



DPBT8105

1A PNP SURFACE MOUNT TRANSISTOR

Features

- **Epitaxial Planar Die Construction**
- Ideal for Medium Power Amplification and Switching
- High Collector Current Rating
- Complementary Version Available (DNBT8105)
- Lead Free By Design/RoHS Compliant (Note 1)
- "Green Device" (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

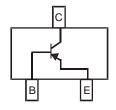
Mechanical Data

- Case: SOT23
- 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: See Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)





Top View



Device Schematic

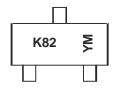
Ordering Information (Note 3)

Part Number	Case	Packaging
DPBT8105-7	SOT23	3000/Tape & Reel

Notes:

- 1. No purposefully added lead.
 - 2. Diode's Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 - 3. 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	2013	2014	2015
Code	R	S	T	U	V	W	Χ	Υ	Z	Α	В	С
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D



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	Ic	-1	A
Peak Pulse Collector Current	I _{CM}	-2	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4) @ T _A = 25°C	P _D	600	mW
Thermal Resistance, Junction to Ambient (Note 4) @ T _A = 25°C	$R_{ hetaJA}$	209	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

<u> </u>						
Characteristic	Symbol	Min	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 5)						
Collector-Base Breakdown Voltage	V _{(BR)CBO}	-80	_	V	$I_C = -100 \mu A, I_E = 0$	
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		٧	$I_E = -100 \mu A, I_C = 0$	
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)						
		100	_		$I_C = -1 \text{mA}, V_{CE} = -5 \text{V}$	
DC Current Gain	h _{FE}	100	300	_	$I_C = -500 \text{mA}, V_{CE} = -5 \text{V}$	
Do Guirent Gain		80	_		$I_C = -1A$, $V_{CE} = -5V$	
		30			$I_C = -2A$, $V_{CE} = -5V$	
Collector-Emitter Saturation Voltage	V		-0.3	V	$I_C = -500 \text{mA}, I_B = -50 \text{mA}$	
Collector-Emilier Saturation Voltage	VCE(SAT)		-0.6	٧	$I_C = -1A$, $I_B = -100mA$	
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	рF	V _{CB} = -10V, f = 1.0MHz	
Current Gain-Bandwidth Product	f _T	150	_	MHz	V _{CE} = 10V, I _C = 50mA, f = 100MHz	

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



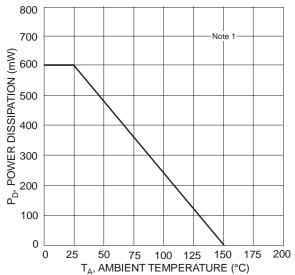


Fig. 1, Max Power Dissipation vs. Ambient Temperature

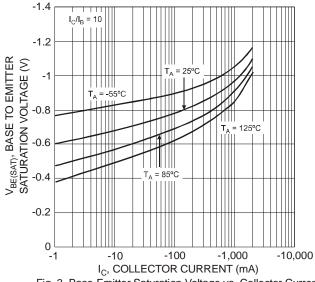


Fig. 3, Base-Emitter Saturation Voltage vs. Collector Current

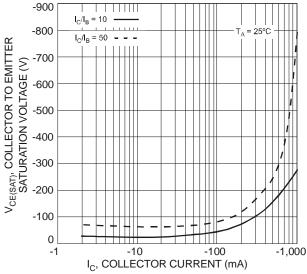
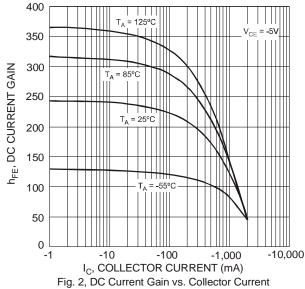


Fig. 5, Collector-Emitter Saturation Voltage vs. Collector Current



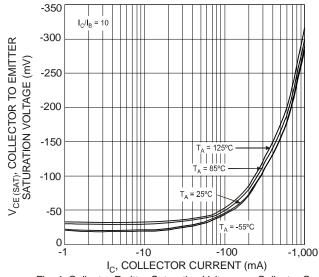


Fig. 4, Collector-Emitter Saturation Voltage vs. Collector Current

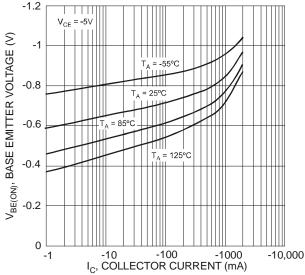
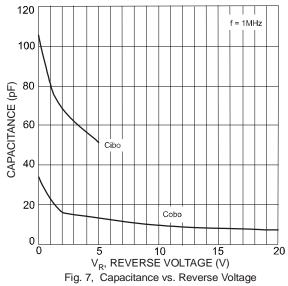
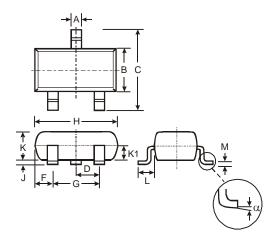


Fig. 6, Base-Emitter Voltage vs. Collector Current



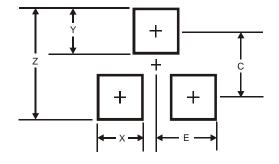


Package Outline Dimensions



SOT-23							
Dim	Min	Max	Тур				
Α	0.37	0.51	0.40				
В	1.20	1.40	1.30				
С	2.30	2.50	2.40				
D	0.89	1.03	0.915				
F	0.45	0.60	0.535				
G	1.78	2.05	1.83				
Н	2.80	3.00	2.90				
7	0.013	0.10	0.05				
K	0.903	1.10	1.00				
K1	-	-	0.400				
L	0.45	0.61	0.55				
M	0.085	0.18	0.11				
α	0°	8°	-				
All	All Dimensions in mm						

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
Х	0.8
Υ	0.9
С	2.0
F	1.35



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