



MMBTA28

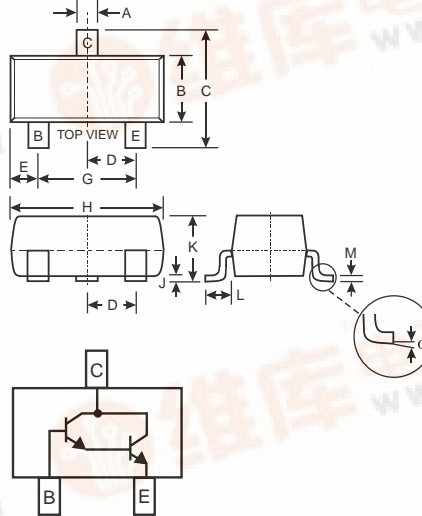
NPN SURFACE MOUNT DARLINGTON TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching
- High Current Gain
- **Lead Free/RoHS Compliant (Note 3)**

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking (See Page 3): K6R
- 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
	0°	8°
All Dimensions in mm		

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	80	V
Collector-Emitter Voltage	V _{CEO}	80	V
Emitter-Base Voltage	V _{EBO}	12	V
Collector Current - Continuous	I _C	500	mA
Power Dissipation (Note 1)	P _d	300	mW
Thermal Resistance, Junction to Ambient (Note 1)	R _{JA}	417	°C/W
Operating and Storage and Temperature Range	T _J , T _{STG}	-55 to +150	°C

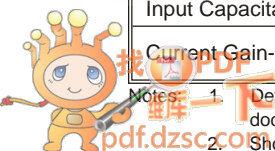
Electrical Characteristics @ T_A = 25°C unless otherwise specified

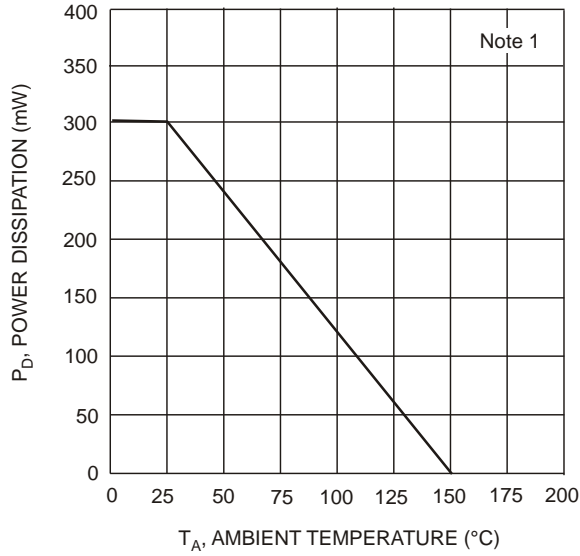
Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)					
Collector-Base Breakdown Voltage	V _{(BR)CBO}	80		V	I _C = 100µA, I _E = 0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	12		V	I _E = 100µA, I _C = 0
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	80		V	I _C = 100µA, I _B = 0
Collector Cutoff Current	I _{CBO}		100	nA	V _{CB} = 60V, I _E = 0
	I _{CES}		500	nA	V _{CE} = 10V
Emitter Cutoff Current	I _{EBO}		100	nA	V _{EB} = 10V, I _C = 0
ON CHARACTERISTICS (Note 2)					
DC Current Gain	h _{FE}	10,000	10,000		I _C = 10mA, V _{CE} = 5.0V I _C = 100mA, V _{CE} = 5.0V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}		1.5	V	I _C = 100mA, I _B = 100µA
Base-Emitter Saturation Voltage	V _{BE(SAT)}		2.0	V	I _C = 100mA, V _{CE} = 5.0V
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C _{obo}	8.0 Typical		pF	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
Current Gain-Bandwidth Product	f _T	125		MHz	V _{CE} = 5.0V, I _C = 10mA, f = 100MHz

Notes: 1. Device mounted on FR-4 PCB, 1.6x1.6x0.06 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>.

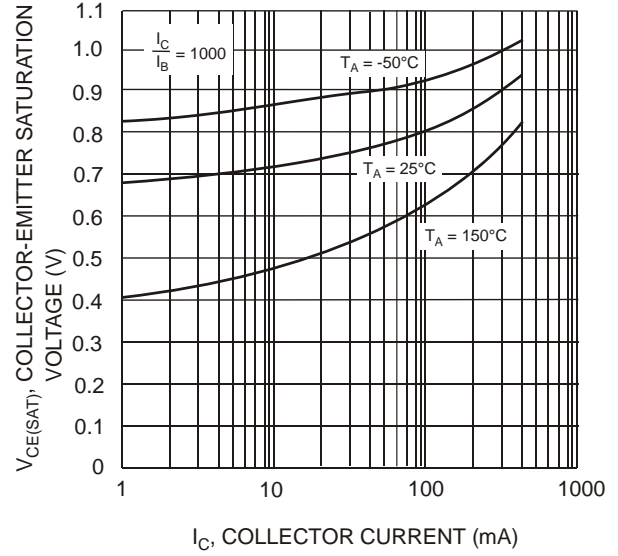
2. Short duration pulse test used to minimize self-heating effect.

3. No purposefully added lead.

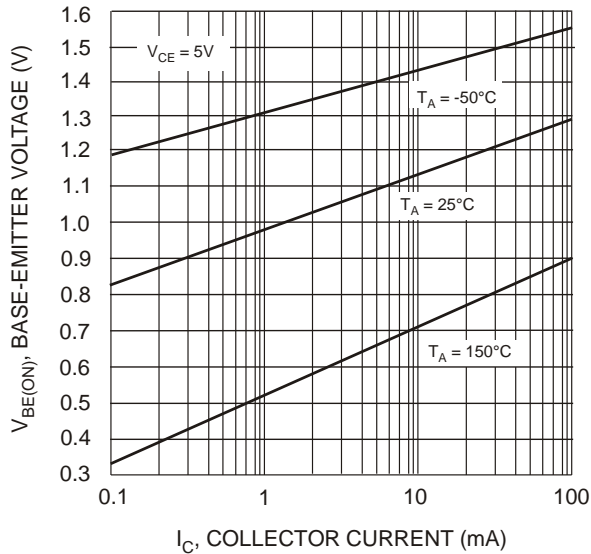




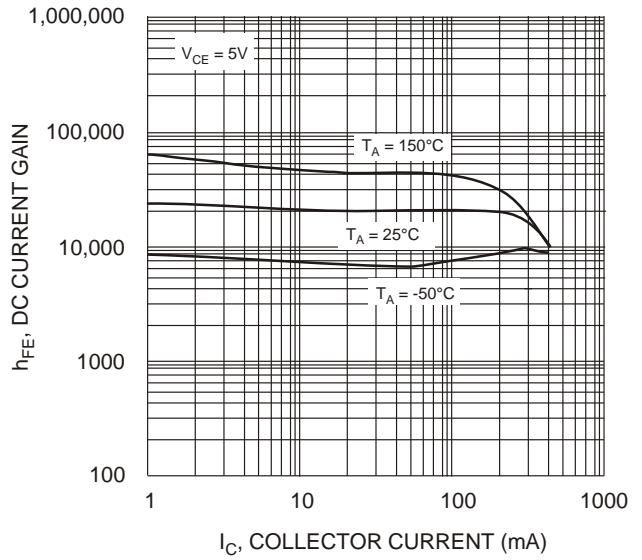
T_A , AMBIENT TEMPERATURE (°C)
Fig. 1, Max Power Dissipation vs Ambient Temperature



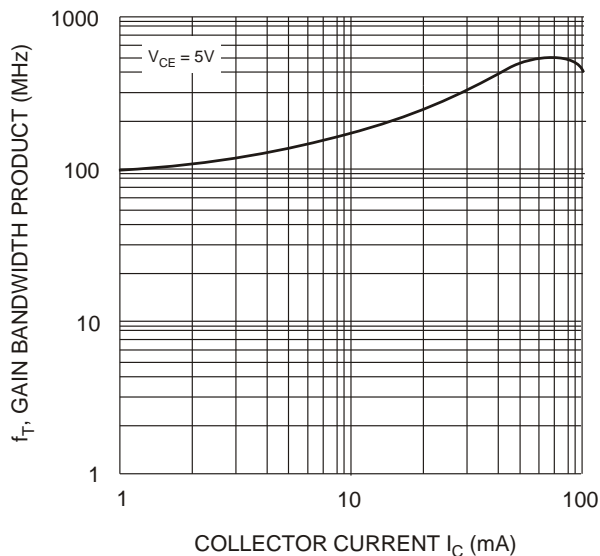
I_C , COLLECTOR CURRENT (mA)
Fig. 2 Typical Collector-Emitter Saturation Voltage vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 3 Typical Base-Emitter Voltage vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 4 Typical DC Current Gain vs. Collector Current



COLLECTOR CURRENT I_C (mA)
Fig. 5 Typical Gain Bandwidth Product vs. Collector Current

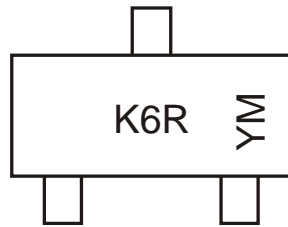


Ordering Information (Note 4)

Device	Packaging	Shipping
MMBTA28-7-F	SOT-23	3000/Tape & Reel

Notes: 4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



K6R = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: T = 2006
 M = Month ex: 9 = September

Date Code Key

Year	2006	2007	2008	2009	2010	2011	2012
Code	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.