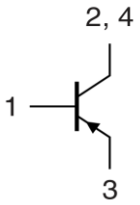
LBTP460Z4TZHG
S-LBTP460Z4TZHG

60 V PNP TRANSISTOR

SOT223

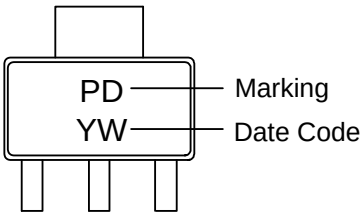
1. FEATURES

- 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)
- MM:>400V, HBM:>8000V
- 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
LBTP460Z4TZHG	PD	1000/Tape&Reel



3. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	VCEO	-60	V
Collector–Base Voltage	VCBO	-60	V
Emitter–Base Voltage	VEBO	-5	V
Collector Current — Continuous	IC	-4.5	A
Peak Pulse Current(tp ⩽ 1 ms)	ICM	-9	A
Junction and Storage temperature	TJ,Tstg	−55~+150	°C

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR−4 Board (Note 1) @ TA = 25ºC	PD	1	W
Thermal Resistance, Junction–to–Ambient(Note 1)	RΘJA	125	ºC/W
Thermal Resistance, Junction–to–Case	RΘJC	30	ºC/W

1. FR–4 = 30.0mm×25.0mm×1.6mm.

5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector–Emitter Breakdown Voltage (IC = -1 mA,IB = 0)	VBR(CEO)	-60	-	-	V
Collector–Base Breakdown Voltage (IC = -100 μA,IE = 0)	VBR(CBO)	-60	-	-	V
Emitter–Base Breakdown Voltage (IE = -100 μA,IC = 0)	VBR(EBO)	-5	-	-	V
Collector Cutoff Current (VCB = -60V,IE = 0 A) (VCB = -60V,IE = 0 A, Tj = 150 °C)	ICBO	 - -	 - -	 -100 -50	 nA μA
Emitter CutOff Current (VEB = −5 V, IC = 0 A)	IEBO	-	-	-100	nA
Collector-Emitter cutoff Current (VCE= -60V,IB=0)	ICEO	-	-	-10	μA

ON CHARACTERISTICS (Note 2)

DC Current Gain (VCE = −2 V, IC = −0.5 A) (VCE = −2 V, IC = −1 A) (VCE = −2 V, IC = −2 A) (VCE = −2 V, IC = −4 A) (VCE = −2 V, IC = −6 A)	HFE	 200 200 150 120 60	 295 270 230 170 100	 - - - - -	
Collector–Emitter Saturation Voltage (IC = −0.5 A, IB = −50 mA) (IC = −1 A, IB = −50 mA) (IC = −1 A, IB = −10 mA) (IC = −2 A, IB = −40 mA) (IC = −4 A, IB = −200 mA) (IC = −4 A, IB = −400 mA) (IC = −4.5 A, IB = −225 mA)	VCE(sat)	 - - - - - - -	 -35 -65 -130 -165 -210 -160 -265	 -50 -90 -190 -230 -300 -230 -375	mV
Base–Emitter Saturation Voltage (IC = −1 A, IB = −100 mA) (IC = −4 A, IB = −400 mA)	VBE(sat)	 - -	 -0.81 -0.93	 -0.9 -1.05	V
Base-Emitter Turn-On Voltage (VCE = −2 V, IC = −2 A)	VBE(on)	-	-0.77	-0.85	V

5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

SMALL–SIGNAL CHARACTERISTICS

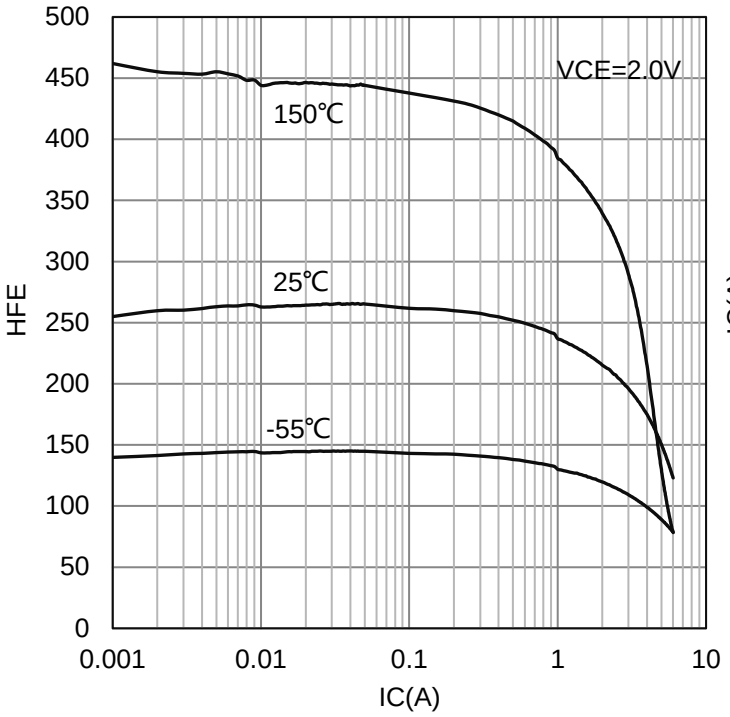
Transitional Frequency (VCE = −10 V, IC = −100 mA,f = 100 MHz)	fT	-	102	-	MHz
Collector capacitance (VCB = −10 V, IE = ie = 0 A,f = 1 MHz)	Cc	-	66.5	120	pF

SWITCHING CHARACTERISTICS

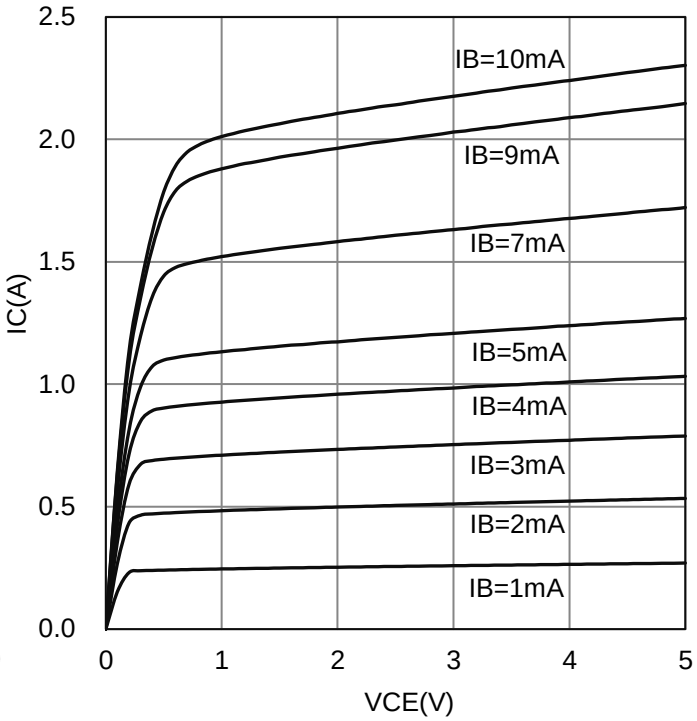
Delay time	(VCC = −12.5 V, IC = −3 A,IB(on) = −0.15 A,IB(off) = 0.15 A)	td	-	15	-	ns
Rise time		tr	-	65	-	
Turn-on time		ton	-	80	-	
Storage time		ts	-	225	-	
Fall time		tf	-	95	-	
Turn-off time		toff	-	320	-	

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

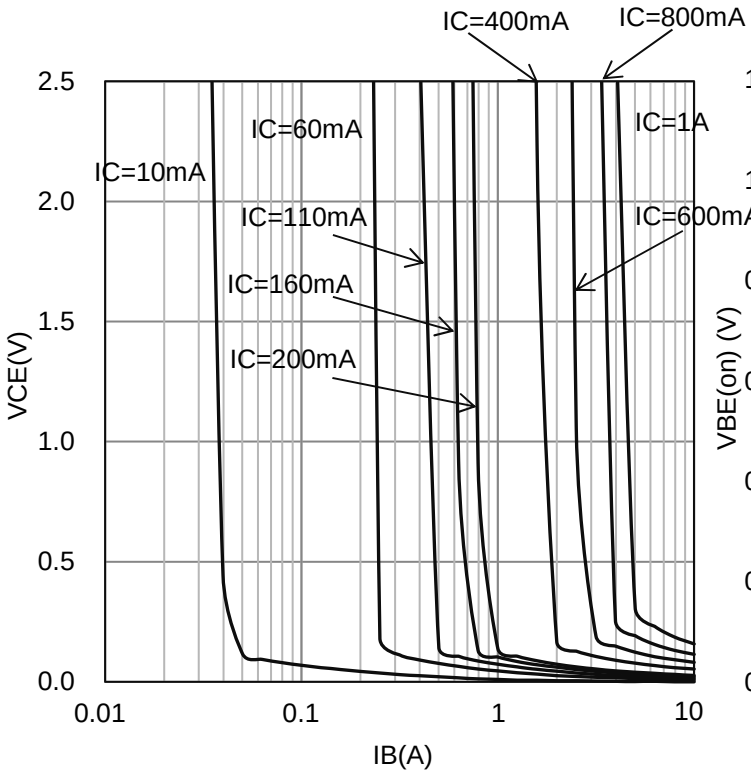
6.ELECTRICAL CHARACTERISTICS CURVES



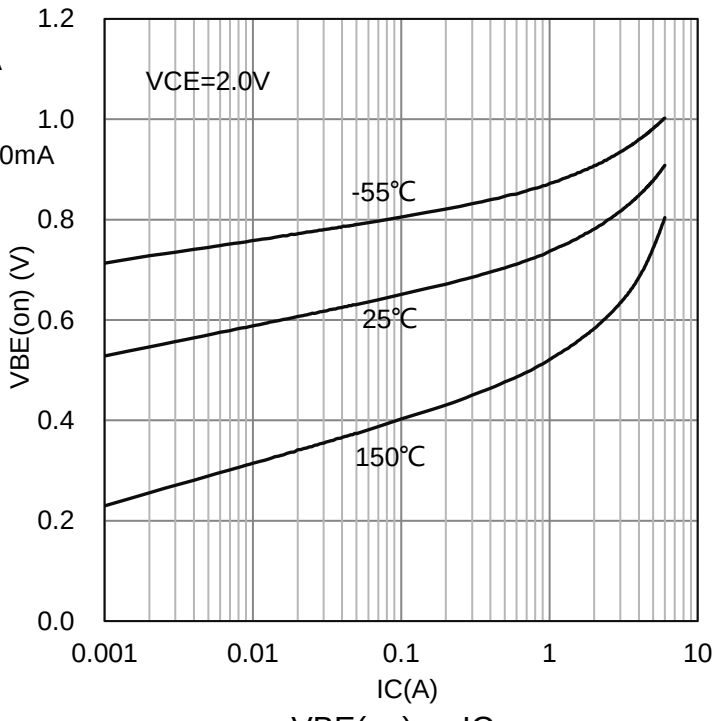
HFE vs. IC



IC vs. VCE

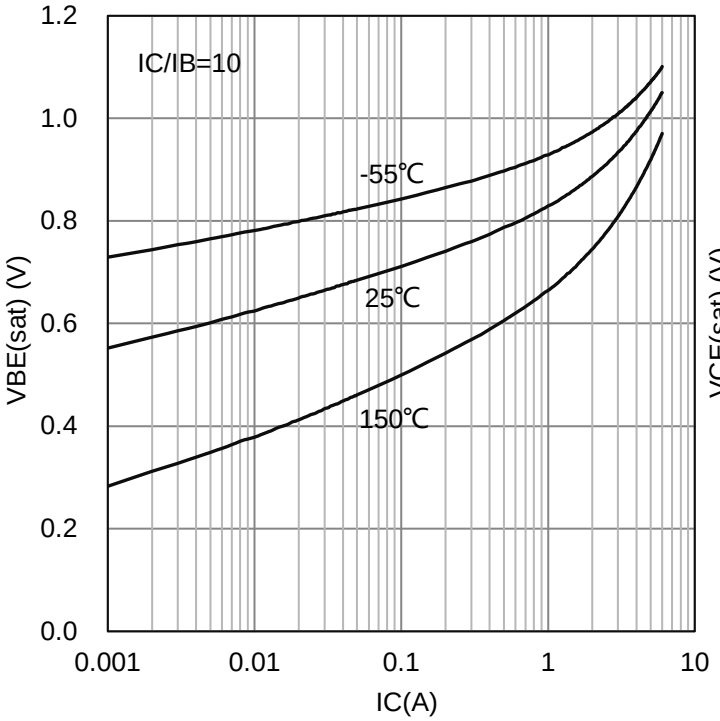


VCE vs. IB

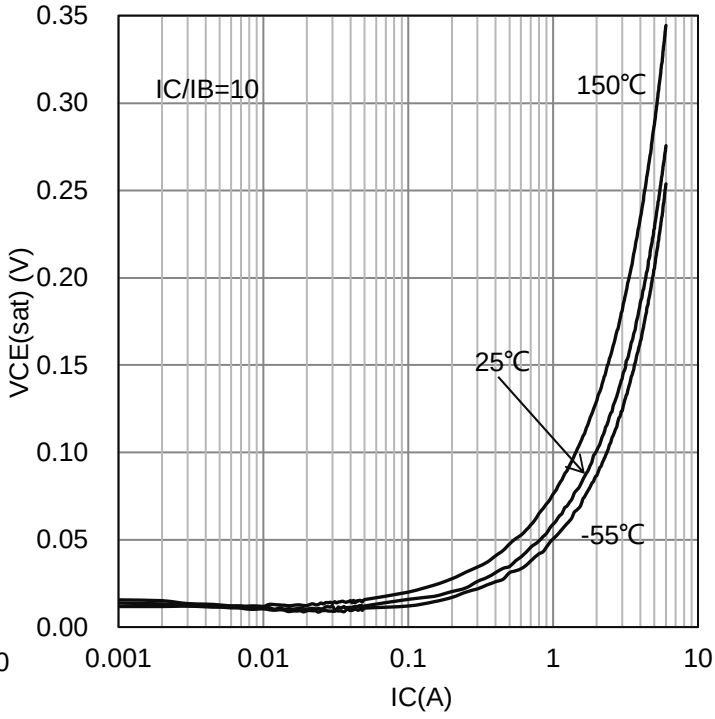


VBE(on) vs IC

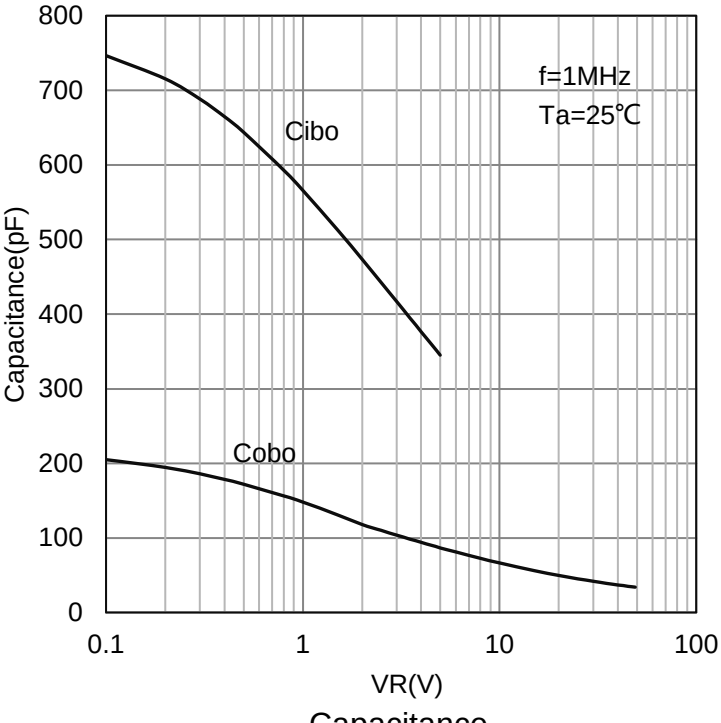
6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



VBE(sat) vs. IC



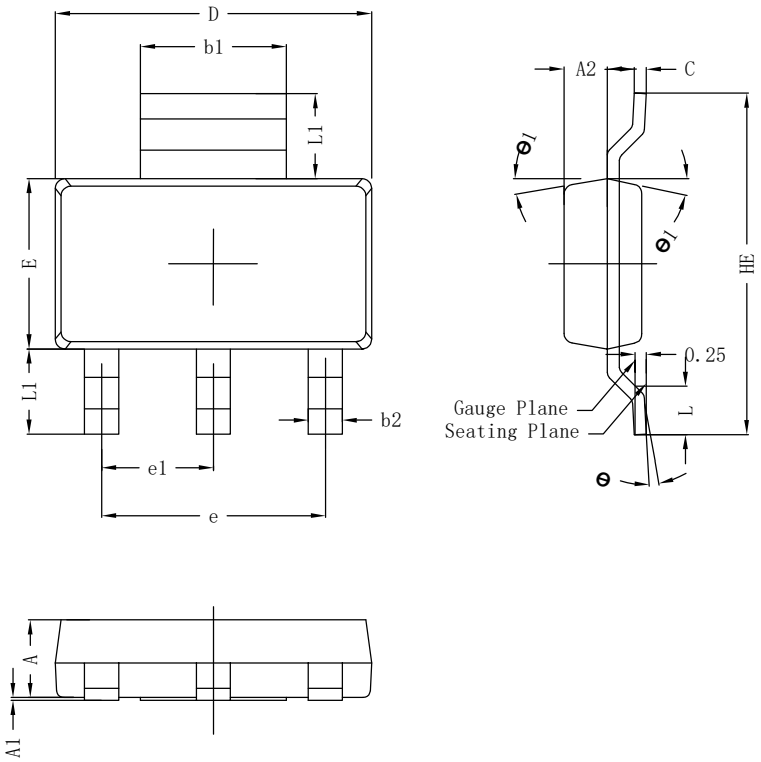
VCE(sat) vs. IC



Capacitance

7.OUTLINE AND DIMENSIONS

SOT223

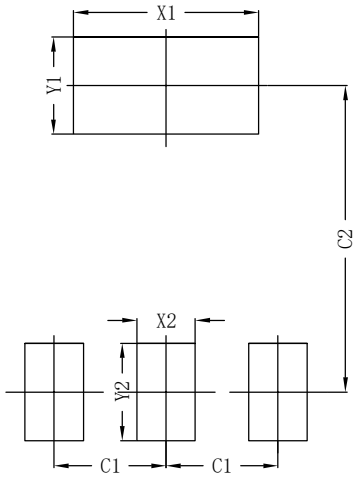


SOT223			
DIM	MIN	NOR	MAX
A	1.50	1.60	1.70
A1	0.00	0.05	0.10
A2	0.80	0.90	1.00
b1	2.90	3.02	3.10
b2	0.60	0.72	0.80
c	0.20	0.27	0.30
D	6.30	6.50	6.70
E	3.30	3.50	3.70
e	4.60BSC		
e1	2.30BSC		
HE	6.80	7.00	7.20
L	0.80	1.00	1.20
L1	1.75(REF)		
θ	0°~8°		
θ 1	8°	10°	12°
All Dimensions in mm			

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



SOT223	
DIM	(mm)
X1	3.80
Y1	2.00
X2	1.20
Y2	2.00
C1	2.30
C2	6.30