

# 自贡兴川光电有限公司

Zigong xingchuan photoelectric co., ltd

## 元器件样品承认书

样品名称	NPN 三极管			
规格型号	LMBT2222ALT1G 40V. 600mA. 225mW. SOT-23. LRC (封装)			
物料编码	03.08.00001			
生产厂家	LRC			
样品数量	100PCS			
实验目的	新物料测试确认			
确认次数	首次确认			
部门	研发部	品质部	工程部	采购部
签字确认	刘霞 2019.6.28	陈攀	刘洪	李志军
备注				
结论	可以使用			
批准	谭睿		日期	2019.7.1

表格编号：




扫描全能王 创建

# 自贡兴川光电有限公司

Zigong xingchuan photoelectric co., ltd

## 样品测试报告

样品名称	NPN三极管	使用产品	ZSCI500逆控一体机
样品规格	LMBT2222ALT1G (LRC)	样品数量	100 pcs
送样单位	研发部	送样日期	2019年6月24日
测试地点	汇东股份513室	环境温湿度	24℃ 73%RH
物料说明	NPN三极管LMBT2222ALT1G, 40V, 600mA, 225mW, SOT-23		
物料分类	<input type="checkbox"/> 五金类 <input checked="" type="checkbox"/> 电子类 <input type="checkbox"/> 包材类 <input type="checkbox"/> 塑料类 <input type="checkbox"/> 套件类 <input type="checkbox"/> 辅料类 <input type="checkbox"/> 其他		
检验内容			
尺寸	尺寸符合规格书要求, 详细测试数据: 2.9mm×1.32mm×1.1mm 检验员: 刘俊 日期 2019.6.28		
外观、颜色	管身为黑色, 管脚为银白色, 外观颜色及规格标识清晰, 符合规格书要求 检验员: 刘俊 日期 2019.6.28		
装配	安装牢固可靠, 无抢位, 上锡度良好 检验员: 刘俊 日期 2019.6.28		
性能	集-射击穿电压V=40V; 集-基击穿电压V=75V; 射-基击穿电压V=6V 检验员: 刘俊 日期 2019.6.28		
材质	 检验员: 刘俊 日期 2019.6.28		
其他	符合ZSCI500样机设计要求 符合电阻规格书要求 检验员: 刘俊 日期 2019.6.28		
检验结果	<input checked="" type="checkbox"/> 合格 <input type="checkbox"/> 不合格 <input type="checkbox"/> 其他		
改善要求			
物料图片 (实物)			

表格编号:



扫描全能王 创建

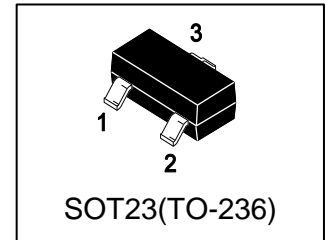
# LMBT2222ALT1G

## S-LMBT2222ALT1G

General Purpose Transistors NPN Silicon

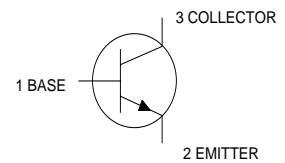
### 1. FEATURES

- 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 ORDERING INFORMATION

Device	Marking	Shipping
LMBT2222ALT1G	1P	3000/Tape&Reel
LMBT2222ALT3G	1P	10000/Tape&Reel



### 3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	V <sub>CEO</sub>	40	V
Collector–Base Voltage	V <sub>CBO</sub>	75	V
Emitter–Base Voltage	V <sub>EBO</sub>	6	V
Collector Current — Continuous	I <sub>C</sub>	600	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)	R <sub>θJA</sub>	556	°C/W
Junction–to–Case	R <sub>θJC</sub>	300	°C/W
Junction and Storage temperature	T <sub>J</sub> , T <sub>stg</sub>	–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 = 10 mA, IB = 0)	VBR(CEO)	40	-	-	V
Collector–Base Breakdown Voltage (IC = 10 $\mu$ A, IE = 0)	VBR(CBO)	75	-	-	V
Emitter–Base Breakdown Voltage (IE = 10 $\mu$ A, IC = 0)	VBR(EBO)	6	-	-	V
Collector Cutoff Current (VCE = 60 V, VEB(off) = 3.0V)	ICEX	-	-	10	nA
Collector Cutoff Current (VCB = 60 V, IE = 0) (VCB = 60 V, IE = 0, TA = 125°C)	ICBO	- -	- -	0.01 10	$\mu$ A
Emitter Cutoff Current (VEB = 3.0 V, IC = 0)	IEBO	-	-	100	nA
Base Cutoff Current (VCE = 60 V, VEB(off) = 3.0 V)	IBL	-	-	20	nA

**ON CHARACTERISTICS (Note 2.)**

DC Current Gain (IC = 0.1 mA, VCE = 10 V) (IC = 1.0 mA, VCE = 10 V) (IC = 10 mA, VCE = 10 V) (IC = 10 mA, VCE = 10 V, TA = -55°C) (IC = 150 mA, VCE = 10 V) (IC = 150 mA, VCE = 1.0 V) (IC = 500 mA, VCE = 10 V)	HFE	35 50 75 35 100 50 40	- - - - - - -	- - - - 300 - -	
Collector–Emitter Saturation Voltage (IC = 150 mA, IB = 15 mA) (IC = 500 mA, IB = 50 mA)	VCE(sat)	- -	- -	0.3 1	V
Base–Emitter Saturation Voltage (IC = 150 mA, IB = 15 mA) (IC = 500 mA, IB = 50 mA)	VBE(sat)	0.6 -	- -	1.2 2	V

**SMALL–SIGNAL CHARACTERISTICS**

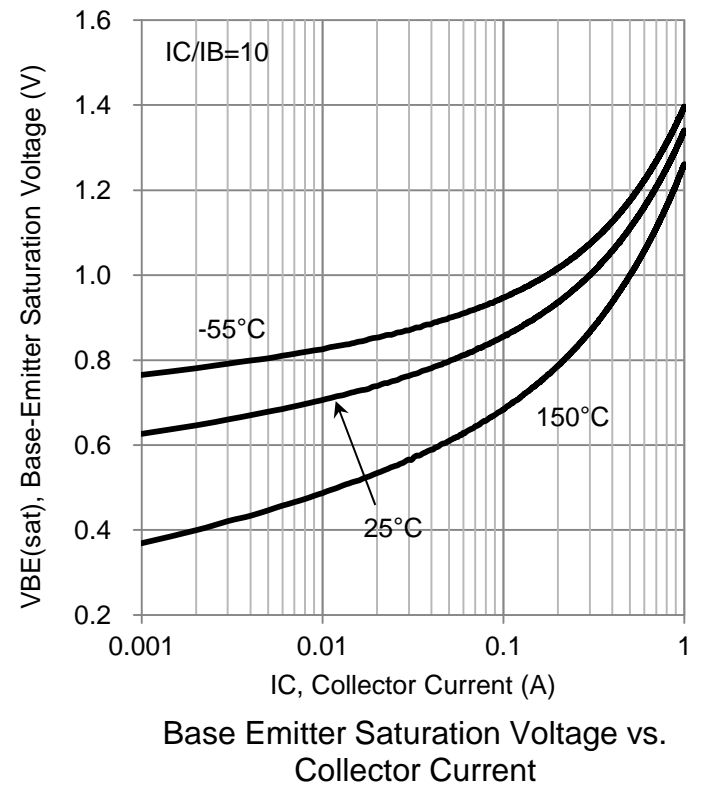
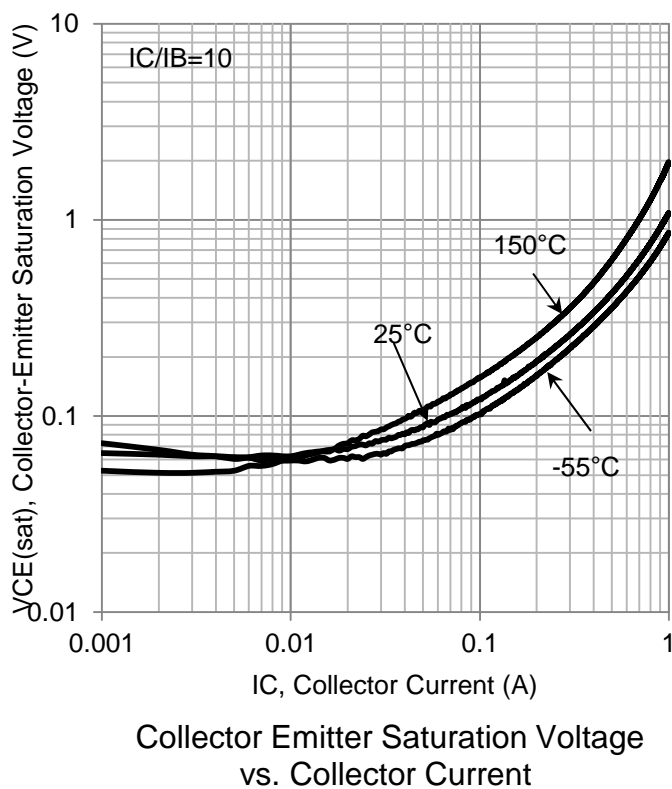
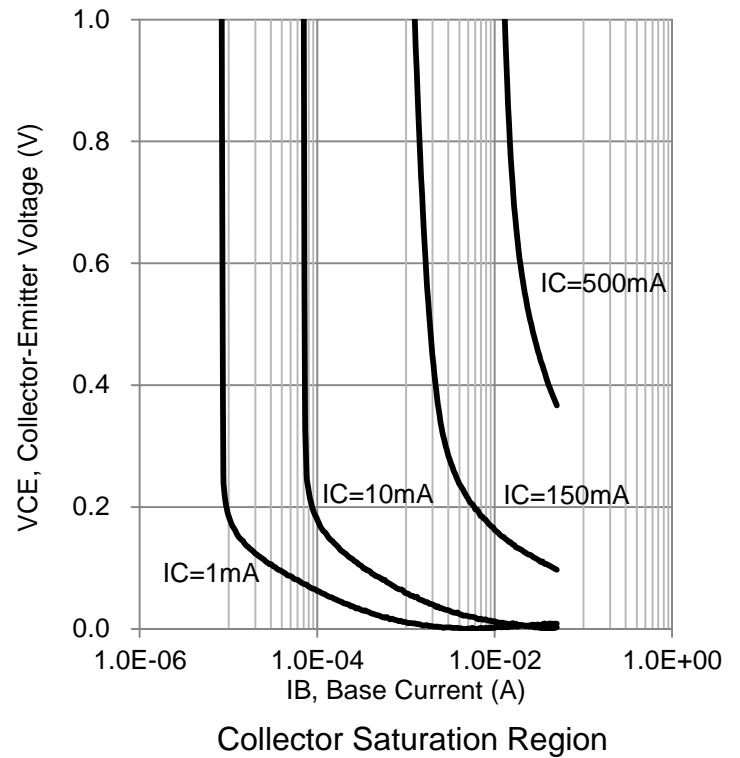
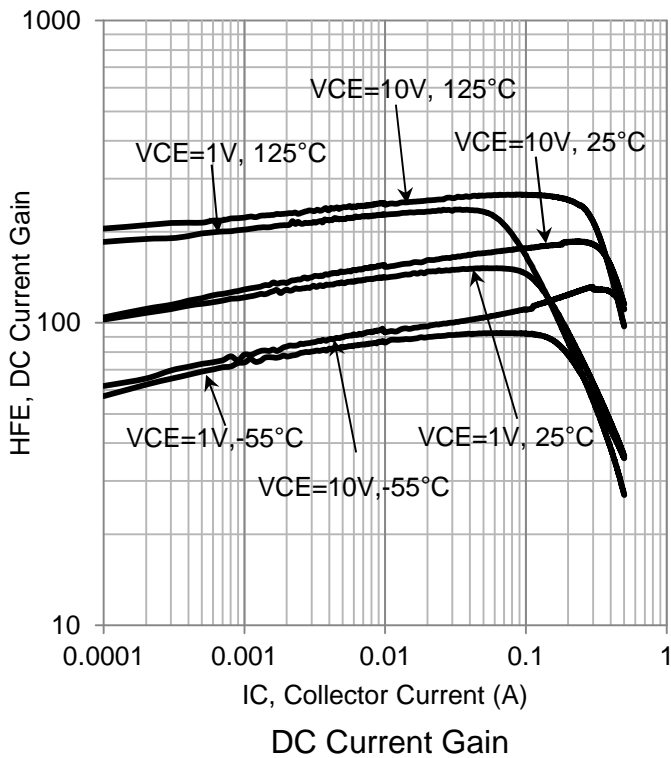
Current–Gain — Bandwidth Product (IC = 20mA, VCE= 20V, f = 100MHz)	fT	300	-	-	MHz
Output Capacitance (VCB = 5.0 V, IE = 0, f = 1.0 MHz)	Cobo	-	-	8	pF
Input Capacitance (VEB = 0.5 V, IC = 0, f = 1.0 MHz)	Cibo	-	-	25	pF

**SWITCHING CHARACTERISTICS**

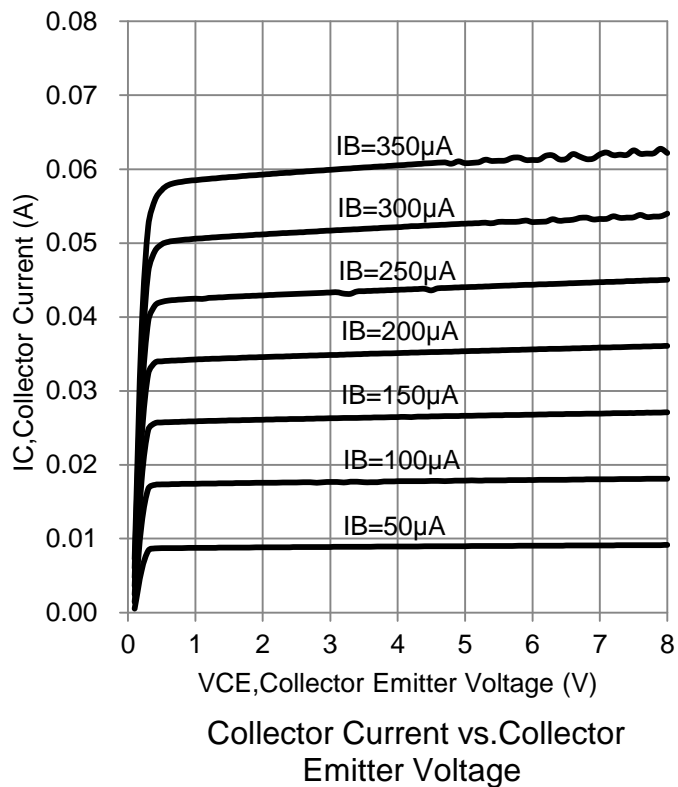
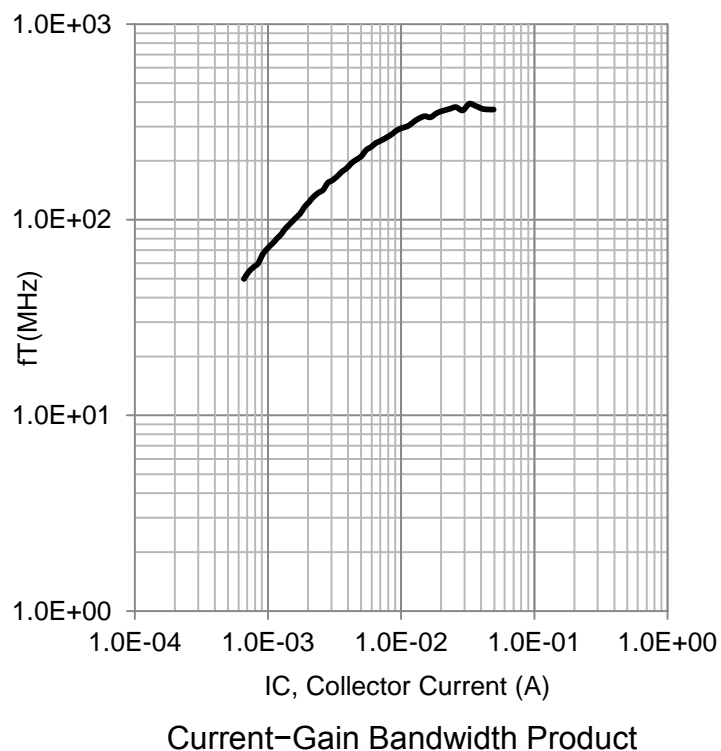
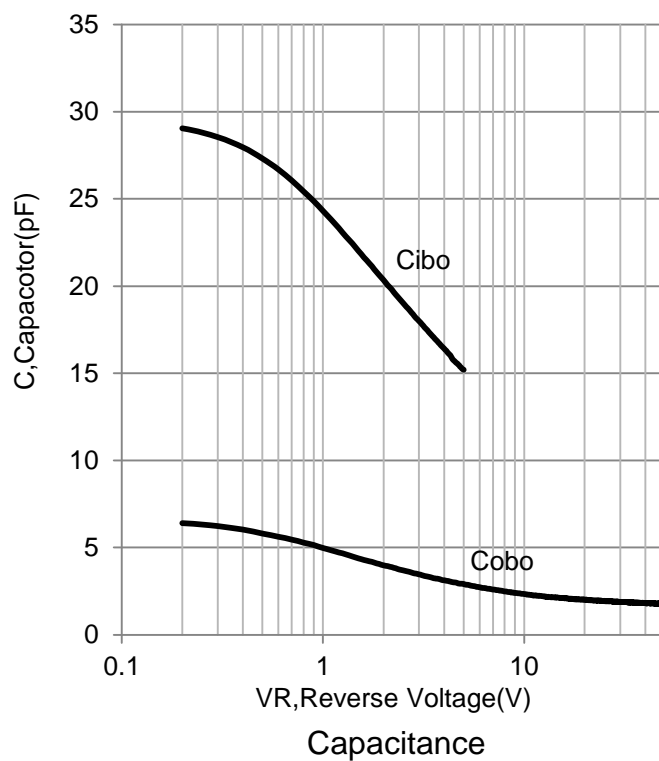
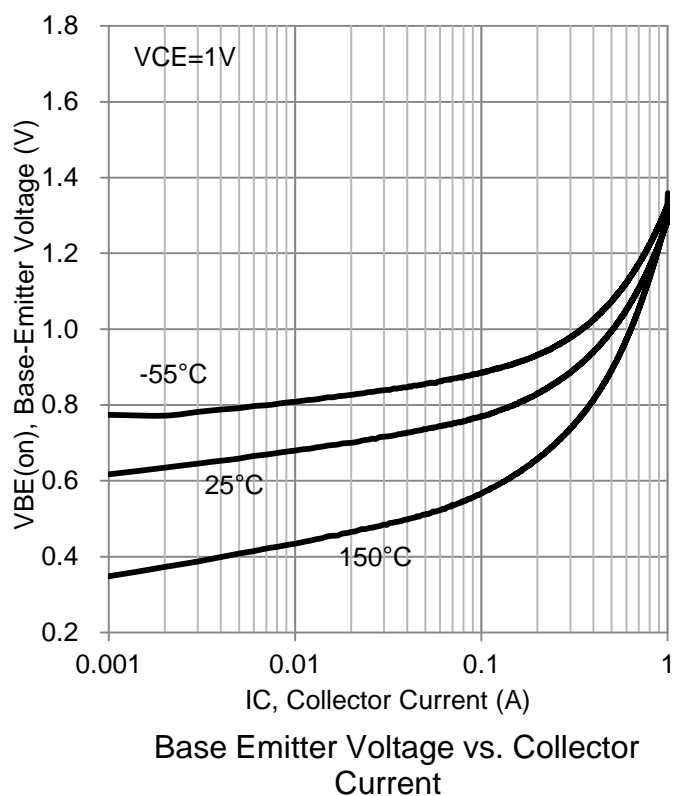
Delay Time	(VCC = 30 V, VEB = -0.5V, IC = 150mA, IB1 = 15 mA)	td	-	-	10	ns
Rise Time		tr	-	-	25	
Storage Time	(VCC = 30 V, IC = 150 mA, IB1 = IB2 = 15 mA)	ts	-	-	225	
Fall Time		tf	-	-	60	

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

## 6.ELECTRICAL CHARACTERISTICS CURVES



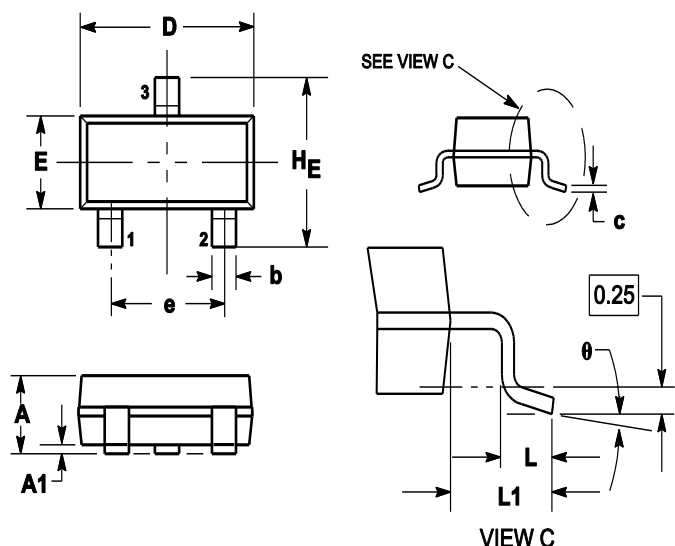
## 6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



## 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
H <sub>E</sub>	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

## 8.SOLDERING FOOTPRINT

