

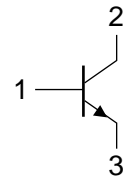
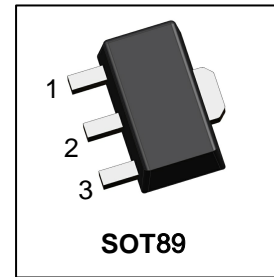
# LBTN560Y3T1G

## S-LBTN560Y3T1G

NPN transistor

### 1. FEATURES

- Low collector-emitter saturation voltage.
- High collector current capability.
- High collector current gain.
- High efficiency due to less heat generation.
- Smaller required Printed-Circuit Board (PCB) area.
- 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
LBTN560Y3T1G	6NP	1000/Tape&Reel

### 3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	V <sub>CEO</sub>	60	V
Collector–Base Voltage	V <sub>CBO</sub>	150	V
Emitter–Base Voltage	V <sub>EBO</sub>	7	V
Collector Current — Continuous	I <sub>C</sub>	5	A
Peak Collector Current (tp ≤ 1 ms)	I <sub>CM</sub>	20	A
Junction and Storage temperature	T <sub>J</sub> , T <sub>stg</sub>	-55~+150	°C

### 4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR-4 Board (Note 1) @ TA = 25°C Derate above 25°C	PD	550 4.4	mW mW/°C
Thermal Resistance, Junction–to–Ambient	R <sub>θJA</sub>	225	°C/W

1.PCB Size:30.0mm×25.0mm×1.6mm,FR-4 Board;

**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)	60	-	-	V
Collector–Base Breakdown Voltage (IC = 100 μA, IE = 0)	VBR(CBO)	150	-	-	V
Emitter–Base Breakdown Voltage (IE = 100 μA, IC = 0)	VBR(EBO)	7	-	-	V
Collector Cutoff Current (VCB = 150V, IE = 0 A)	ICBO	-	-	30	nA
Emitter CutOff Current (VEB = 7 V, IC = 0 A)	IEBO	-	-	30	nA
Collector-Emitter cutoff Current (VCE= 60V, IB=0)	ICEO	-	-	10	μA

**ON CHARACTERISTICS (Note 2)**

DC Current Gain (VCE = 1 V, IC = 10 mA) (VCE = 1 V, IC = 2 A) (VCE = 1 V, IC = 5 A)	HFE	100 100 55	200 200 105	- 300 -	
Collector–Emitter Saturation Voltage (IC = 0.1 A, IB = 5 mA) (IC = 1 A, IB = 100 mA) (IC = 1 A, IB = 50 mA) (IC = 2 A, IB = 50 mA) (IC = 6 A, IB = 300 mA)	VCE(sat)	- - - - -	17 35 40 90 170	30 55 65 125 230	mV
Base–Emitter Saturation Voltage (IC = 6 A, IB = 300 mA)	VBE(sat)	-	0.97	1.1	V
Base-Emitter Turn-On Voltage (VCE = 1 V, IC = 6 A)	VBE(on)	-	0.91	1.05	V

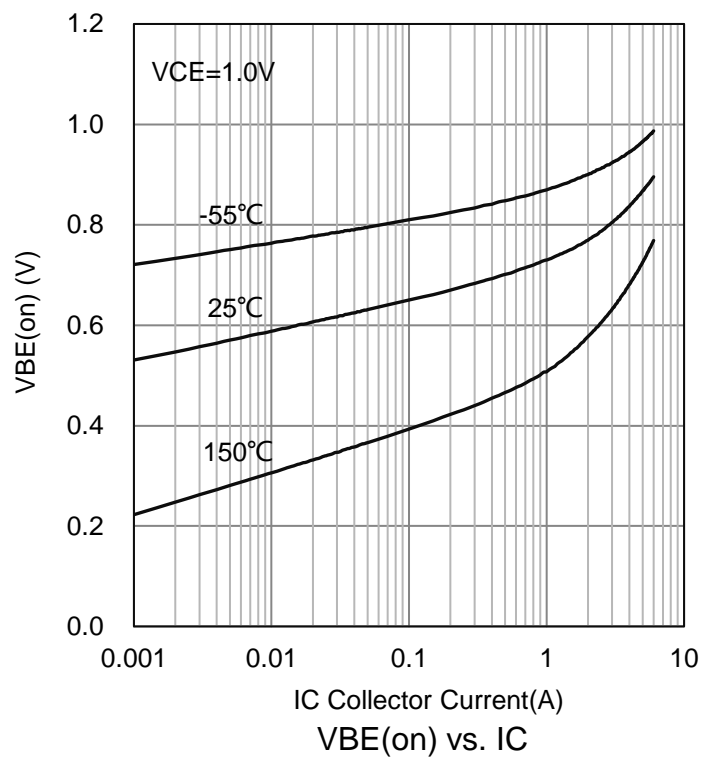
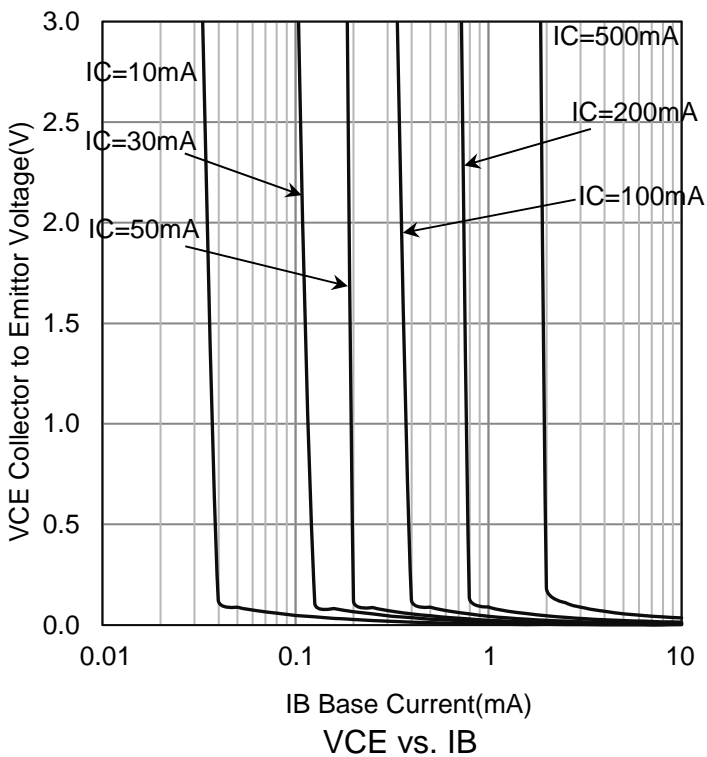
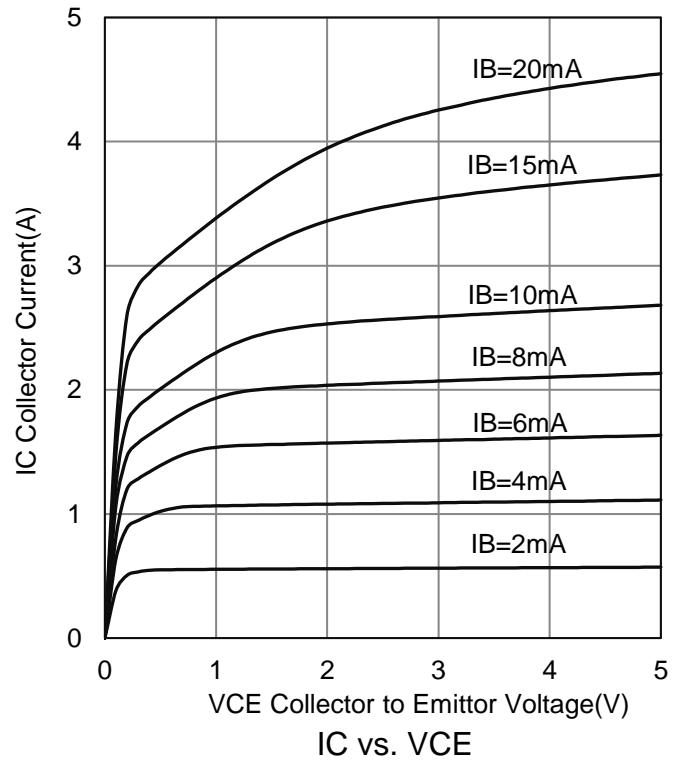
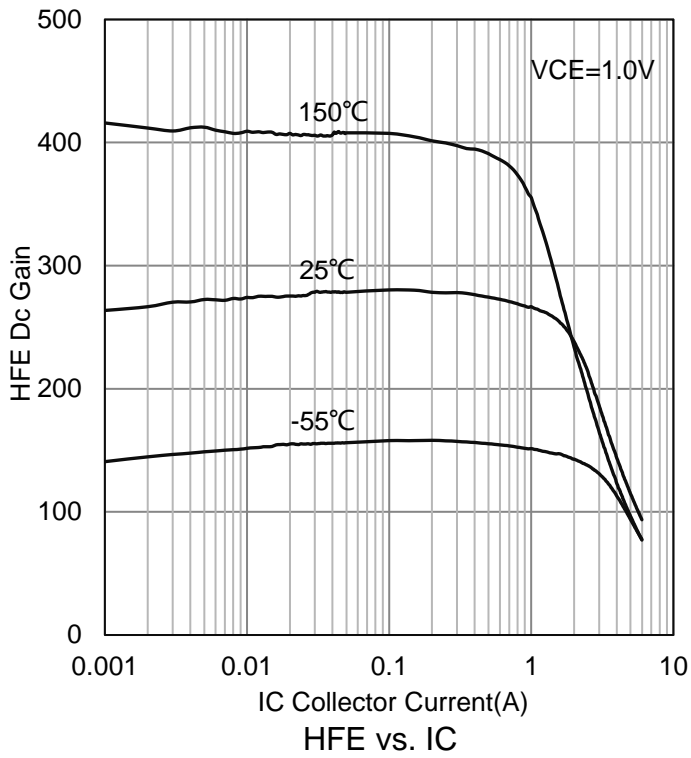
**SMALL–SIGNAL CHARACTERISTICS**

Transitional Frequency (VCE = 10 V, IC = 100 mA, f = 50 MHz)	fT	-	130	-	
Output capacitance (VCB = 10 V, f = 1 MHz)	Cobo	-	31	-	pF

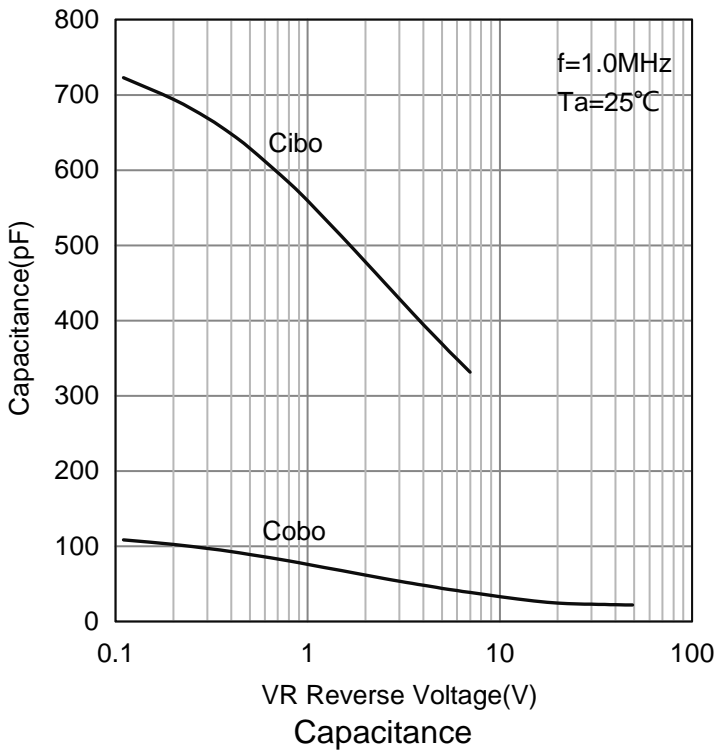
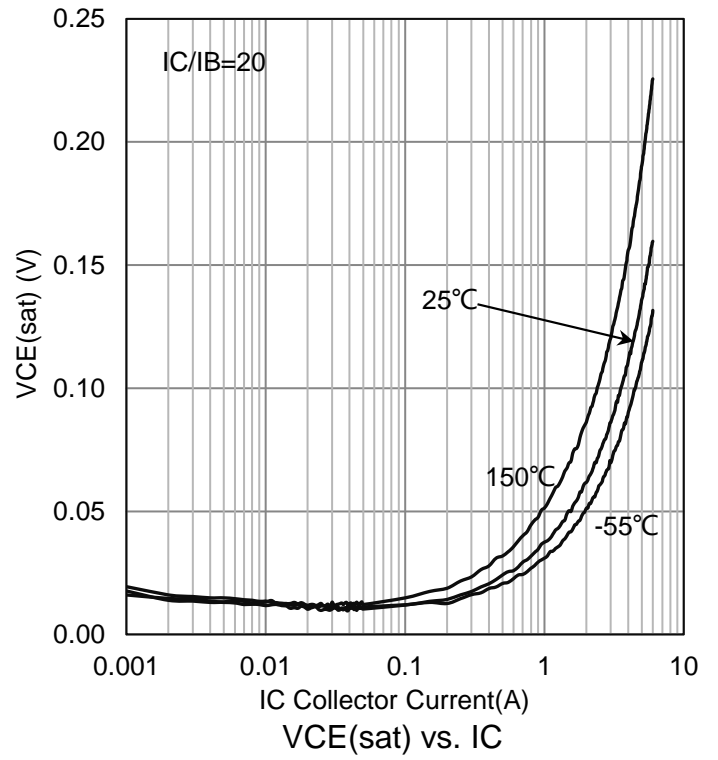
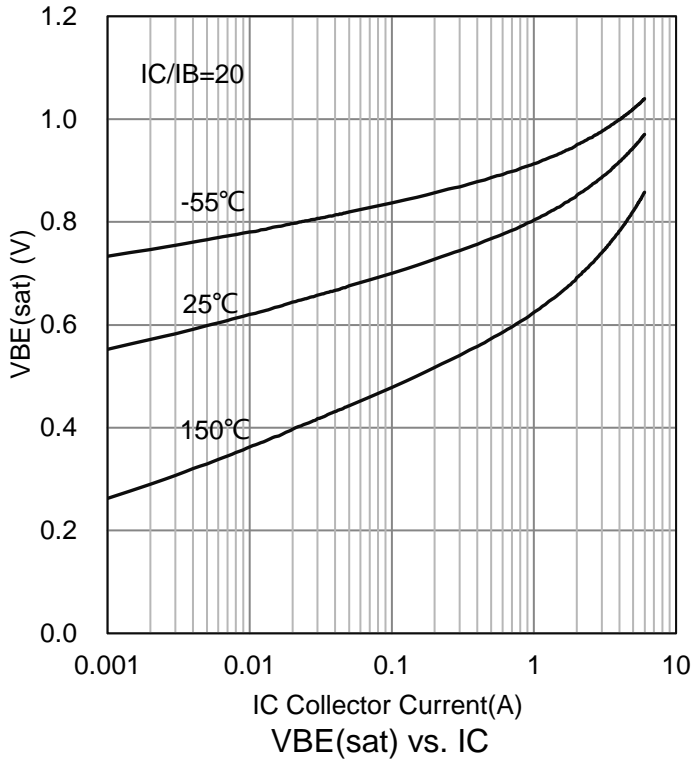
**SWITCHING CHARACTERISTICS**

Switching times (IC = 1A, VCC = 10V, IB1 = IB2 = 100mA)	td(on)	-	42	-	ns
Switching times (IC = 1A, VCC = 10V, IB1 = IB2 = 100mA)	td(off)	-	760	-	

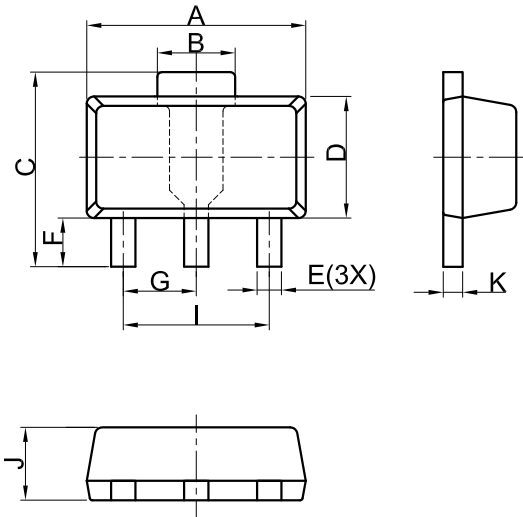
2.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

**6.ELECTRICAL CHARACTERISTICS CURVES**


6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



### 7.OUTLINE AND DIMENSIONS

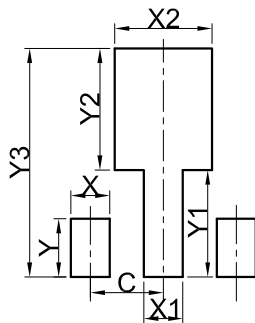


SOT89			
DIM	MIN	NOR	MAX
A	4.30	4.50	4.70
B	1.40	1.60	1.80
C	3.90	4.00	4.25
D	2.30	2.50	2.70
E	0.40	0.50	0.58
F	0.90	1.00	1.20
G	1.50 BSC		
I	3.00 BSC		
J	1.40	1.50	1.60
K	0.34	0.40	0.50
All Dimensions in mm			

#### 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
4. Protrusion or Gate Burrs shall not exceed 0.10mm per side.

### 8.SOLDERING FOOTPRINT



SOT89	
DIM	(mm)
X	0.80
Y	1.20
X1	0.80
Y1	2.20
X2	2.00
Y2	2.50
C	1.50
Y3	4.70

## **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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