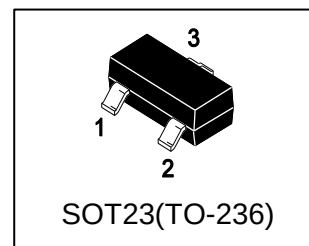


LMBT3904LT1G

General Purpose Transistors NPN Silicon

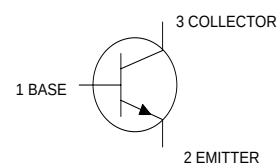
1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.



2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LMBT3904LT1G	1AM	3000/Tape&Reel
LMBT3904LT3G	1AM	13000/Tape&Reel



3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	VCEO	40	V
Collector–Base Voltage	VCBO	60	V
Emitter–Base Voltage	VEBO	6	V
Collector Current — Continuous	IC	200	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(Note 1)	RθJA	556	°C/W
Junction–to–Case(Note 1)	RθJC	300	°C/W
Junction and Storage temperature	TJ,Tstg	–55~+150	°C

1. FR-5 = 1.0×0.75×0.062 in.

5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector–Emitter Breakdown Voltage (IC = 1.0 mA, IB = 0)	VBR(CEO)	40	-	-	V
Collector–Base Breakdown Voltage (IC = 10 μ A, IE = 0)	VBR(CBO)	60	-	-	V
Emitter–Base Breakdown Voltage (IE = 10 μ A, IC = 0)	VBR(EBO)	6	-	-	V
Collector Cutoff Current (VCE = 30 V, VEB = 3.0V)	ICEX	-	-	50	nA
Base Cutoff Current (VCE = 30 Vdc, VEB = 3.0Vdc)	IBL	-	-	50	nA

ON CHARACTERISTICS (Note 2.)

DC Current Gain (IC = 0.1 mA, VCE = 1.0 V) (IC = 1.0 mA, VCE = 1.0 V) (IC = 10 mA, VCE = 1.0 V) (IC = 50 mA, VCE = 1.0 V) (IC = 100 mA, VCE = 1.0 V)	HFE	40 70 100 60 30	- - - - -	- - 300 - -	
Collector–Emitter Saturation Voltage (IC = 10 mA, IB = 1.0 mA) (IC = 50 mA, IB = 5.0 mA)	VCE(sat)	- -	- -	0.2 0.3	V
Base–Emitter Saturation Voltage (IC = 10 mA, IB = 1.0 mA) (IC = 50 mA, IB = 5.0 mA)	VBE(sat)	- -	- -	0.85 0.95	V

SMALL–SIGNAL CHARACTERISTICS

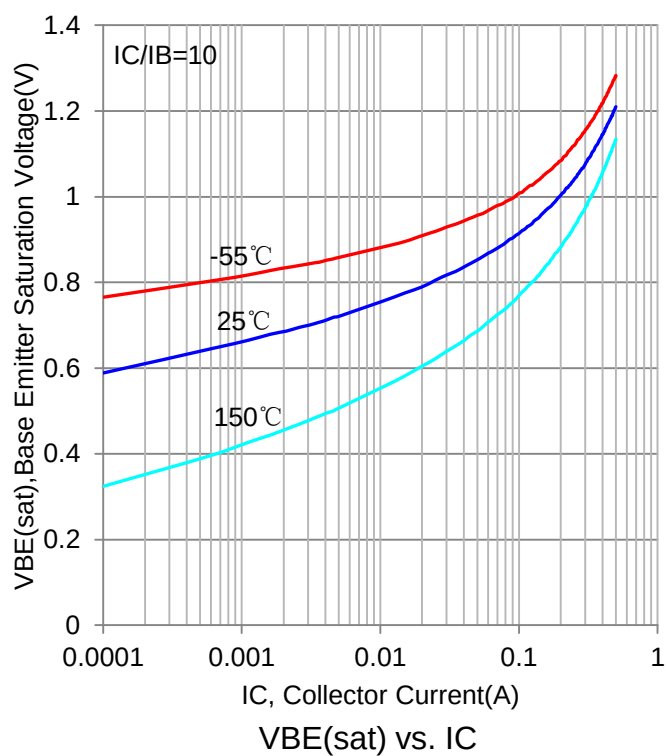
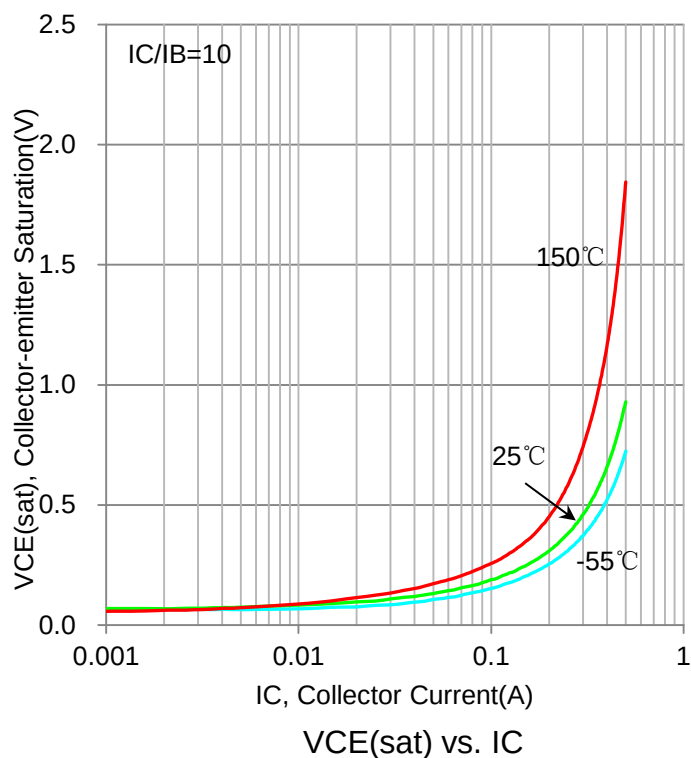
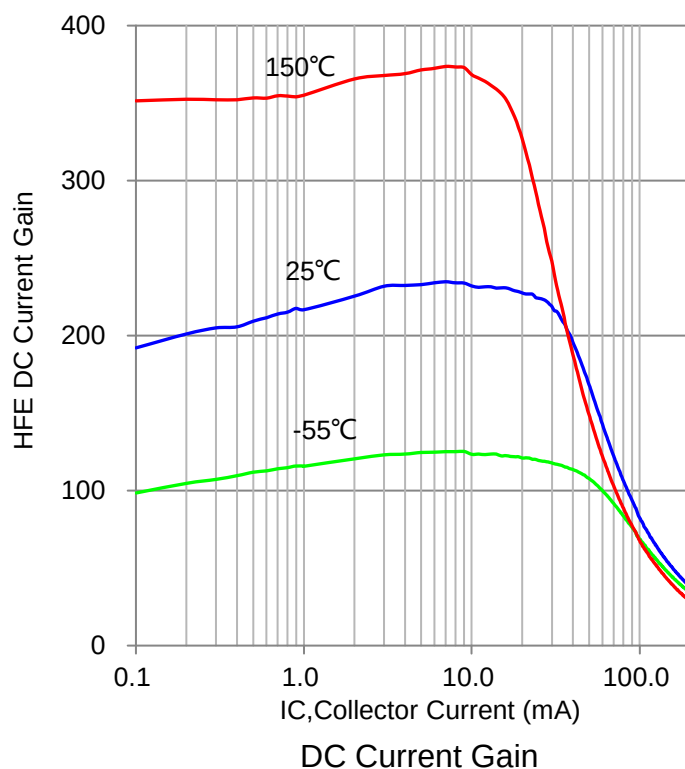
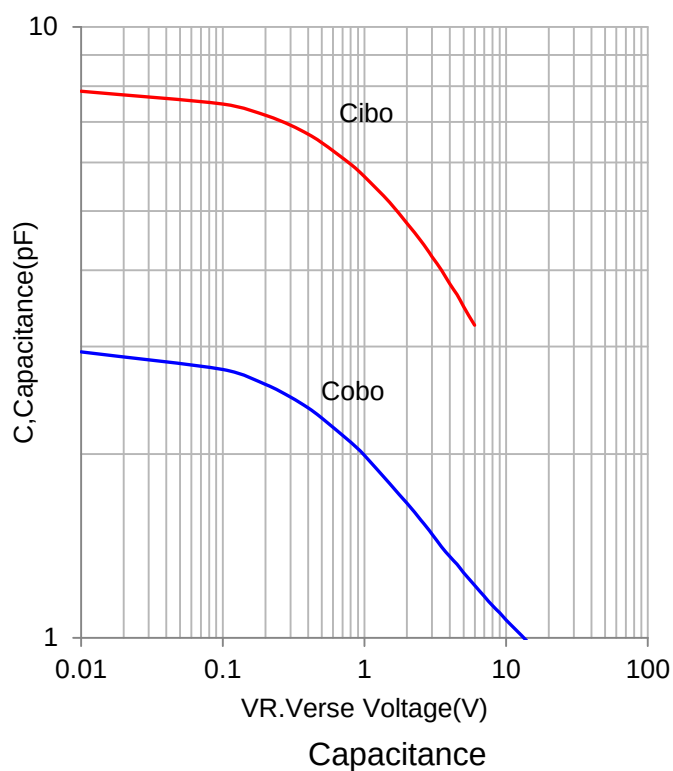
Current–Gain — Bandwidth Product (IC = 10mA, VCE= 20V, f = 100MHz)	fT	300	-	-	MHz
Output Capacitance (VCB = 5.0 V, IE = 0, f = 1.0 MHz)	Cobo	-	-	4	pF
Input Capacitance (VEB = 0.5 V, IC = 0, f = 1.0 MHz)	Cibo	-	-	8	pF

SWITCHING CHARACTERISTICS

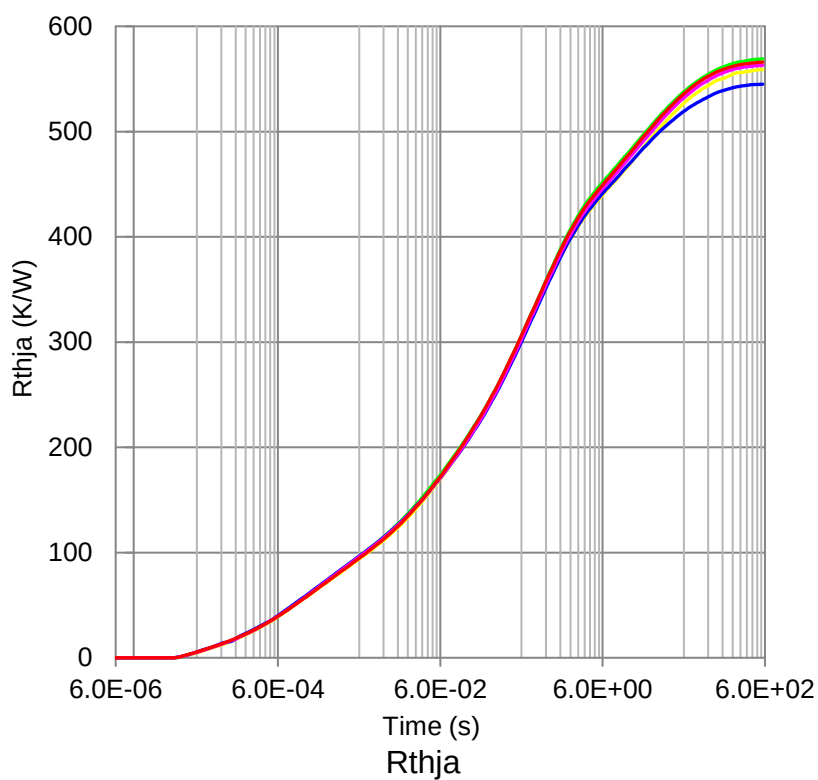
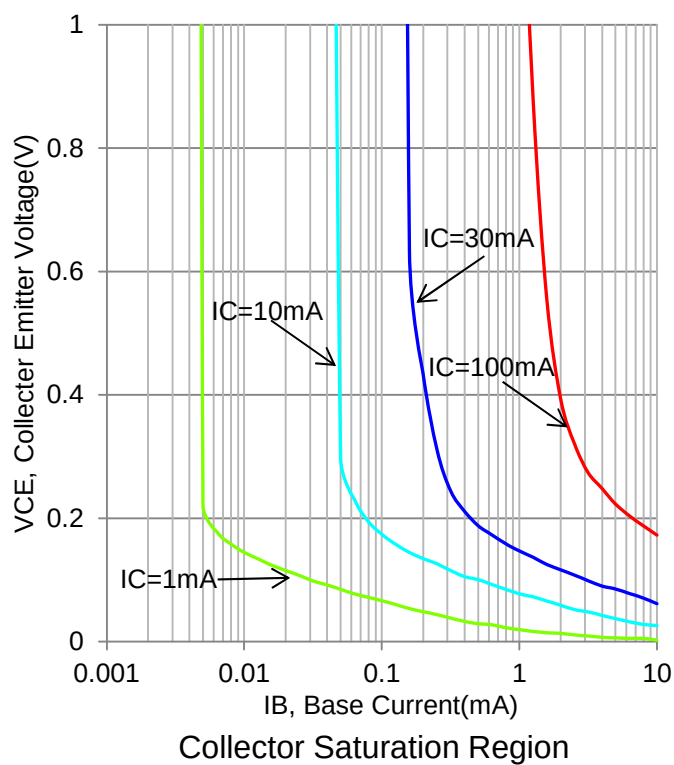
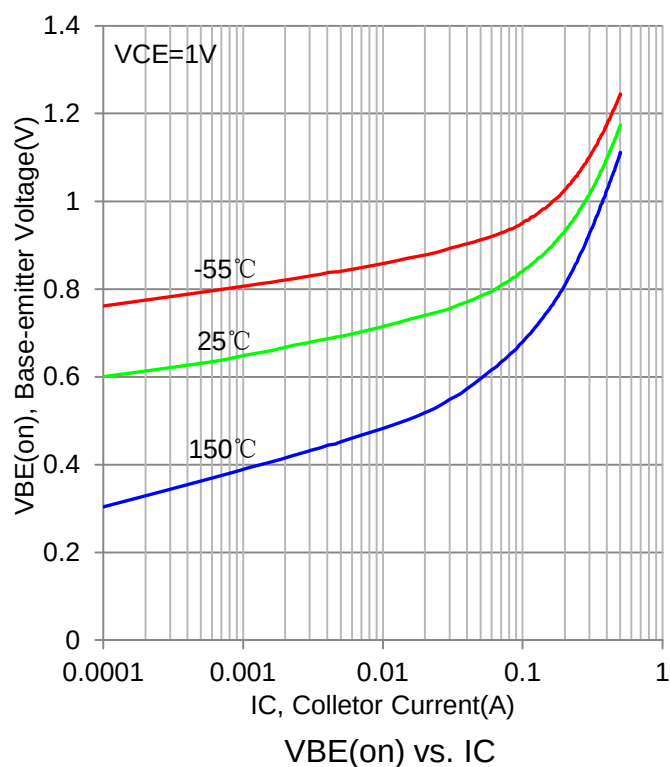
Delay Time	(VCC = 3.0 V, VBE=-0.5V, IC = 10mA, IB1 = 1.0 mA)	td	-	-	35	ns
Rise Time		tr	-	-	35	
Storage Time	(VCC = 3.0 V, IC = 10 mA, IB1 = IB2 = 1.0 mA)	ts	-	-	200	
Fall Time		tf	-	-	50	

2.Pulse Test: Pulse Width $\leq$ 300 μ s, Duty Cycle $\leq$ 2.0%.

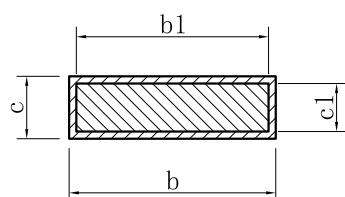
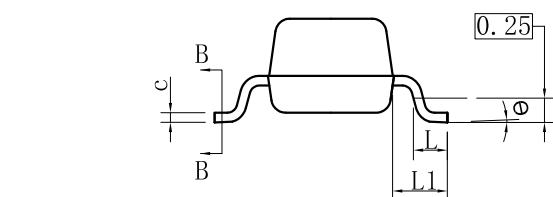
6. ELECTRICAL CHARACTERISTICS CURVES



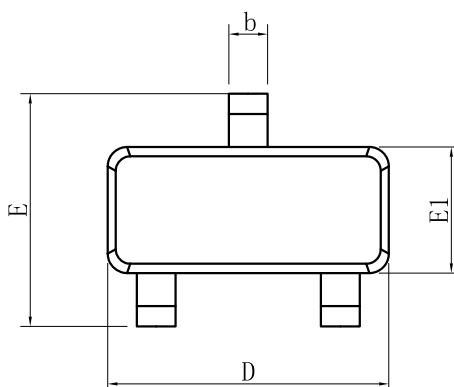
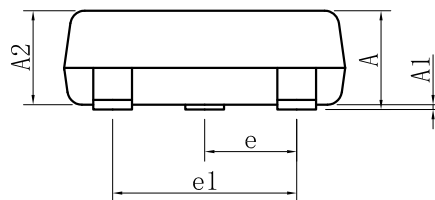
6. ELECTRICAL CHARACTERISTICS CURVES(Con.)



7.OUTLINE AND DIMENSIONS



SECTION B-B

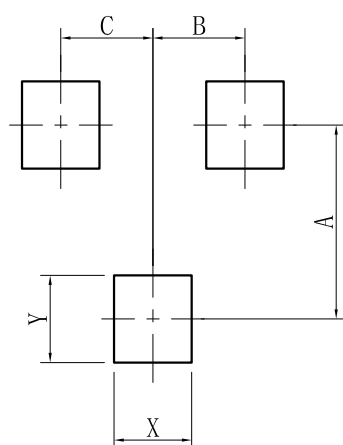


SOT23			
DIM	MIN	NOR	MAX
A	0.89	—	1.12
A1	0.01	—	0.10
A2	0.88	0.95	1.02
b	0.30	—	0.50
b1	0.30	0.40	0.45
c	0.08	—	0.20
c1	0.08	0.10	0.16
D	2.80	2.90	3.04
E	2.10	—	2.64
E1	1.20	1.30	1.40
e	0.95BSC		
e1	1.90BSC		
L	0.40	0.46	0.60
L1	0.54REF		
θ	0°	—	8°
All Dimensions in mm			

GENERAL NOTES

- 1.Top package surface finish $Ra0.4 \pm 0.2\mu m$
- 2.Bottom package surface finish $Ra0.7 \pm 0.2\mu m$
- 3.Side package surface finish $Ra0.4 \pm 0.2\mu m$

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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