



DESCRIPTION

The MBTA92 is available in SOT-23 package

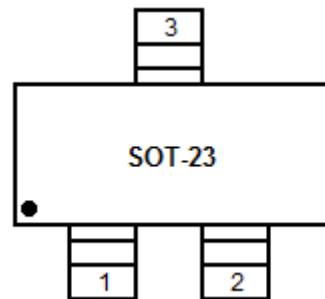
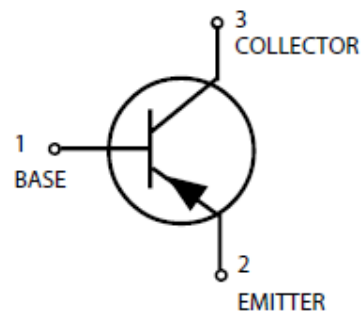
FEATURES

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

ORDERING INFORMATION

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

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	–500mA _{dc}

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	$^\circ\text{C/W}$
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	$^\circ\text{C/W}$
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

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

NOTE3: Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$.



TYPICAL CHARACTERISTICS

Figure 1. DC Current Gain

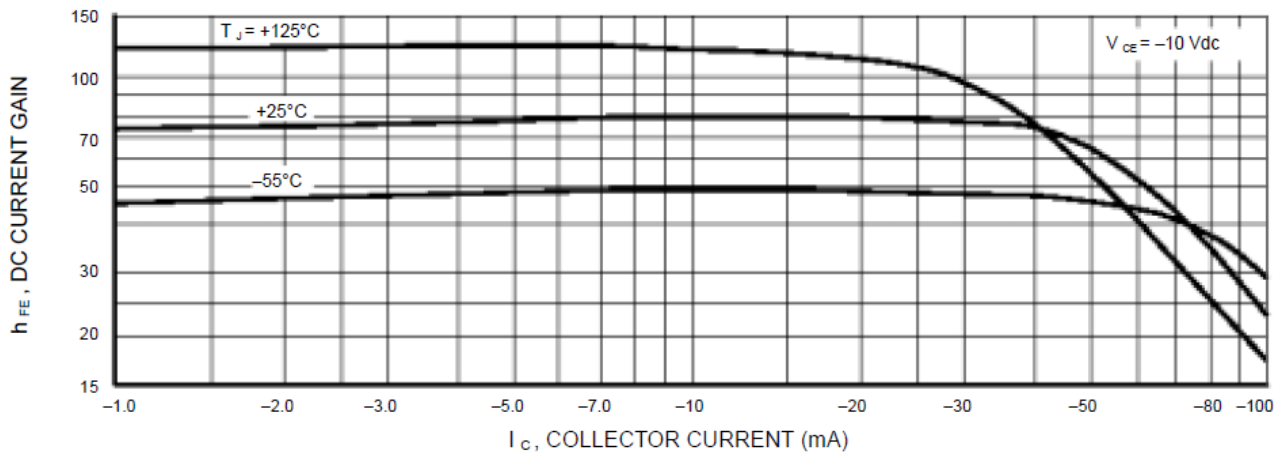


Figure 2. Capacitance

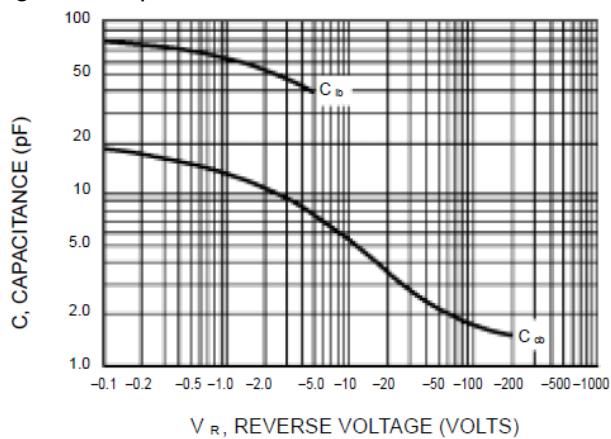


Figure 3. Current-Gain-Bandwidth Product

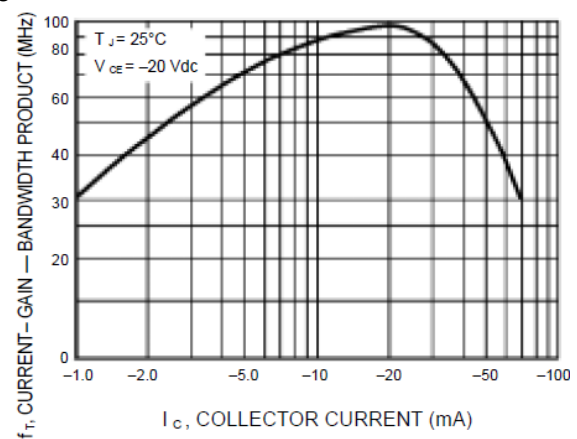
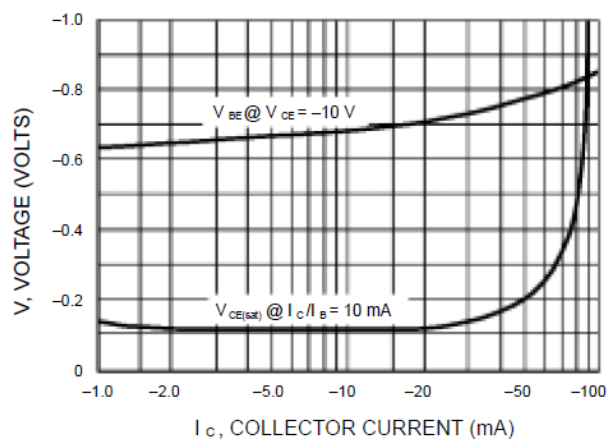


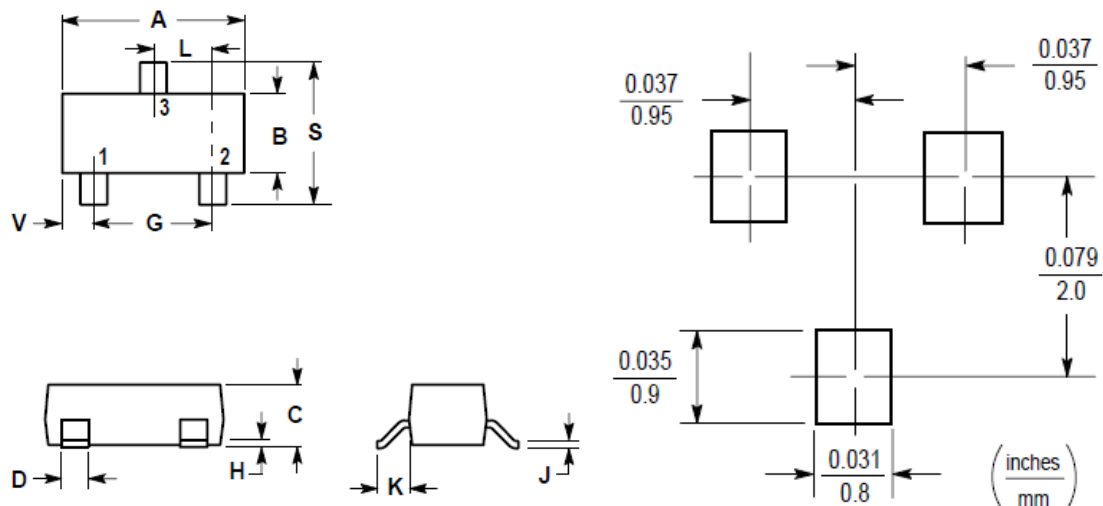
Figure 4. "On" Voltages





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



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