

LMBT3904TT1G

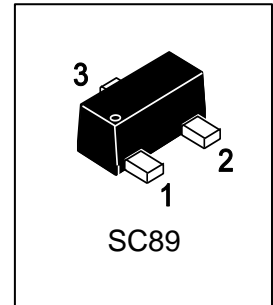
General Purpose Transistors NPN Silicon

1. FEATURES

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

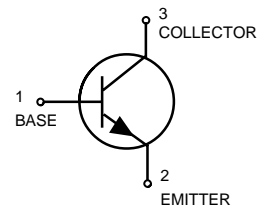
2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LMBT3904TT1G	MA	4000/Tape&Reel
LMBT3904TT3G	MA	10000/Tape&Reel



3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	V _{CEO}	40	V
Collector–Base Voltage	V _{CBO}	60	V
Emitter–Base Voltage	V _{EB0}	6	V
Collector Current — Continuous	I _C	200	mA



4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR-4 Board (Note 1) @ TA = 25°C Derate above 25°C	PD	200 1.6	mW mW/°C
Thermal Resistance, Junction–to–Ambient(Note 1)	R _{θJA}	600	°C/W
Total Device Dissipation, FR-4 Board (Note 2) @ TA = 25°C Derate above 25°C	PD	300 2.4	mW mW/°C
Thermal Resistance, Junction–to–Ambient(Note 2)	R _{θJA}	400	°C/W
Junction and Storage temperature	T _J ,T _{stg}	-55~+150	°C

1. FR-4 Minimum Pad.
2. FR-4 1.0 x 1.0 Inch Pad.

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 μA, IE = 0)	VBR(CBO)	60	-	-	V
Emitter–Base Breakdown Voltage (IE = 10 μA, IC = 0)	VBR(EBO)	6	-	-	V
Collector-Base cut-off current (VCB =60V,IE =0)	ICBO	-	-	100	nA
Emitter-Base cut-off current (VEB =6V,IC =0)	IEBO	-	-	100	nA
Collector-Emitter cutoff Current (VCE =40V,IB =0)	ICEO	-	-	10	μA
Collector Cutoff Current (VCE = 30 V, VEB = 3.0V)	ICEX	-	-	50	nA
Base Cutoff Current (VCE = 30 V, VEB = 3.0V)	IBL	-	-	50	nA

ON CHARACTERISTICS (Note 3.)

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

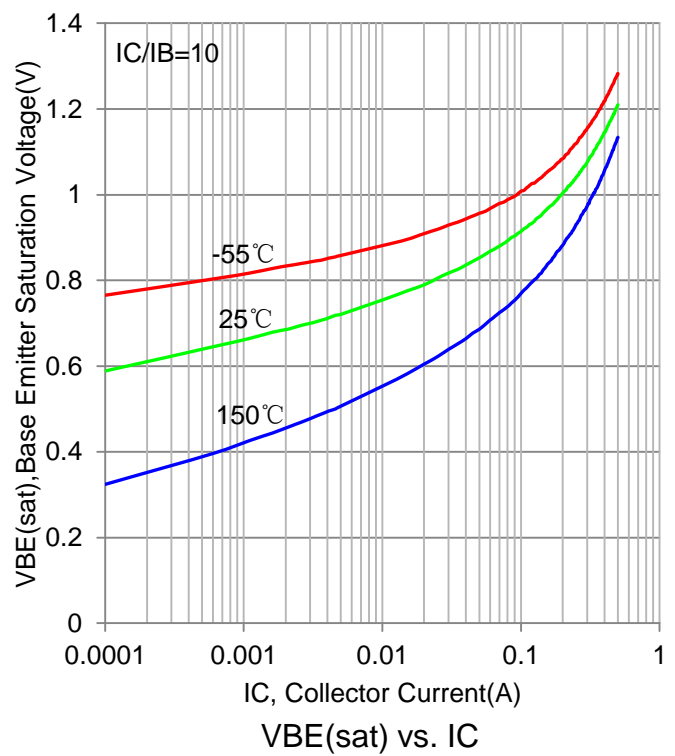
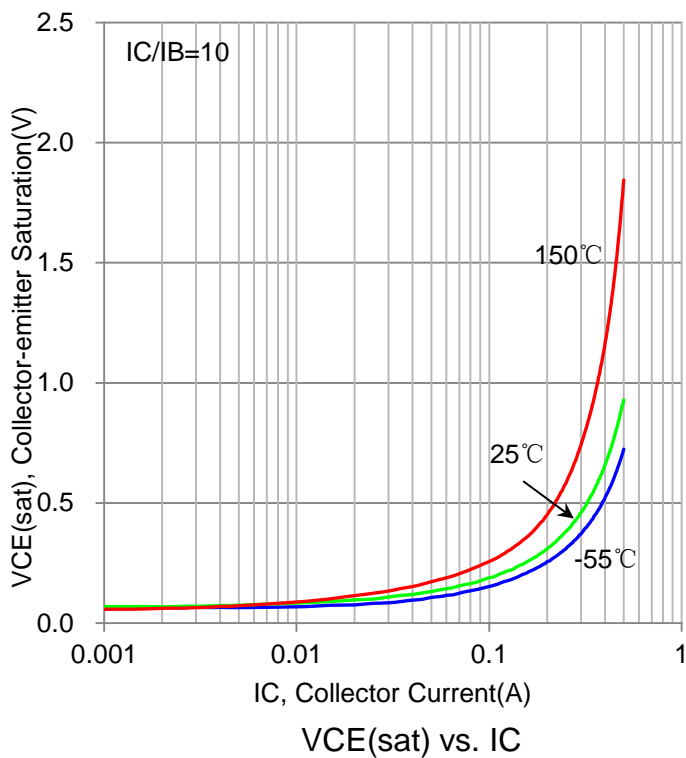
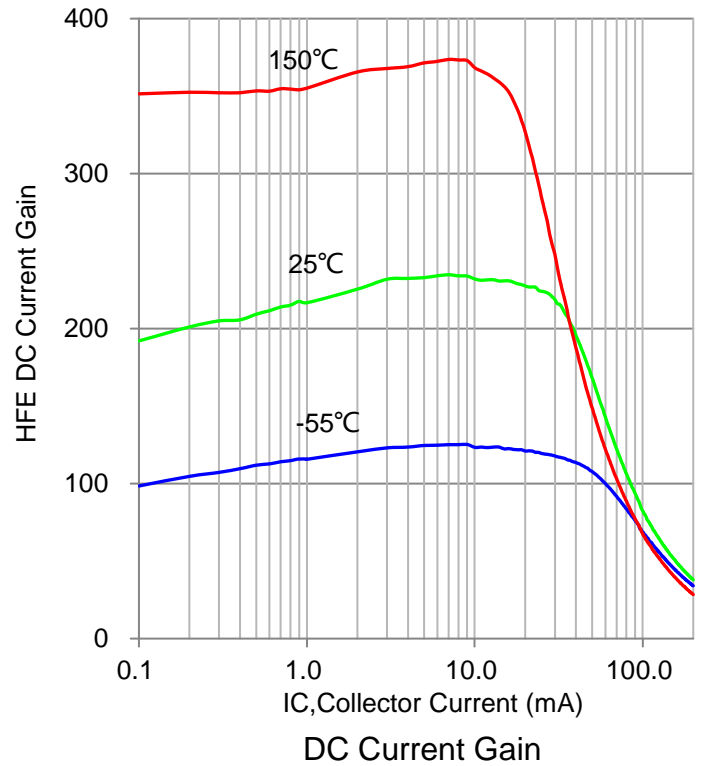
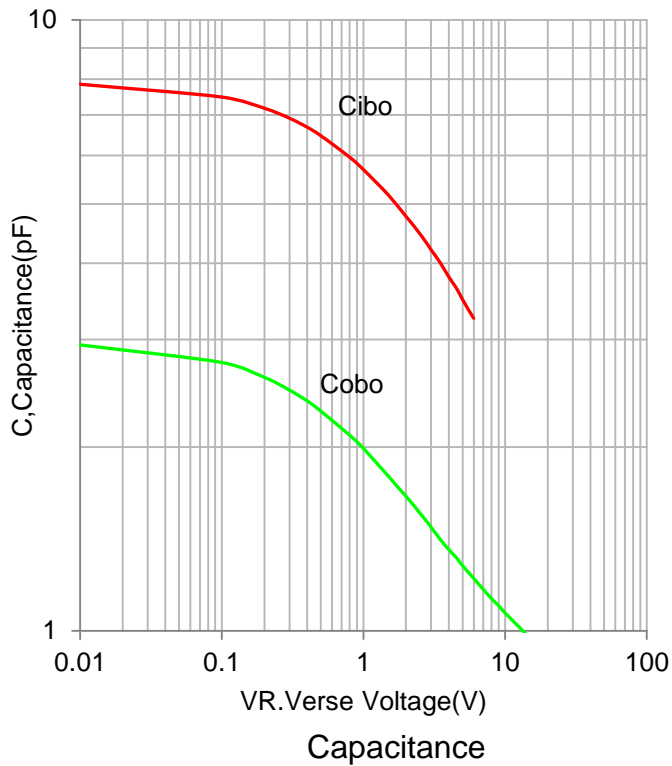
SMALL–SIGNAL CHARACTERISTICS

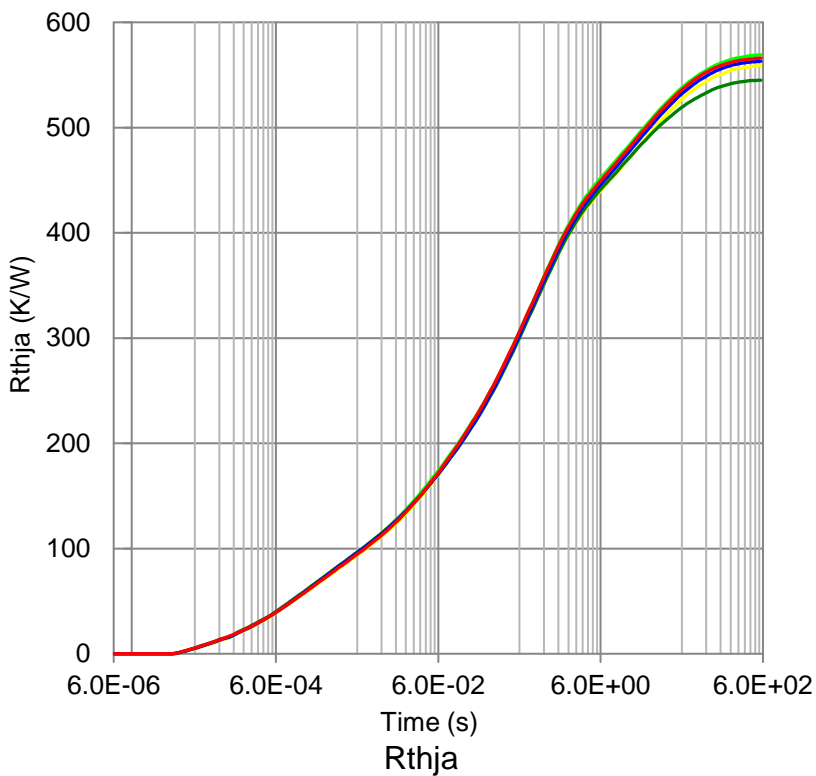
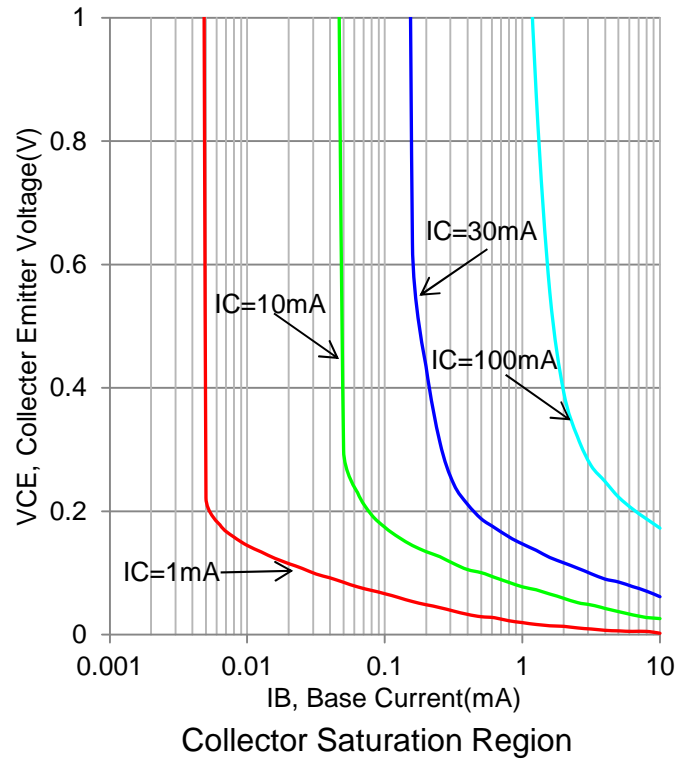
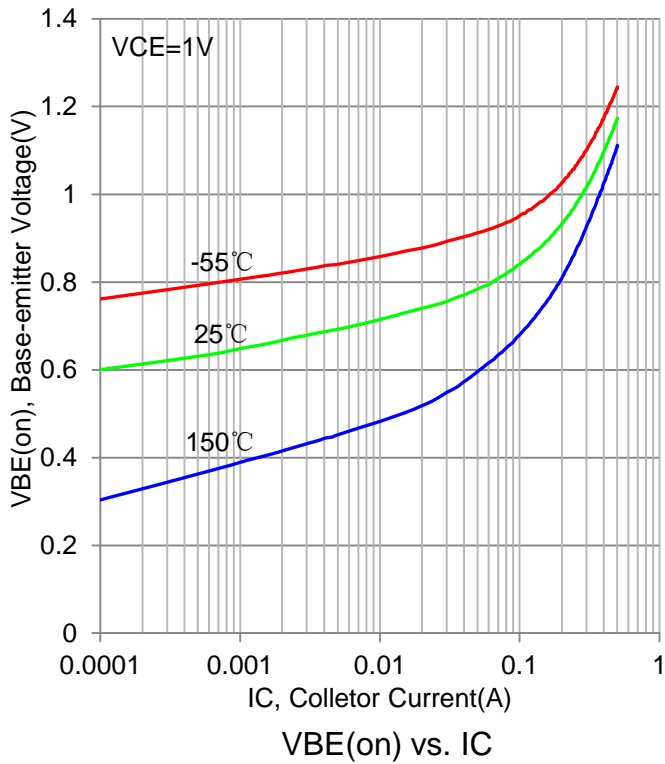
Current–Gain — Bandwidth Product (IC = 10mA, VCE= 20V, f = 100MHz)	fT	200	-	-	MHz
Output Capacitance (VCB = 5.0 V, IE = 0, f = 1.0 MHz)	Cobo	-	-	4	pF
Input Capacitance (VEB = 0.5 V, IC = 0, f = 1.0 MHz)	Cibo	-	-	8	pF

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		ts	-	-	200	
Fall Time		tf	-	-	50	

3.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

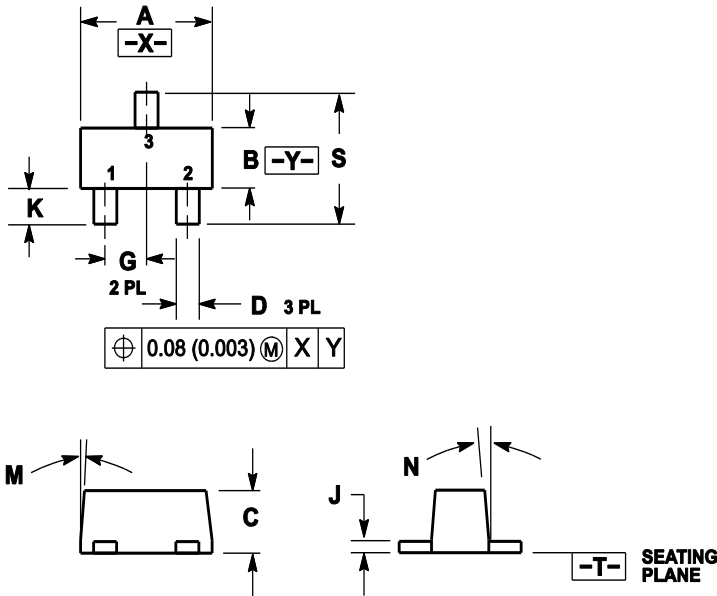
6. ELECTRICAL CHARACTERISTICS CURVES


6. ELECTRICAL CHARACTERISTICS CURVES(Con.)


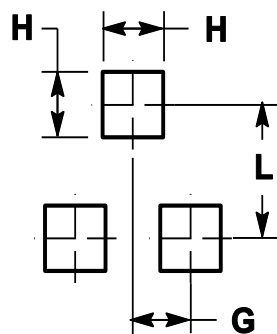
7. OUTLINE AND DIMENSIONS

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 A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.50	1.60	1.70	0.059	0.063	0.067
B	0.75	0.85	0.95	0.030	0.034	0.040
C	0.60	0.70	0.80	0.024	0.028	0.031
D	0.23	0.28	0.33	0.009	0.011	0.013
G	0.50BSC			0.020BSC		
H	0.53REF			0.021REF		
J	0.10	0.15	0.20	0.004	0.006	0.008
K	0.30	0.40	0.50	0.012	0.016	0.02
L	1.10REF			0.043REF		
M	---	---	10°	---	---	10°
N	---	---	10°	---	---	10°
S	1.50	1.60	1.70	0.059	0.063	0.067

8. SOLDERING FOOTPRINT


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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