



MMBTA63 / MMBTA64

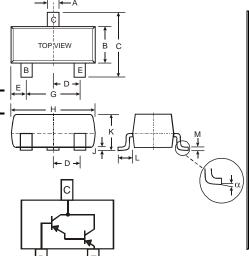
PNP SURFACE MOUNT DARLINGTON TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (MMBTA13 /MMBTA14)
- 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
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe). Terminal Connections: See Diagram
- MMBTA63 Marking K2E, K3E See Page 3
- MMBTA64 Marking K3E See Page 3
- 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									
E	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									
М	0.085	0.180									
α	0°	8°									
All Din	nensions	in mm									

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Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Collector-Base Voltage		V _{CBO}	-30	V
Collector-Emitter Voltage		V_{CEO}	-30	V
Emitter-Base Voltage		V_{EBO}	-10	V
Collector Current - Continuous	(Note 1)	Ic	-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 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 2)					
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	-30	_	V	$I_C = -100 \mu A V_{BE} = 0 V$
Collector Cutoff Current	I _{CBO}	_	-100	nA	$V_{CB} = -30V, I_E = 0$
Emitter Cutoff Current	I _{EBO}	_	-100	nA	$V_{EB} = -10V, I_C = 0$
ON CHARACTERISTICS (Note 2)					
DC Current Gain MMBTA63 MMBTA64 MMBTA63 MMBTA64	h _{FE}	5,000 10,000 10,000 20,000	_	_	I _C = -10mA, V _{CE} = -5.0V I _C = -10mA, V _{CE} = -5.0V I _C = -100mA, V _{CE} = -5.0V I _C = -100mA, V _{CE} = -5.0V
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	$I_C = -100 \text{mA}, V_{CE} = -5.0 \text{V}$
SMALL SIGNAL CHARACTERISTICS					
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 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.
- 2. Short duration pulse test used to minimize self-heating effect
- 3. No purposefully added lead. Halogen and Antimony Free.
- 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.



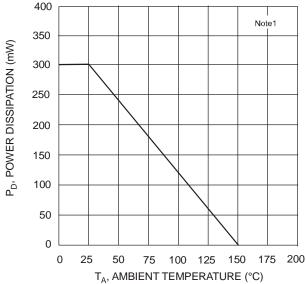


Fig. 1, Max Power Dissipation vs. Ambient Temperature

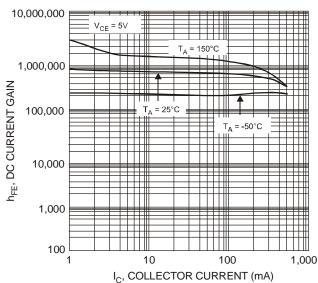


Fig. 3, DC Current Gain vs. Collector Current

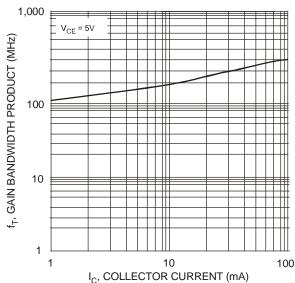


Fig. 5, Gain Bandwidth Product vs. Collector Current

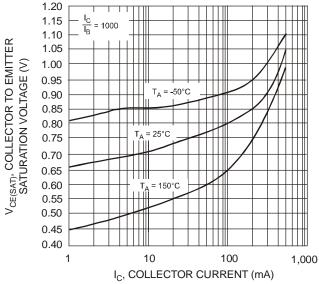


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

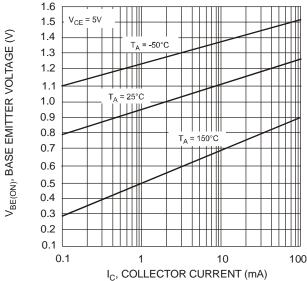


Fig. 4, Base Emitter Voltage vs. Collector Current

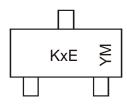


Ordering Information (Note 5)

Device	Packaging	Shipping		
MMBTA63-7-F MMBTA64-7-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



KxE = Product Type Marking Code, ex: K2E = MMBTA63

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

Date Code Key

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	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	0	N	D

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