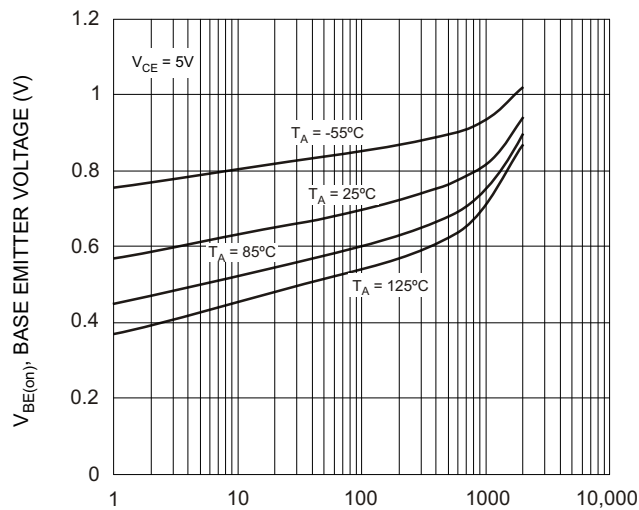


Fig. 6, Base-Emitter Voltage vs. Collector Current

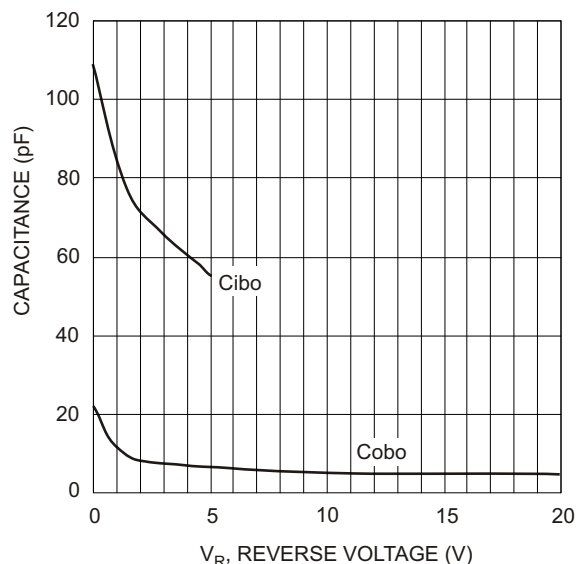
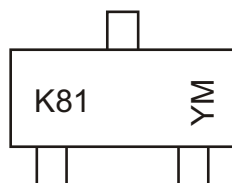


Fig. 7, Capacitance vs. Reverse Voltage

Ordering Information (Note 5)

Device	Packaging	Shipping
DNBT8105-7	SOT-23	3000/Tape & Reel

Note: 5. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information

K81 = 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.