

MMBTA42,MMBTA43

NPN Silicon General Purpose Transistors



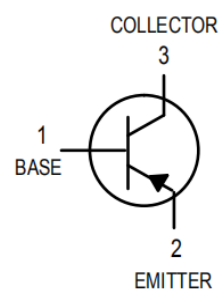
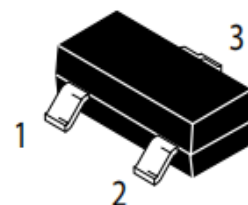
VOLTAGE 300 Volts **CURRENT** 0.5 Amperes **SOT-23** Unit:Inch(mm)

FEATURES

- High current capacity in compact package. $I_C = 0.5$ A.
- Epitaxial planar type.
- Pb-Free Package is available.

DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
MMBTA42	1D	3000/Tape&Reel
MMBTA43	M1E	3000/Tape&Reel



Maximum Ratings

Rating	Symbol	MMBTA42	MMBTA43	Unit
Collector-Emitter Voltage	V_{CEO}	300	200	V
Collector-Base Voltage	V_{CBO}	300	200	V
Emitter-Base Voltage	V_{EBO}	6.0	6.0	V
Collector Current	I_C	500	500	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (Note 1) $T_A = 25^\circ\text{C}$	PD	225	mW
Derate above 25°C		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation FR-5 Board, (Note 1) Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$	PD	300	mW
Derate above 25°C		2.4	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	$^\circ\text{C}$

Note: 1. FR-5 = 1.0 x 0.75 x 0.062 in.

2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.



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ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector-Emitter Breakdown Voltage(Note 3) (IC=1.0mA, IB=0)	$V_{(BR)CEO}$ MMBTA42	300	-	-	Vdc
	MMBTA43	200	-	-	
Collector-Base Breakdown Voltage (IC=100µA, IE=0)	$V_{(BR)CBO}$ MMBTA42	300	-	-	Vdc
	MMBTA43	200	-	-	
Emitter-Base Breakdown Voltage (IE=100µA, IC=0)	$V_{(BR)EBO}$	6.0	-	-	Vdc
Collector Cutoff Current (VCB=200Vdc, IE=0) (VCB=160Vdc, IE=0)	I_{CBO} MMBTA42	-	-	100	nA
	MMBTA43	-	-	100	
Emitter Cutoff Current (VEB=6Vdc, IC=0) (VEB=4Vdc, IC=0)	I_{EBO} MMBTA42	-	-	100	nA
	MMBTA43	-	-	100	
DC Current Gain (IC=1mA, VCE=10Vdc) (IC=10mA, VCE=10Vdc) (IC=30mA, VCE=10Vdc)	h_{FE}	25	-	-	
		40	-	300	
		40	-	-	
Collector-Emitter Saturation Voltage (IC=20mA, IB=2mA)	$V_{CE(S)}$	-	-	0.5	Vdc
Base-Emitter Saturation Voltage (IC=20mA, IB=2mA)	$V_{BE(S)}$	-	-	0.9	Vdc
Current-Gain-Bandwidth Product (IC=10mA, VCE=20Vdc, f=100MHz)	fT	50	-	-	MHz
Collector-Base Capacitance(VCB=20.0Vdc, IE=0, f=1.0MHz)	C_{cb} MMBTA42	-	-	3	pF
	MMBTA43	-	-	4	

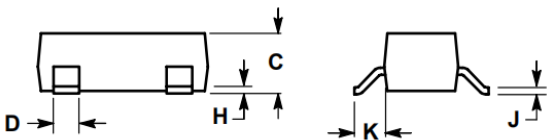
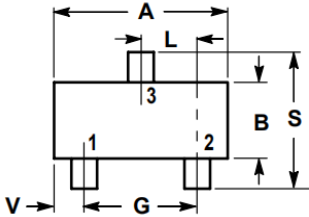
Note: 3. Pulse Width<300us; Duty Cycle<2.0%.

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OUTLINE DRAWINGS



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

PIN 1. BASE
2. EMITTER
3. COLLECTOR

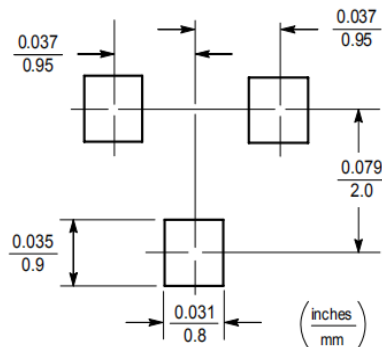
SOT-23

MOUNTING PAD LAYOUT

DO-214AA(SMB)

Unit: inch(mm)

PIN 1. BASE
2. EMITTER
3. COLLECTOR



Packing Information

Product code	Pack	Reel Size (mm)	Quantity(pcs/reel)	Carton SizeLxWxH(mm)	Quantity(reek/carton)
SOT-23	T/R	Φ330	3000	364x364x360	16