



MMBTA28

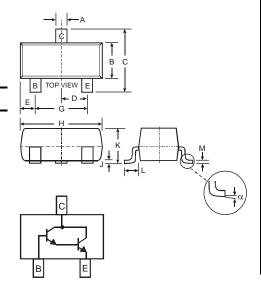
NPN SURFACE MOUNT DARLINGTON TRANSISTOR

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 3 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
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking Information: See Page 3
 Ordering Information: See Page 3
 Weight: 0.008 grams (approximate)



SOT-23									
Dim	Min	Max							
Α	0.37	0.51							
В	1.20	1.40 2.50 1.03 0.60 2.05							
С	2.30								
D	0.89								
E	0.45								
G	1.78								
Η	2.80	3.00							
7	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°C unless otherwise specified

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

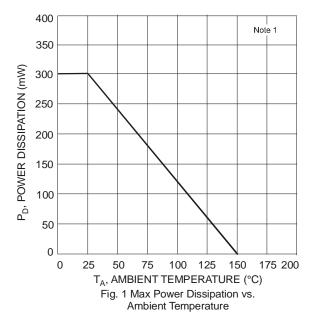
Electrical Characteristics @T_A = 25°C unless otherwise specified

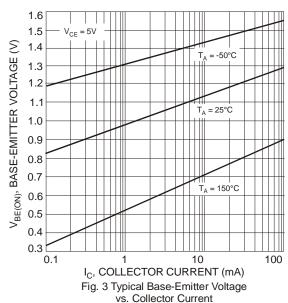
Characteristic	Symbol	Min	Max	Unit	Test Condition					
OFF CHARACTERISTICS (Note 2)										
Collector-Base Breakdown Voltage	V _{(BR)CBO}	80		V	$I_C = 100 \mu A I_E = 0$					
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	12	_	V	$I_E = 100 \mu A I_C = 0$					
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	80	_	V	$I_C = 100 \mu A I_B = 0$					
Collector Cutoff Current	I _{CBO}		100	nA	$V_{CB} = 60V, I_{E} = 0$					
Collector Cuton Current	ICES	_	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			$I_C = 10mA, V_{CE} = 5.0V$					
DC Current Gain		10,000			$I_C = 100 \text{mA}, V_{CE} = 5.0 \text{V}$					
Collector-Emitter Saturation Voltage	V _{CE(SAT)}		1.5	V	$I_C = 100 \text{mA}, I_B = 100 \mu \text{A}$					
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					

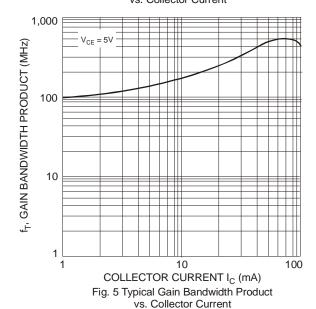
Notes:

- 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. Halogen and Antimony Free.
- 4. 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.









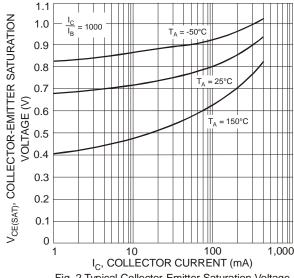
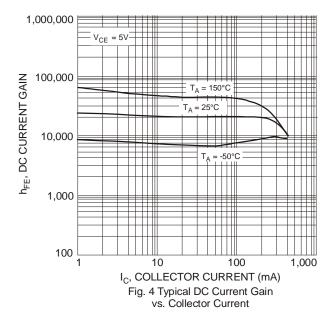


Fig. 2 Typical Collector-Emitter Saturation Voltage vs. Collector Current



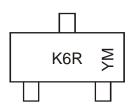


Ordering Information (Note 5)

Part Number	Packaging	Shipping			
MMBTA28-7-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



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	20	09	2010		2011	2	2012	
Code	Т		U		V		W			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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