



MMBT6427

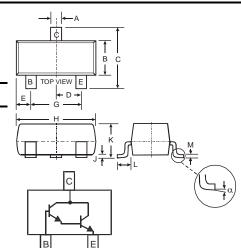
NPN SURFACE MOUNT DARLINGTON TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching
- High Current Gain
- Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 1 and 4)

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking (See Page 3): K1D
- Ordering & Date Code Information: See Page 3
- Weight: 0.008 grams (approximate)



	SOT-23				
Dim	Min	Max			
Α	0.37	0.51			
В	1.20	1.40			
С	2.30	2.50			
D	0.89	1.03			
Е	0.45	0.60			
G	1.78	2.05			
Н	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 Din	nensions	in mm			

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	12	V
Collector Current - Continuous	Ic	500	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 2) @ T _A = 25°C	P _D	300	mW
Thermal Resistance, Junction to Ambient (Note 2)@ T _A = 25°C	$R_{ heta JA}$	417	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics @TA = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 3)					
Collector-Base Breakdown Voltage	V _{(BR)CBO}	40	_	V	$I_C = 100 \mu A, I_E = 0$
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	40	_	V	$I_C = 10 \text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	12	_	V	$I_E = 10 \mu A, I_C = 0$
Collector Cutoff Current	I _{CBO}		50	nA	$V_{CB} = 30V, I_{E} = 0$
Collector Cutoff Current	ICEO	_	1.0	μΑ	$V_{CE} = 25V, I_B = 0$
Emitter Cutoff Current	I _{EBO}	_	50	nA	$V_{EB} = 10V, I_C = 0$
ON CHARACTERISTICS (Note 3)					
DC Current Gain	h _{FE}	10,000 20,000 14,000	100,000 200,000 140,000	_	$I_C = 10mA$, $V_{CE} = 5.0V$ $I_C = 100mA$, $V_{CE} = 5.0V$ $I_C = 500mA$, $V_{CE} = 5.0V$
Collector-Emitter Saturation Voltage		_	1.2 1.5	V	$I_C = 50$ mA, $I_B = 0.5$ mA $I_C = 500$ mA, $I_B = 0.5$ mA
Base-Emitter Saturation Voltage	V _{BE(SAT)}	_	2.0	V	$I_C = 500 \text{mA}, I_B = 0.5 \text{mA}$
Base-Emitter On Voltage	V _{BE(ON)}	_	1.75	V	$I_C = 50 \text{mA}, V_{CE} = 5.0 \text{V}$
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	Cobo	8.0 T	8.0 Typical		$V_{CB} = 10V, f = 1.0MHz, I_E = 0$
Input Capacitance	C _{ibo}	15 Typical		pF	$V_{EB} = 0.5V$, $f = 1.0MHz$, $I_{C} = 0$

Notes:

- 1. No purposefully added lead. Halogen and Antimony Free.
- 2. 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.
- 3. Short duration pulse test used to minimize self-heating effect.
- Product manufactured with Data Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or Sb₂O₃ Fire Retardants.



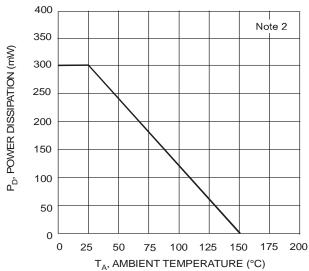
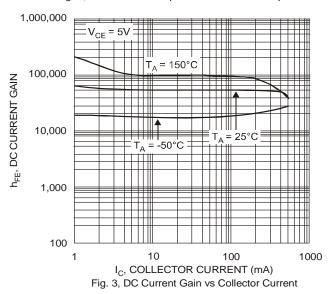
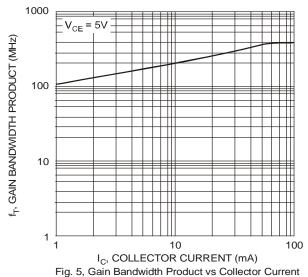


Fig. 1, Max Power Dissipation vs Ambient Temperature





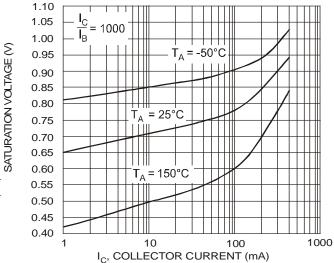


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

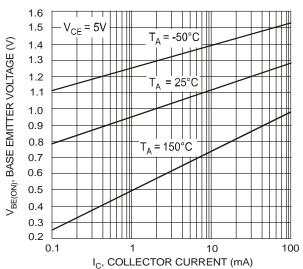


Fig. 4, Base Emitter Voltage vs. Collector Current

V_{CE(SAT)}, COLLECTOR TO EMITTER

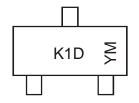


Ordering Information (Note 5)

Device	Packaging	Shipping
MMBT6427-7-F	SOT-23	3000/Tape & Reel

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



K1D = Product Type Marking Code YM = Date Code Marking Y = Year ex: N = 2002 M = Month ex: 9 = September

Date Code Kev

ĺ	Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Code	J	K	L	М	Ν	Р	R	S	Т	U	V	W	Х	Υ	Z

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

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