



DESCRIPTION

The MBTA92 is available in SOT-23 package

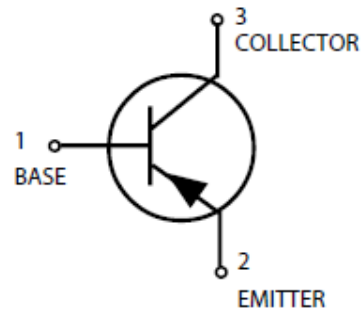
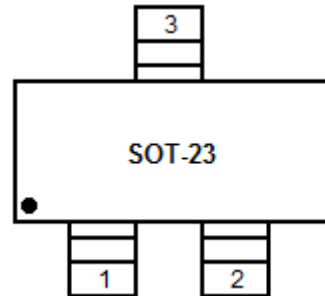
ORDERING INFORMATION

Package Type	Part Number
SOT-23	MBTA92
Note	3,000pcs/ Reel
AiT provides all RoHS Compliant Products	

FEATURES

- High voltage
- For Telephony or Professional communication equipment applications
- Available in SOT-23 package

PIN DESCRIPTION





ABSOLUTE MAXIMUM RATINGS

V_{CEO} , Collector–Emitter Voltage	–300Vdc
V_{CBO} , Collector–Base Voltage	–300Vdc
V_{EBO} , Emitter–Base Voltage	–5.0Vdc
I_C , Collector Current–Continuous	–500mAdc

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, ^{NOTE1} $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, ^{NOTE2} $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	T_J, T_{STG}	–55 to +150	$^\circ\text{C}$

NOTE1: FR-5 = 1.0 x 0.75 x 0.062 in.

NOTE2: Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.



ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise noted

Parameter	Symbol	Conditions	Min.	Max.	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage ^{NOTE3}	V _{(BR)CEO}	I _C =-1.0mA _{dc} , I _B =0	-300	-	Vdc
Collector–Emitter Breakdown Voltage	V _{(BR)CBO}	I _C =-100μA _{dc} , I _E =0	-300	-	Vdc
Emitter–Base Breakdown Voltage	V _{(BR)EBO}	I _E =-100μA _{dc} , I _C =0	-5.0	-	Vdc
Collector Cutoff Current	I _{CBO}	V _{CB} =-200Vdc, I _E =0	-	-0.1	μA _{dc}
		V _{CB} =-300Vdc, I _E =0	-	-100	
Emitter Cutoff Current	I _{EBO}	V _{EB} = -6.0Vdc, I _C =0	-	-0.05	μA _{dc}
		V _{EB} = -5.0Vdc, I _C =0	-	-100	
ON CHARACTERISTICS ^{NOTE3}					
DC Current Gain	h _{FE}	I _C =-1.0mA _{dc} , V _{CE} =-10Vdc	25	-	-
		I _C =-10mA _{dc} , V _{CE} =-10Vdc	40	-	
		I _C =-30mA _{dc} , V _{CE} =-10Vdc	25	-	
Collector–Emitter Saturation Voltage	V _{CE(SAT)}	I _C =-20mA _{dc} , I _B =-2.0mA _{dc}	-	-0.5	Vdc
Base–Emitter Saturation Voltage	V _{BE(SAT)}	I _C =-20mA _{dc} , I _B =-2.0mA _{dc}	-	-0.9	Vdc
SMALL–SIGNAL CHARACTERISTICS					
Current–Gain–Bandwidth Product ^{NOTE3}	f _T	I _C =-10mA _{dc} , V _{CE} = -20Vdc, f=100MHz	50	-	MHz
Collector–Base Capacitance	C _{CB}	V _{CB} =-20Vdc, I _E =0, f=1.0MHz	-	6.0	pF

NOTE3: Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%.



TYPICAL CHARACTERISTICS

Figure 1. DC Current Gain

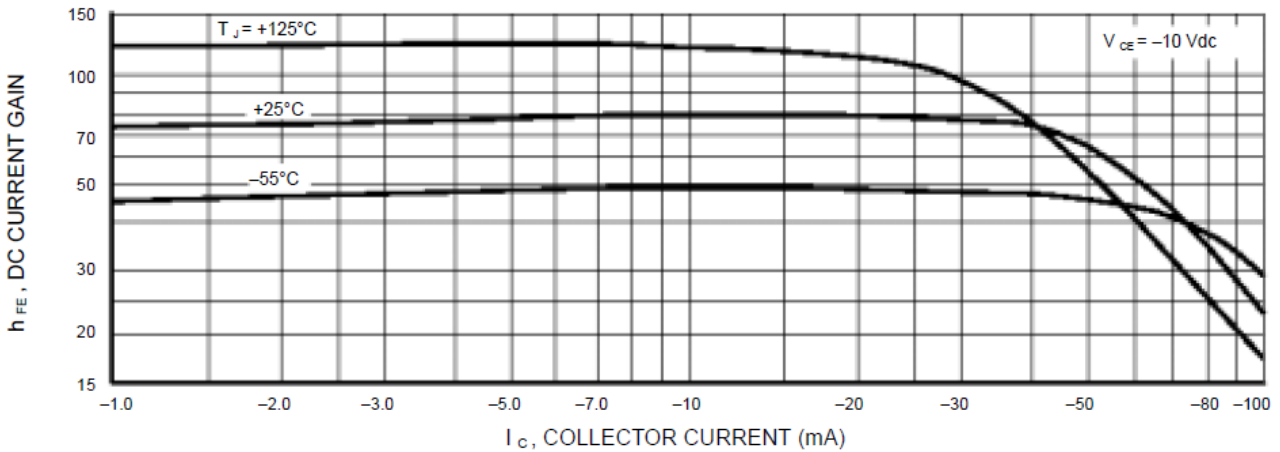


Figure 2. Capacitance

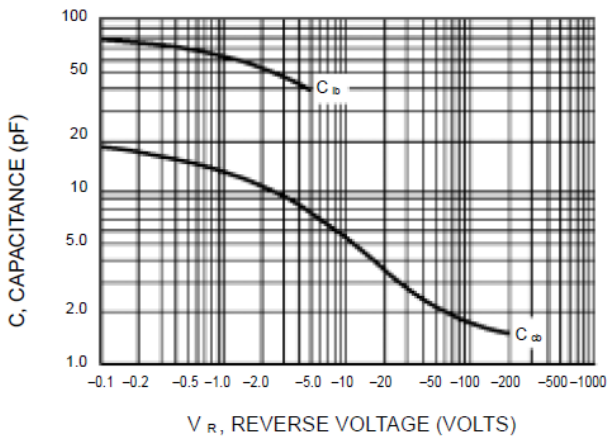


Figure 3. Current-Gain-Bandwidth Product

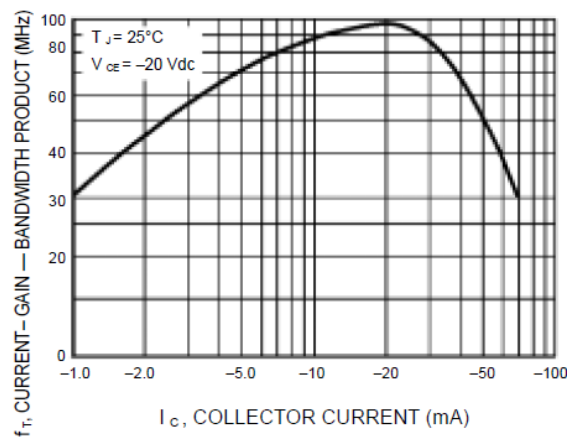
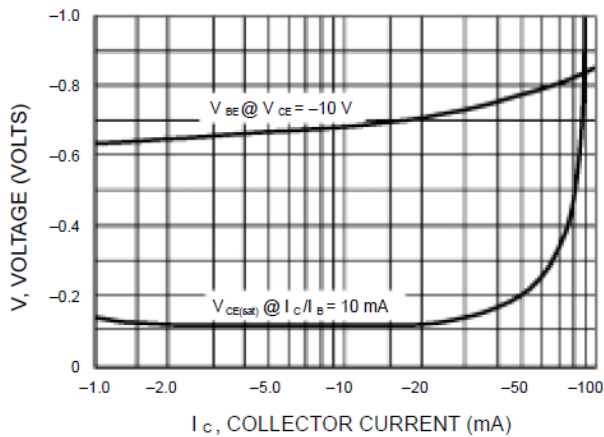


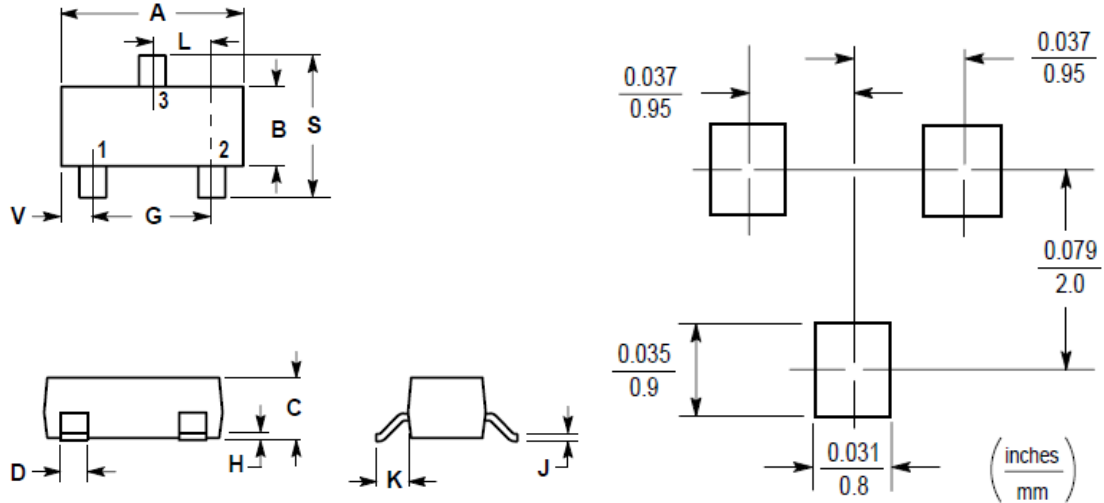
Figure 4. "On" Voltages





PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.800	3.040	0.1102	0.1197
B	1.200	1.400	0.0472	0.0551
C	0.890	1.110	0.0350	0.0440
D	0.370	0.500	0.0150	0.0200
G	1.780	2.040	0.0701	0.0807
H	0.013	0.100	0.0005	0.0040
J	0.085	0.177	0.0034	0.0070
K	0.350	0.690	0.0140	0.0285
L	0.890	1.020	0.0350	0.0401
S	2.100	2.640	0.0830	0.1039
V	0.450	0.600	0.0177	0.0236



IMPORTANT NOTICE

AiT Semiconductor Inc. (AiT) reserves the right to make changes to any its product, specifications, to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

AiT Semiconductor Inc.'s integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life support applications, devices or systems or other critical applications. Use of AiT products in such applications is understood to be fully at the risk of the customer. As used herein may involve potential risks of death, personal injury, or severe property, or environmental damage. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

AiT Semiconductor Inc. assumes to no liability to customer product design or application support. AiT warrants the performance of its products of the specifications applicable at the time of sale.