

MMBTA43-TP Datasheet

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DiGi Electronics Part Number	MMBTA43-TP-DG
Manufacturer	Micro Commercial Co
Manufacturer Product Number	MMBTA43-TP
Description	Interface
Detailed Description	Bipolar (BJT) Transistor NPN 200 V 500 mA 50MHz 25 mW Surface Mount SOT-23

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Purchase and inquiry

Manufacturer Product Number:

MMBTA43-TP

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

200 V

Current - Collector Cutoff (Max):

100nA (ICBO)

Power - Max:

225 mW

Operating Temperature:

-55°C ~ 150°C (TJ)

Package / Case:

TO-236-3, SC-59, SOT-23-3

Base Product Number:

MMBTA43

Manufacturer:

Micro Commercial Co

Product Status:

Active

Current - Collector (Ic) (Max):

500 mA

Vce Saturation (Max) @ Ib, Ic:

500mV @ 2mA, 20mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

40 @ 30mA, 10V

Frequency - Transition:

50MHz

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-23

Environmental & Export classification

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0095

ECCN:

EAR99

Features

- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 556°C/W Junction to Ambient^(Note 2)
- Thermal Resistance: 417°C/W Junction to Ambient^(Note 3)

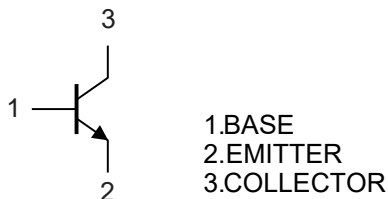
Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	200	V
Collector-Emitter Voltage	V_{CEO}	200	V
Emitter-Base Voltage	V_{EBO}	6	V
Continuous Collector Current	I_C	500	mA
Power Dissipation ^(Note 2)	P_D	225	mW
Power Dissipation ^(Note 3)	P_D	300	mW

Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Device Mounted on FR-5 Board.
3. Device with Alumina Substrate.

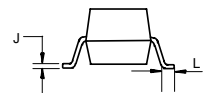
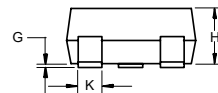
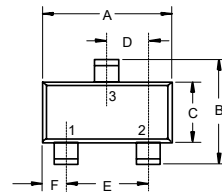
Marking: ABX

Internal Structure



NPN Silicon High Voltage Transistor

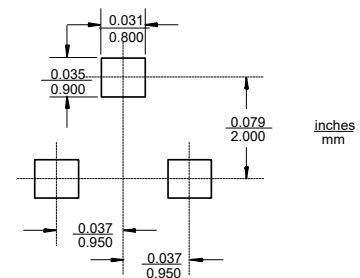
SOT-23



DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



Electrical Characteristics @ $T_A=25^\circ\text{C}$ Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	200			V	$I_C=100\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage*	$V_{(BR)CEO}$	200			V	$I_C=1\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6			V	$I_E=100\mu\text{A}, I_C=0$
Collector Cutoff Current	I_{CBO}			0.1	μA	$V_{CB}=160\text{V}, I_E=0$
Emitter Cutoff Current	I_{EBO}			0.1	μA	$V_{EB}=4\text{V}, I_C=0$
DC Current Gain*	$h_{FE(1)}$	25				$V_{CE}=10\text{V}, I_C=1\text{mA}$
	$h_{FE(2)}$	40				$V_{CE}=10\text{V}, I_C=10\text{mA}$
	$h_{FE(3)}$	40				$V_{CE}=10\text{V}, I_C=30\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.5	V	$I_C=20\text{mA}, I_B=2\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9	V	$I_C=20\text{mA}, I_B=2\text{mA}$
Transition Frequency	f_T	50			MHz	$V_{CE}=20\text{V}, I_C=10\text{mA}, f=100\text{MHz}$
Collector output Capacitance	C_{cb}			4	pF	$V_{CB}=20\text{V}, I_E=0, f=1\text{MHz}$

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

Curve Characteristics

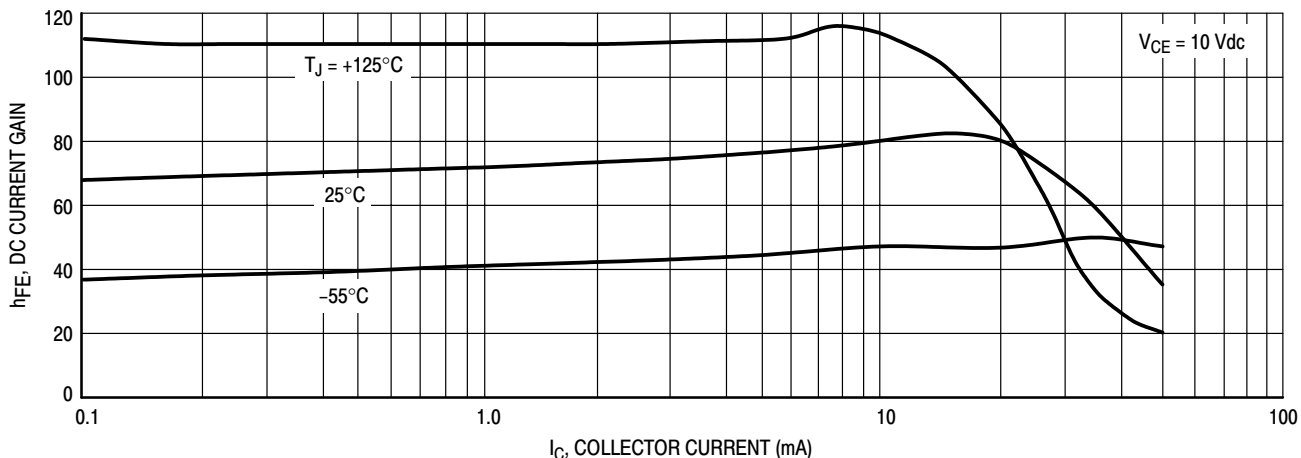


Figure 1. DC Current Gain

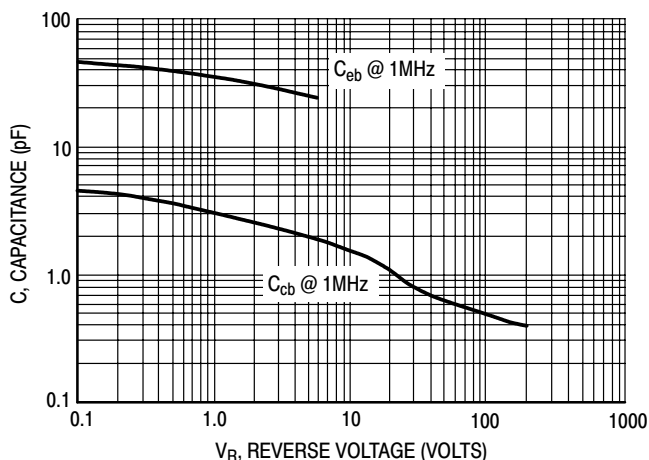


Figure 2. Capacitance

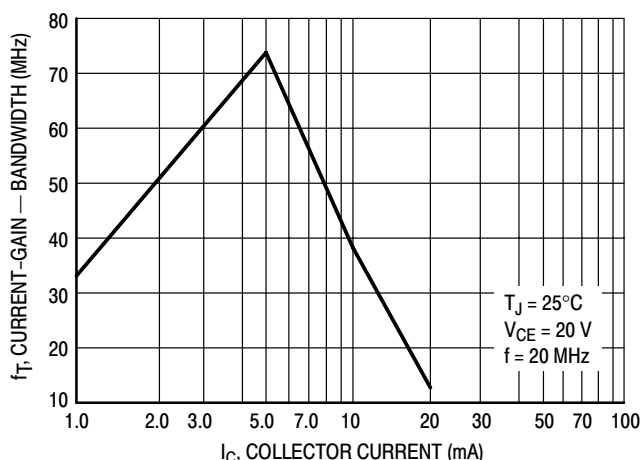


Figure 3. Current-Gain - Bandwidth

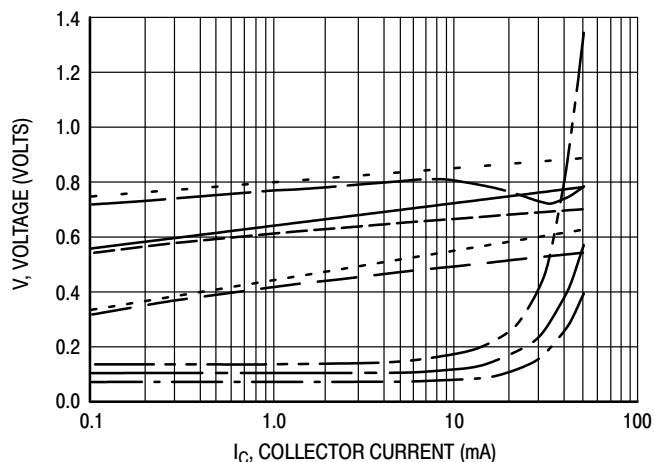


Figure 4. "ON" Voltages

- $V_{CE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(on)}$ @ 25°C , $V_{CE} = 10\text{ V}$
- $V_{BE(on)}$ @ 125°C , $V_{CE} = 10\text{ V}$
- $V_{BE(on)}$ @ -55°C , $V_{CE} = 10\text{ V}$

Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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