



MMBTA92

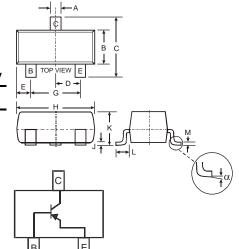
PNP SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

- **Epitaxial Planar Die Construction**
- Complementary NPN Types Available (MMBTA42)
- Ideal for Medium Power Amplification and Switching
- Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 4 and 5)
- Qualified to AEC-Q101 Standards for High Reliability

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 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								
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 Dimensions in mm										

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-300	V
Collector-Emitter Voltage	V _{CEO}	-300	V
Emitter-Base Voltage	V _{EBO}	-5.0	V
Collector Current (Note 1) (Note 3)	Ic	-500	mA
Power Dissipation (Note 1)	P _d	300	mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{ heta JA}$	417	°C/W
Operating and Storage and Temperature Range	T_j, T_{STG}	-55 to +150	°C

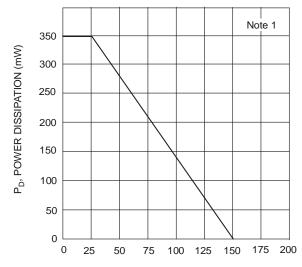
Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)			!	,	!
Collector-Base Breakdown Voltage	V _{(BR)CBO}	-300		V	$I_C = -100 \mu A, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-300	_	V	$I_C = -1.0 \text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5.0	_	V	$I_E = -100 \mu A, I_C = 0$
Collector Cutoff Current	I _{CBO}	_	-250	nA	$V_{CB} = -200V, I_{E} = 0$
Collector Cutoff Current	I _{EBO}	_	-100	nA	$V_{CE} = -3.0V, I_{C} = 0$
ON CHARACTERISTICS (Note 2)	•		•	•	·
DC Current Gain	h _{FE}	25 40 25	_	_	$I_C = -1.0 \text{mA}, V_{CE} = -10 \text{V}$ $I_C = -10 \text{mA}, V_{CE} = -10 \text{V}$ $I_C = -30 \text{mA}, V_{CE} = -10 \text{V}$
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	_	-0.5	V	$I_C = -20 \text{mA}, I_B = -2.0 \text{mA}$
Base- Emitter Saturation Voltage	V _{BE(SAT)}	_	-0.9	V	$I_C = -20 \text{mA}, I_B = -2.0 \text{mA}$
SMALL SIGNAL CHARACTERISTICS					_
Output Capacitance	C _{cb}	_	6.0	pF	$V_{CB} = -20V, f = 1.0MHz,$ $I_{E} = 0$
Current Gain-Bandwidth Product	f⊤	50	_	MHz	$V_{CE} = -20V, I_{C} = -10mA,$ f = 100MHz

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 Notes: document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

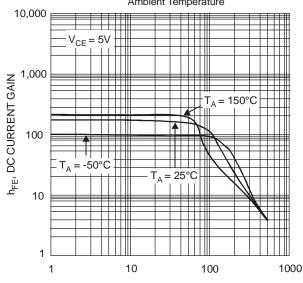
- Short duration pulse test used to minimize self-heating effect.
- When operated under collector-emitter saturation conditions within the safe operating area defined by the thermal resistance rating ($R_{\theta JA}$), power dissipation rating (P_d) and power derating curve (figure 1).
- No purposefully 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.





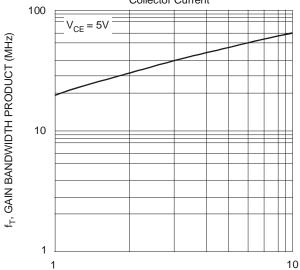
T_A, AMBIENT TEMPERATURE (°C)





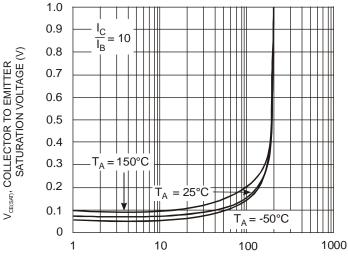
 $I_{\rm C}$, COLLECTOR CURRENT (mA)

Fig. 3, DC Current Gain vs Collector Current



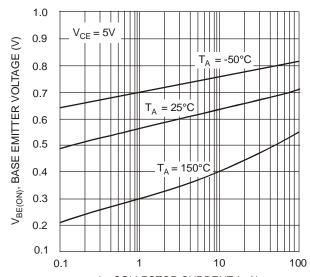
I_C, COLLECTOR CURRENT (mA)

Fig. 5, Gain Bandwidth Product vs Collector Current



I_c, COLLECTOR CURRENT (mA)

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



I_C, COLLECTOR CURRENT (mA) Fig. 4, Base Emitter Voltage vs Collector Current

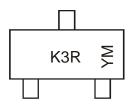


Ordering Information (Note 6)

Device	Packaging	Shipping
MMBTA92-7-F	SOT-23	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



K3R = Product Type Marking Code 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	N	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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