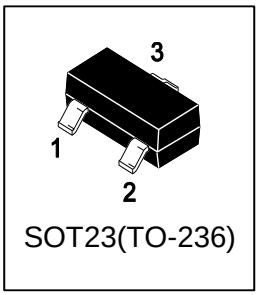
LMBTA42LT1G
S-LMBTA42LT1G

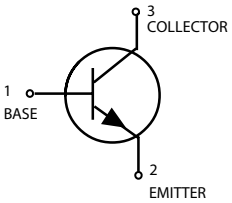
HighVoltageTransistors



SOT23(TO-236)

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
LMBTA42LT1G	1D	3000/Tape&Reel
LMBTA42LT3G	1D	10000/Tape&Reel

3. MAXIMUM RATINGS(Ta = 25ºC)

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 = 25ºC Derate above 25ºC	PD	225 1.8	mW mW/℃
Thermal Resistance, Junction–to–Ambient	RΘJA	556	℃/W
Total Device Dissipation, Alumina Substrate, (Note 2)@ TA = 25ºC Derate above 25ºC	PD	300 2.4	mW mW/℃
Thermal Resistance, Junction–to–Ambient	RΘJA	417	℃/W
Junction and Storage temperature	TJ,Tstg	−55~+150	℃

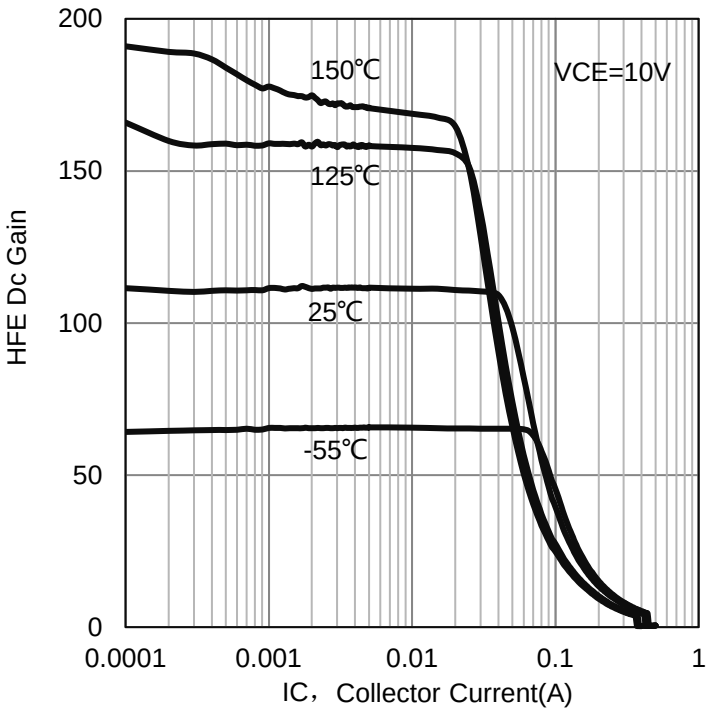
1. FR–5 = 1.0×0.75×0.062 in.
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

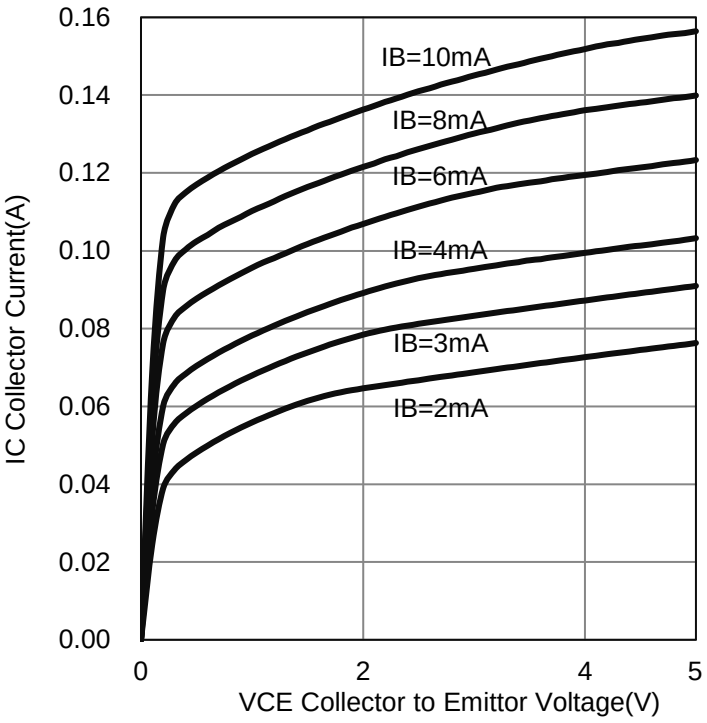
Characteristic	Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage(Note 3) (IC = 1.0 mA, IB = 0)	VBR(CEO)	300	-	-	V
Collector–Base Breakdown Voltage (IC = 100 μA, IE = 0)	VBR(CBO)	300	-	-	V
Emitter–Base Breakdown Voltage (IE = 100 μA, IC = 0)	VBR(EBO)	6	-	-	V
Collector 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 ≤ 300 μs, Duty Cycle ≤ 2.0%.

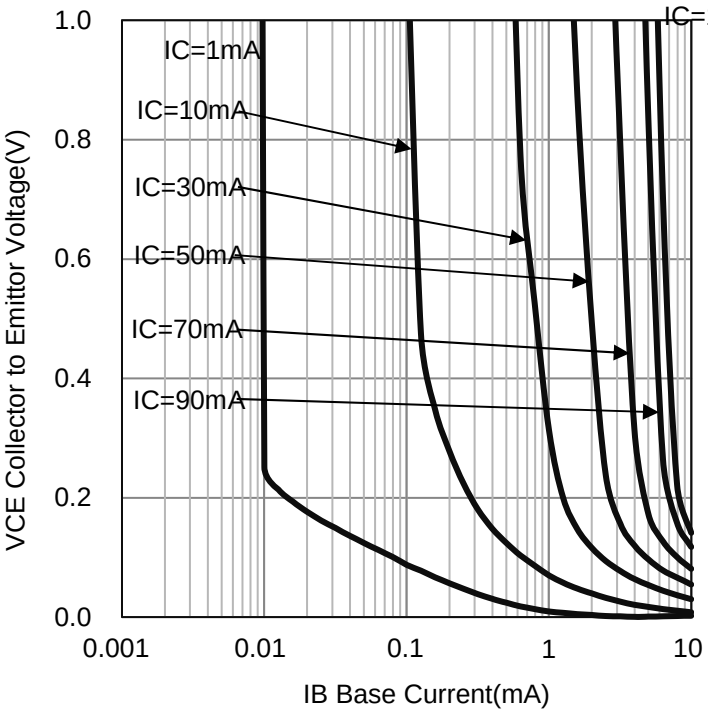
6.ELECTRICAL CHARACTERISTICS CURVES



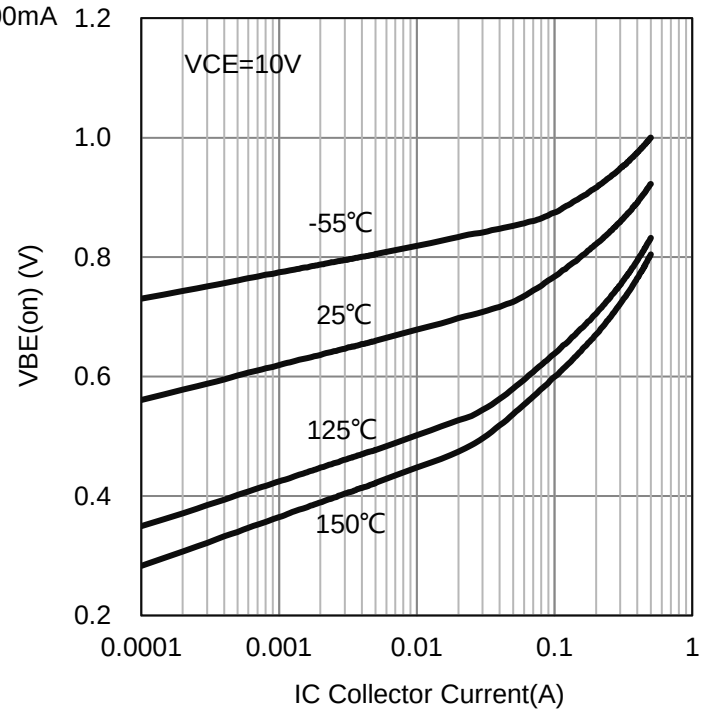
HFE vs. IC



IC vs. VCE

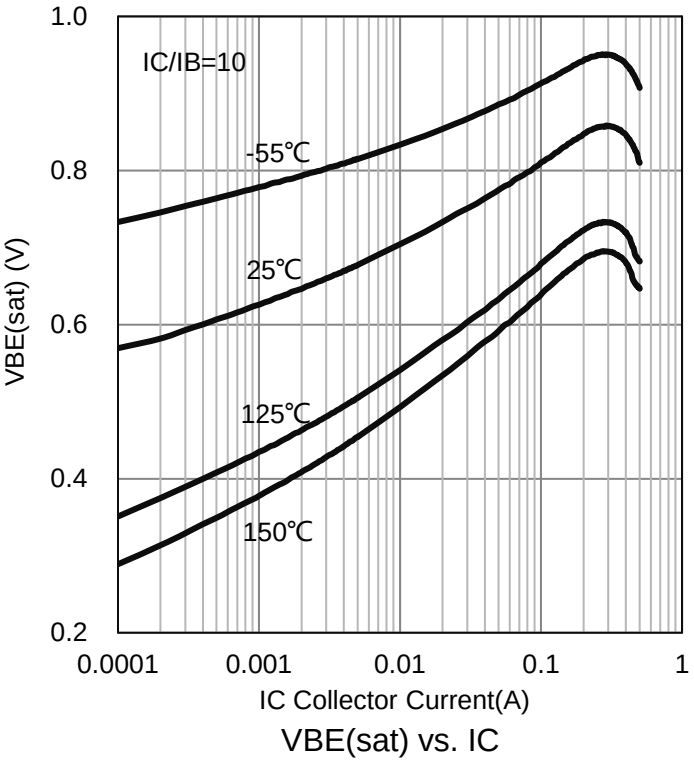


VCE vs. IB

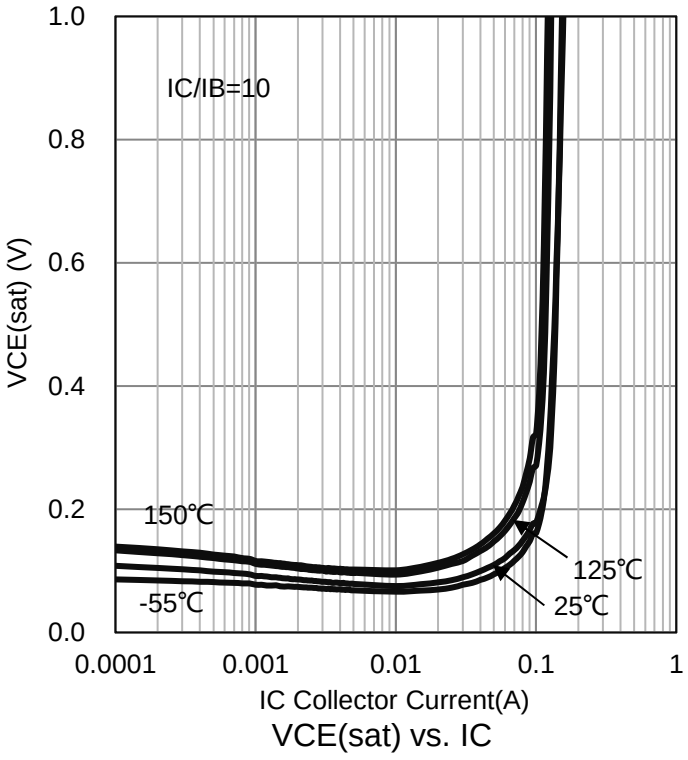


VBE(on) vs. IC

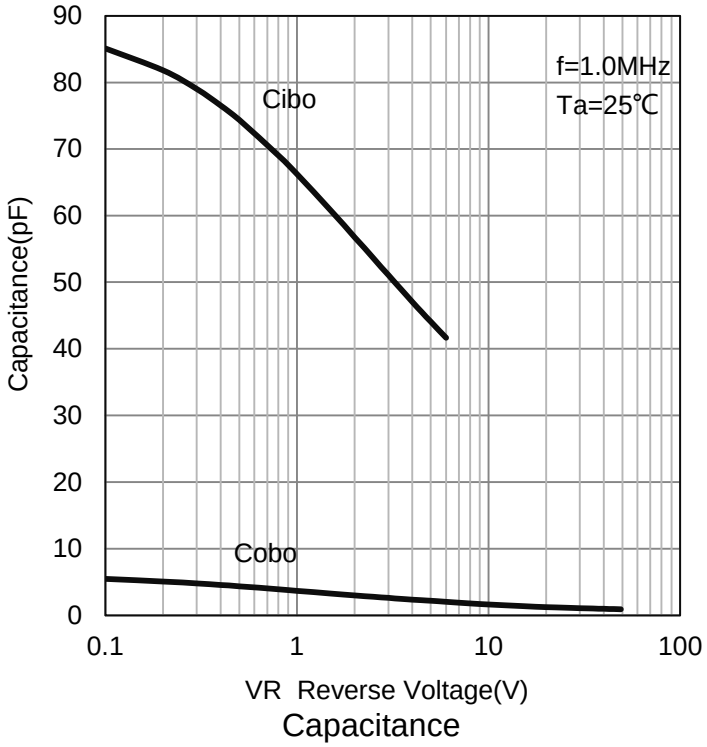
6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



VBE(sat) vs. IC

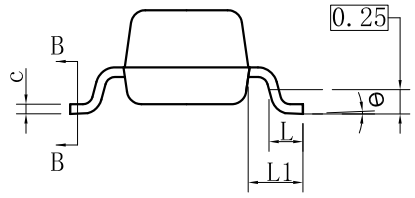


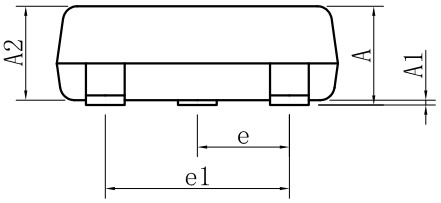
VCE(sat) vs. IC

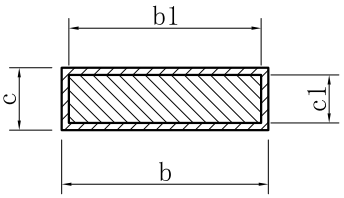


Capacitance

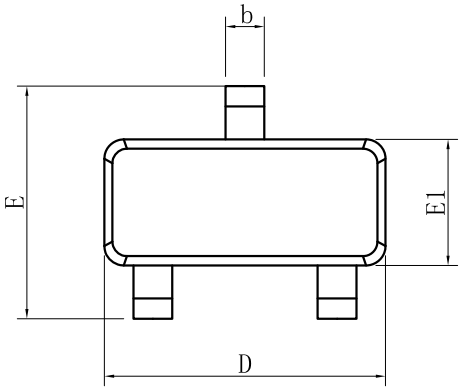
7.OUTLINE AND DIMENSIONS







SECTION B-B

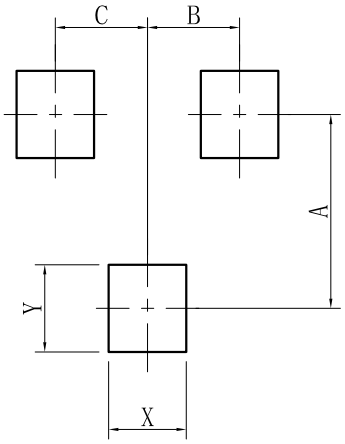


SOT23			
DIM	MIN	NOR	MAX
A	0.89	-	1.12
A1	0.01	-	0.10
A2	0.88	0.95	1.02
b	0.30	-	0.50
b1	0.30	0.40	0.45
c	0.08	-	0.20
c1	0.08	0.10	0.16
D	2.80	2.90	3.04
E	2.10	-	2.64
E1	1.20	1.30	1.40
e	0.95BSC		
e1	1.90BSC		
L	0.40	0.46	0.60
L1	0.54REF		
θ	0°	-	8°
All Dimensions in mm			

GENERAL NOTES

1. Top package surface finish Ra0.4±0.2um
2. Bottom package surface finish Ra0.7±0.2um
3. Side package surface finish Ra0.4±0.2um

8.SOLDERING FOOTPRINT



SOT-23	
DIM	(mm)
X	0.80
Y	0.90
A	2.00
B	0.95
C	0.95

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.

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