

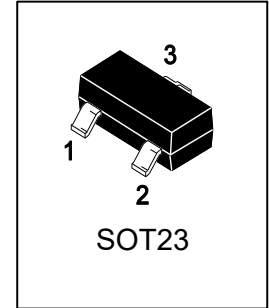
MBTA42

S-MBTA42

High Voltage Transistors

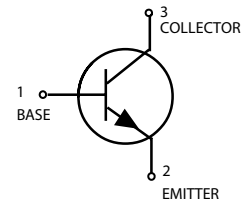
1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



2. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
MBTA42	1D	3000/Tape&Reel



3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	VCEO	300	V
Collector–Base Voltage	VCBO	300	V
Emitter–Base Voltage	VEBO	6	V
Collector Current	IC	500	mA

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR-5 Board (Note 1) @ TA = 25°C Derate above 25°C	PD	225 1.8	mW mW/°C
Thermal Resistance, Junction–to–Ambient	RθJA	556	°C/W
Total Device Dissipation, Alumina Substrate, (Note 2)@ TA = 25°C Derate above 25°C	PD	300 2.4	mW mW/°C
Thermal Resistance, Junction–to–Ambient	RθJA	417	°C/W
Junction and Storage temperature	TJ, Tstg	-55~+150	°C

1. FR-5 = 1.0×0.75×0.062 in.
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

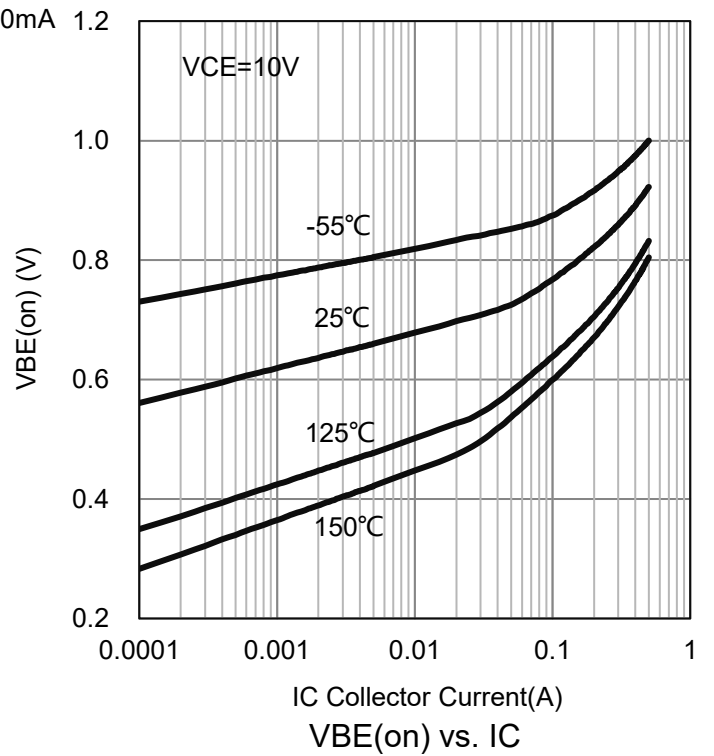
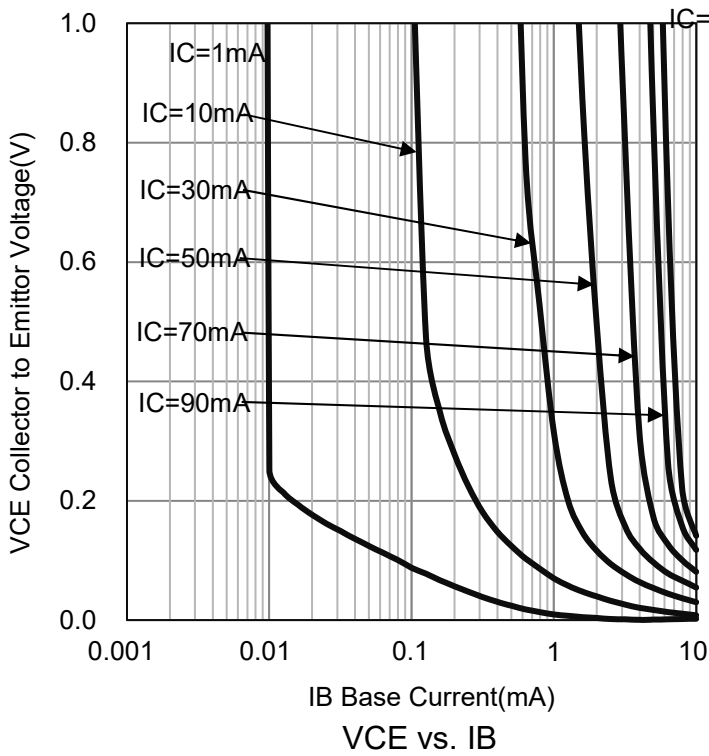
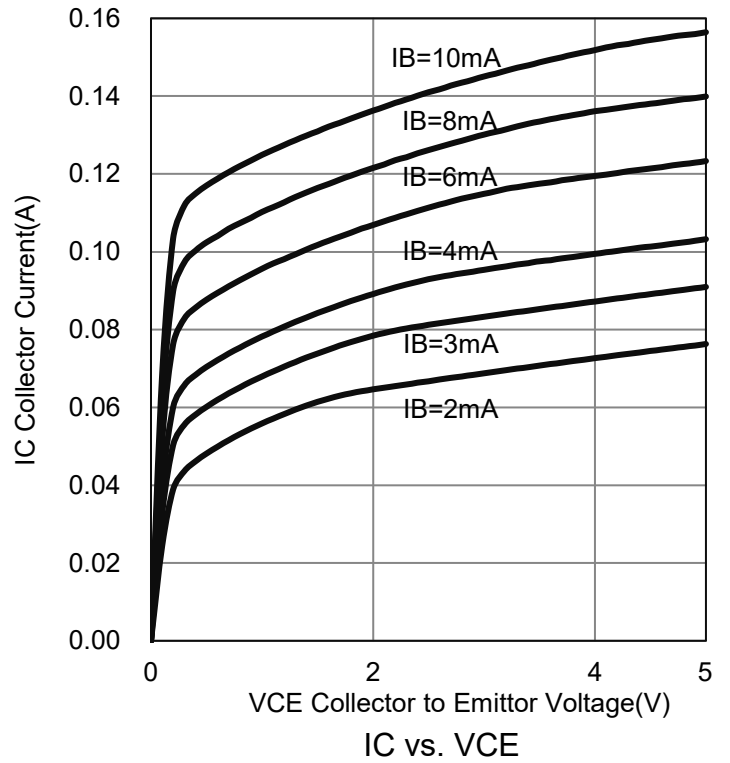
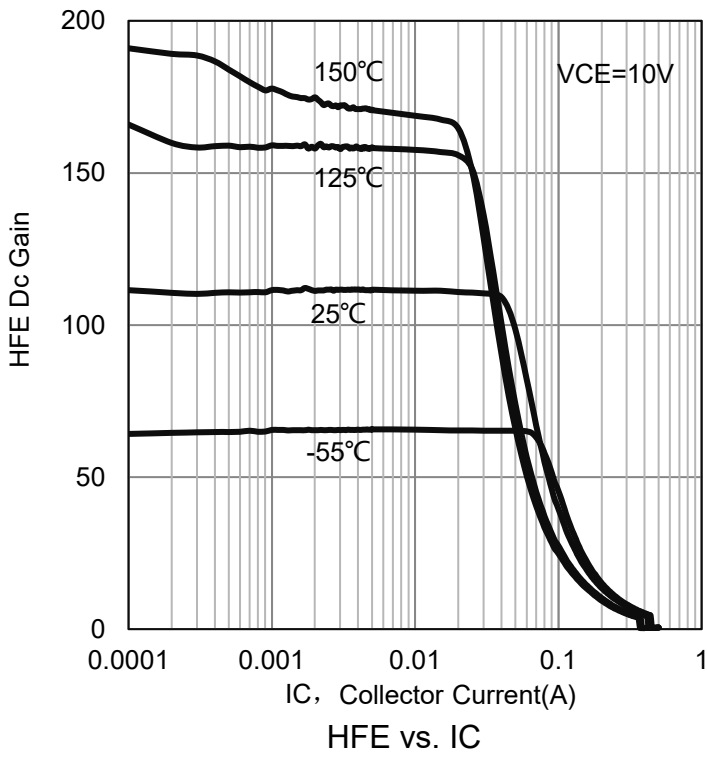


5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

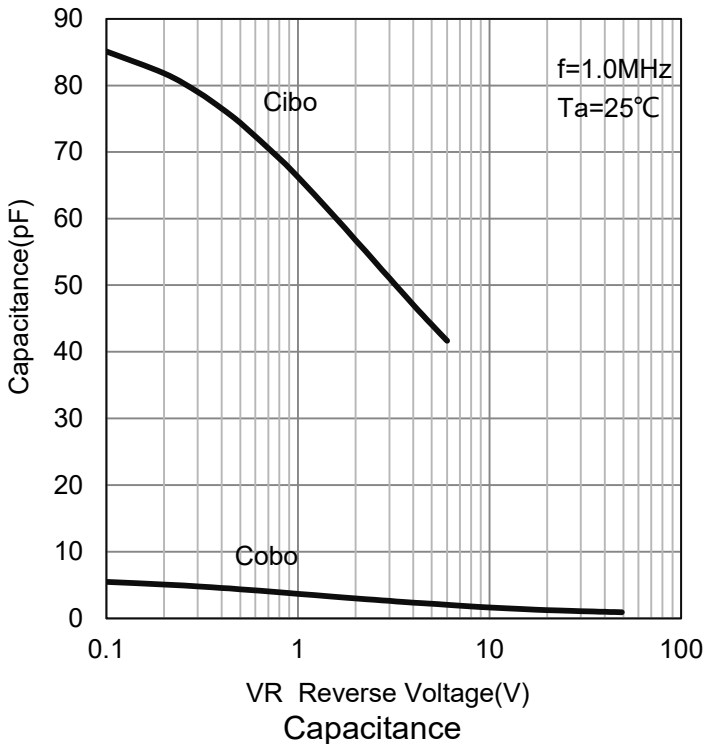
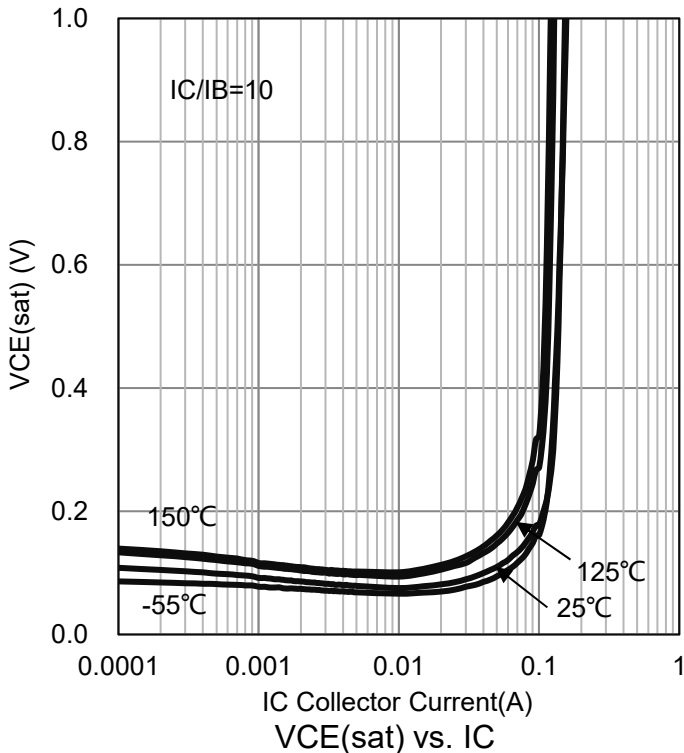
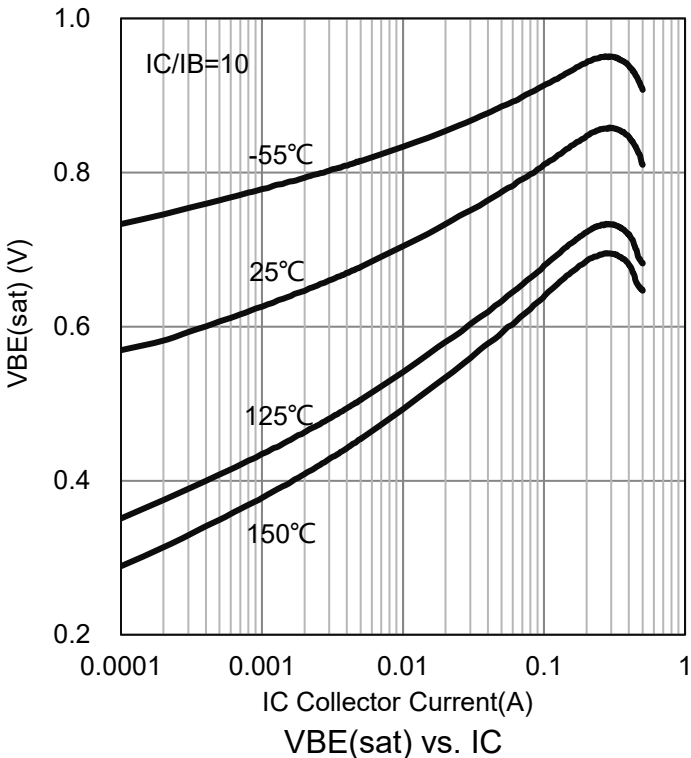
Characteristic	Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage(Note 3) (IC = 1.0 mA, IB = 0)	VBR(CEO)	300	-	-	V
Collector–Base Breakdown Voltage (IC = 100 μA, IE = 0)	VBR(CBO)	300	-	-	V
Emitter–Base Breakdown Voltage (IE = 100 μA, IC = 0)	VBR(EBO)	6	-	-	V
Collector Cutoff Current (VCB = 200V, IE = 0)	ICBO	-	-	0.1	μA
Emitter Cutoff Current (VEB = 6.0 V, IC = 0)	IEBO	-	-	0.1	μA
ON CHARACTERISTICS (Note 3)					
DC Current Gain (IC = 1.0 mA, VCE = 10 V) (IC = 10 mA, VCE = 10 V) (IC = 30 mA, VCE = 10 V)	HFE	25 40 40	- - -	- - -	
Collector–Emitter Saturation Voltage (IC = 20 mA, IB = 2.0 mA)	VCE(sat)	-	-	0.5	V
Base-emitter sataration voltage (IC = 20 mA, IB = 2.0 mA)	VBE(sat)	-	-	0.9	V
SMALL–SIGNAL CHARACTERISTICS					
Transition frequency (VCE = 20 V, IC = 10mA, f = 100 MHz)	fT	50	-	-	MHz
Collector – Base Capacitance (VCB = 20 V, IE = 0, f = 1.0 MHz)	Ccb	-	-	3	pF

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


6.ELECTRICAL CHARACTERISTICS CURVES



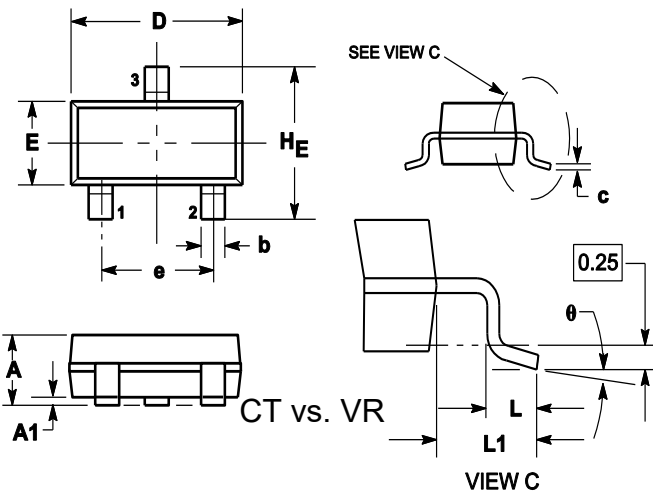
6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



7.OUTLINE AND DIMENSIONS

Notes:

- 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- 2. CONTROLLING DIMENSION: MILLIMETERS.
- 3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
- 4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

8.SOLDERING FOOTPRINT

