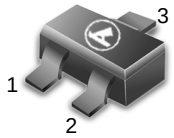
VHF/UHF Transistors

LMBTH10WT1G
S-LMBTH10WT1G

Featrues

- We declare that the material of product compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.



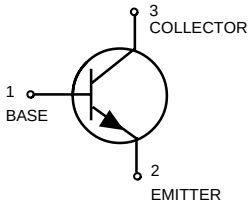
SC-70/SOT–323

ORDERING INFORMATION

Device	Marking	Shipping
LMBTH10WT1G S-LMBTH10WT1G	3E	3000/Tape&Reel
LMBTH10WT3G S-LMBTH10WT3G	3E	10000/Tape&Reel

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	25	Vdc
Collector–Base Voltage	V_{CBO}	30	Vdc
Emitter–Base Voltage	V_{EBO}	3.0	Vdc
Collector Current	I_C	50	mA



THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR- 5 Board (1) T_A=25 °C	P_D	150	mW
Derate above 25°C		1.2	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	°C/W
Total Device Dissipation Alumina Substrate, (2) T_A = 25°C	P_D	200	mW
Derate above 25°C		1.6	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	°C/W
Junction and Storage Temperature	T_J, T_{stg}	–55to+150	°C

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.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage (I_C = 1.0 mAdc, I_B= 0)	$V_{(BR)CEO}$	25	—	—	Vdc
Collector–Base Breakdown Voltage (I_C = 100 μAdc , I_E = 0)	$V_{(BR)CBO}$	30	—	—	Vdc
Emitter–Base Breakdown Voltage (I_E = 10 μAdc , I_C= 0)	$V_{(BR)EBO}$	3.0	—	—	Vdc
Collector Cutoff Current (V_{CB} = 25Vdc , I_E = 0)	I_{CBO}	—	—	100	nAdc
Emitter Cutoff Current (V_{EB} = 2.0Vdc , I_C= 0)	I_{EBO}	—	—	100	nAdc

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS					
DC Current Gain (I_C = 4.0 mAdc, V_{CE} = 10 Vdc)	h_{FE}	60	—	270	—
Collector–Emitter Saturation Voltage (I_C = 4.0mAdc, I_B = 0.4 mAdc)	$V_{CE(sat)}$	—	—	0.5	Vdc
Base–Emitter On Voltage (I_C = 4.0mAdc, V_{CE} = 10Vdc)	V_{BE}	—	—	0.95	Vdc
SMALL–SIGNAL CHARACTERISTICS					
Current Gain–Bandwidth Product (V_{CE} = 10 Vdc, I_C = 4.0mAdc, f = 100MHz)	f_T	650	—	—	MHz
Collector –Base Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)	C_{cb}	—	0.7	—	pF
Collector –Base Feedback Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)	C_{rb}	—	0.65	—	pF
Collector Base Time Constant (I_C = 4.0mAdc,V_{CB}=10 Vdc, f = 31.8 MHz)	rb' C_C	—	—	9.0	ps

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TYPICAL CHARACTERISTICS

COMMON–BASE y PARAMETERS versus FREQUENCY

(V_{CB} = 10 Vdc, I C = 4.0 mAdc, T_A = 25°C)

yib , INPUT ADMITTANCE

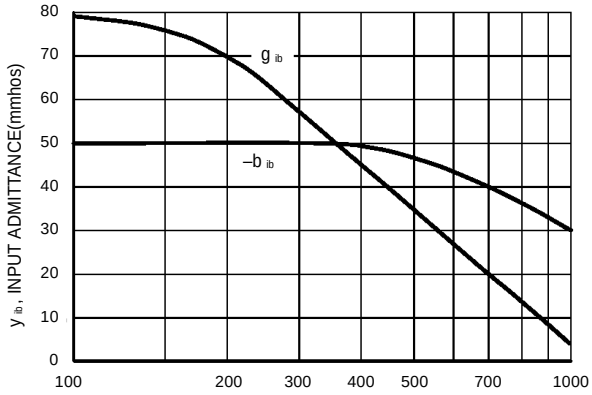

Figure 1. Rectangular Form

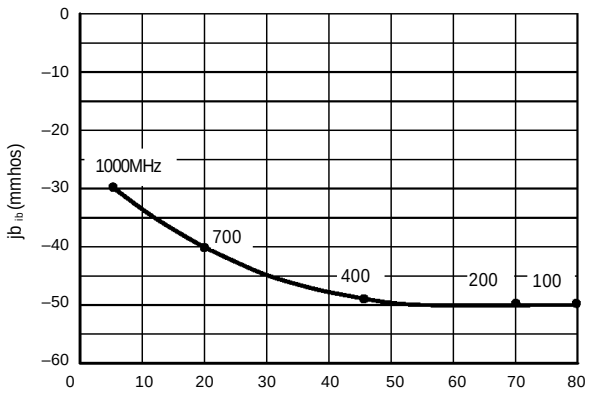

Figure 2. Polar Form

y fb , FORWARD TRANSFER ADMITTANCE

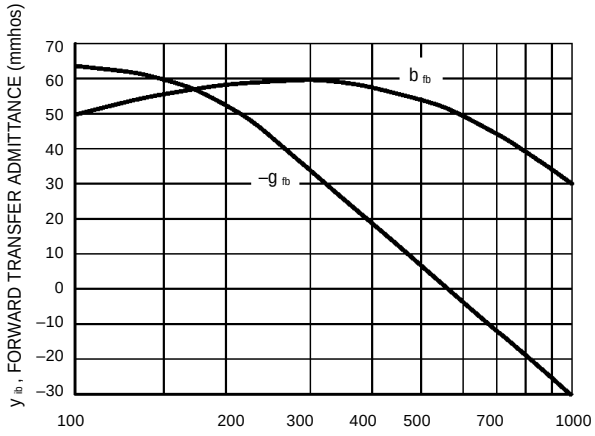

Figure 3. Rectangular Form

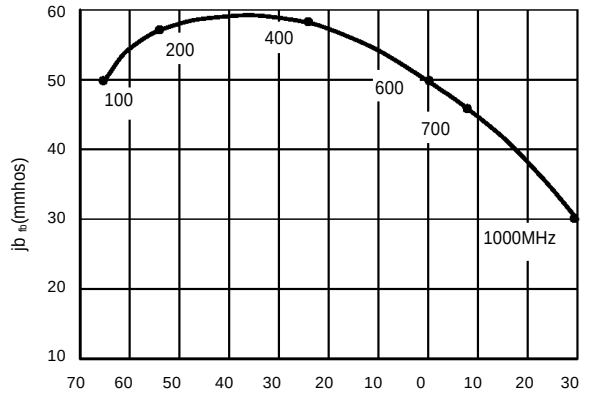

Figure 4. Polar Form

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TYPICAL CHARACTERISTICS

COMMON–BASE y PARAMETERS versus FREQUENCY
(V_{CB} = 10 Vdc, I_C = 4.0 mAdc, T_A = 25°C)
y_{rb}, REVERSE TRANSFER ADMITTANCE

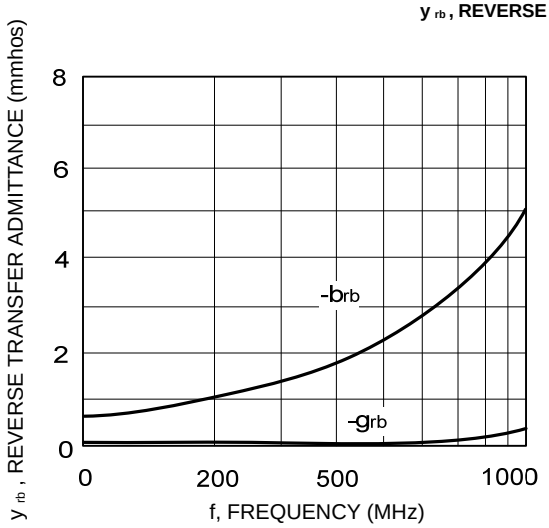

Figure 5. Rectangular Form

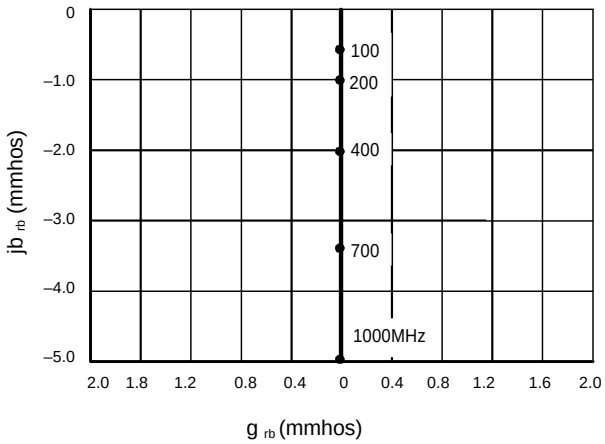

Figure 6. Polar Form

y_{ob}, OUTPUT ADMITTANCE

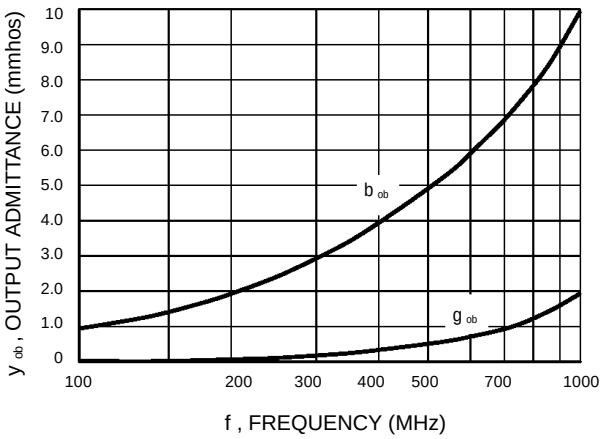

Figure 7. Rectangular Form

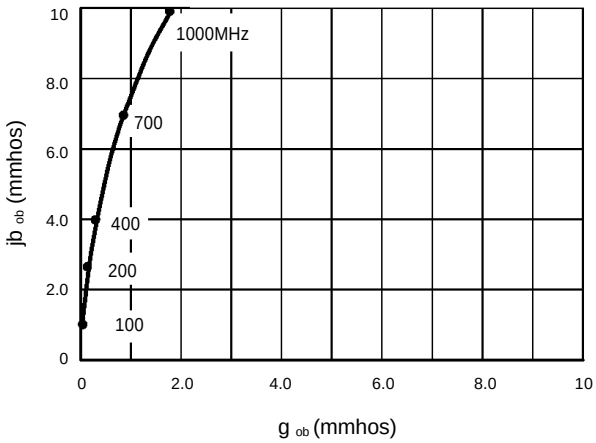

Figure 8. Polar Form

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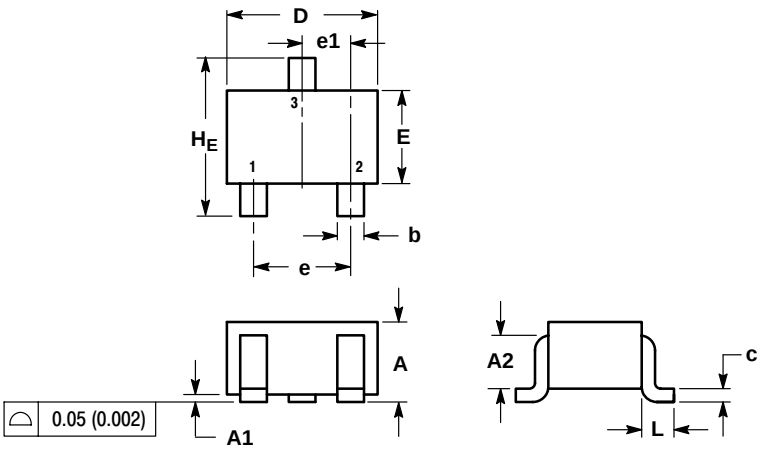
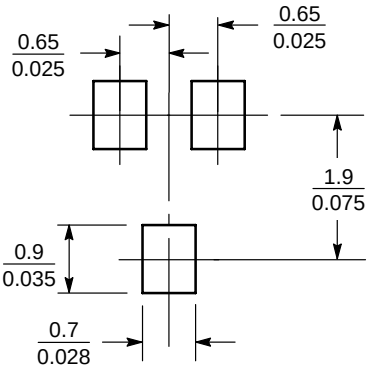


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

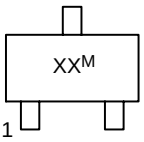
	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2		0.7 REF			0.028 REF	
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1		0.65 BSC			0.026 BSC	
L		0.425 REF			0.017 REF	
H_E	2.00	2.10	2.40	0.079	0.083	0.095

SOLDERING FOOTPRINT*



SCALE 10:1 (mm / inches)

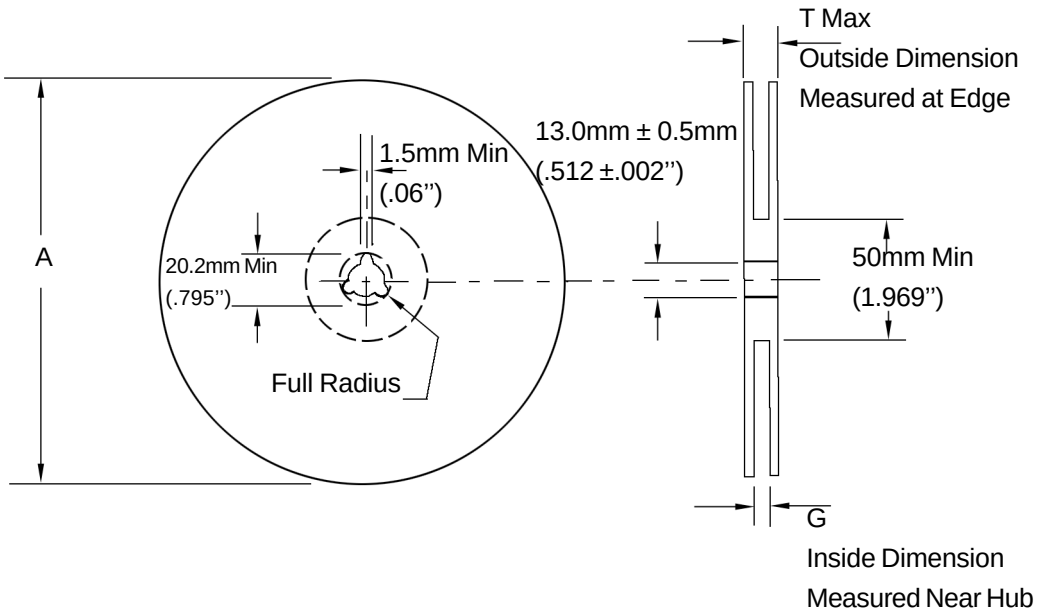
GENERIC MARKING DIAGRAM



XX = Specific Device Code
M = Date Code
▪ = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “ ▪”, may or may not be present.

EMBOSSED TAPE AND REEL DATA
FOR DISCRETES



Size	A Max	G	T Max
8 mm	330mm (12.992")	8.4mm+1.5mm, -0.0 (.33"+.059", -0.00)	14.4mm (.56")

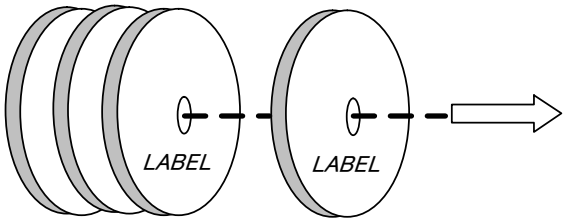
Reel Dimensions

Metric Dimensions Govern — English are in parentheses for reference only

Storage Conditions

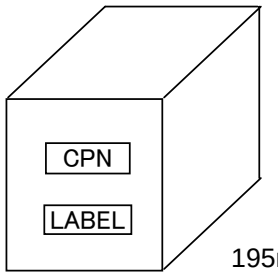
Temperature: 5 to 40 Deg.C (20 to 30 Deg. C is preferred)
Humidity: 30 to 80 RH (40 to 60 is preferred)
Recommended Period: One year after manufacturing
(This recommended period is for the soldering condition only. The characteristics and reliabilities of the products are not restricted to this limitation)

Shipment Specification



10 Reel

3000PCS/Reel
8000PCS/Reel (SOT-723,SOD-723)



Dim(Unit:mm)

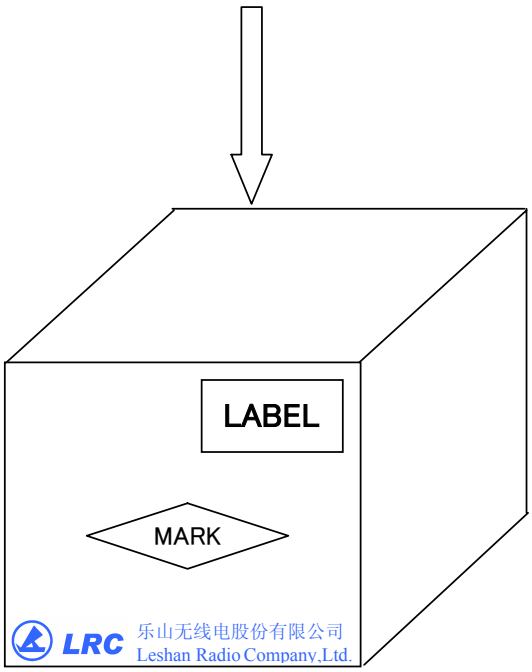
195mm*195mm*150mm

10Reel/Inner Box

30KPCS/Inner Box
80KPCS/Inner Box (SOT-723,SOD-723)

Dim(Unit:mm)

460mm*400mm*420mm



12 Inner Box/Carton

360KPCS/Carton
960KPCS/Carton (SOT-723,SOD-723)