

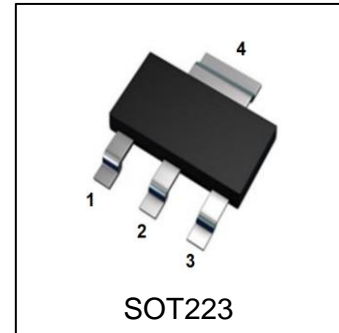
# LBTP4140Z4TZHG

## S-LBTP4140Z4TZHG

140V PNP MEDIUM POWER TRANSISTOR

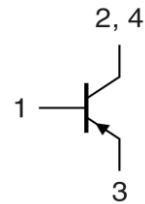
### 1. FEATURES

- $V_{CE0} > -140V$
- High Continuous Collector Current
- Low Saturation Voltage
- 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
LBTP4140Z4TZHG	PA	1000/Tape&Reel



### 3. MAXIMUM RATINGS( $T_a = 25^{\circ}C$ )

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	$V_{CE0}$	-140	V
Collector–Base Voltage	$V_{CBO}$	-180	V
Emitter–Base Voltage	$V_{EBO}$	-7	V
Collector Current — Continuous	IC	-4	A
Peak Pulse Current	ICM	-10	A
Human Body Model Electrostatic Discharge	HBM	2000	V
Junction and Storage temperature	$T_J, T_{stg}$	-55~+150	$^{\circ}C$

### 4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR-4 Board (Note 1) @ $T_A = 25^{\circ}C$	PD	1	W
Thermal Resistance, Junction–to–Ambient(Note 1)	$R_{\theta JA}$	125	$^{\circ}C/W$

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 = -10 mA, IB = 0)	VBR(CEO)	-140	-170	-	V
Collector–Base Breakdown Voltage (IC = -100 μA, IE = 0)	VBR(CBO)	-180	-210	-	V
Emitter–Base Breakdown Voltage (IE = -100 μA, IC = 0)	VBR(EBO)	-7	-8	-	V
Collector Cutoff Current (VCB = -150V) (VCB = -150V, Ta = 100°C)	ICBO	-	-	-50 -1	nA μA
Emitter CutOff Current (VEB = -6V)	IEBO	-	-	-10	nA

**ON CHARACTERISTICS (Note 2.)**

DC Current Gain (IC = -10mA, VCE = -5V) (IC = -1A, VCE = -5V) (IC = -3A, VCE = -5V) (IC = -10A, VCE = -5V)	HFE	100 100 45 -	200 200 - 10	- 300 - -	
Collector–Emitter Saturation Voltage (IC = -100mA, IB = -5mA) (IC = -500mA, IB = -50mA) (IC = -1A, IB = -100mA) (IC = -3A, IB = -300mA)	VCE(sat)	- - - -	-30 -70 -110 -275	-60 -120 -150 -370	mV
Base–Emitter Saturation Voltage (IC = -3A, IB = -300mA)	VBE(sat)	-	-970	-1110	mV
Base-Emitter Turn-On Voltage (IC = -3A, VCE = -5V)	VBE(on)	-	-830	-950	mV

**SMALL–SIGNAL CHARACTERISTICS**

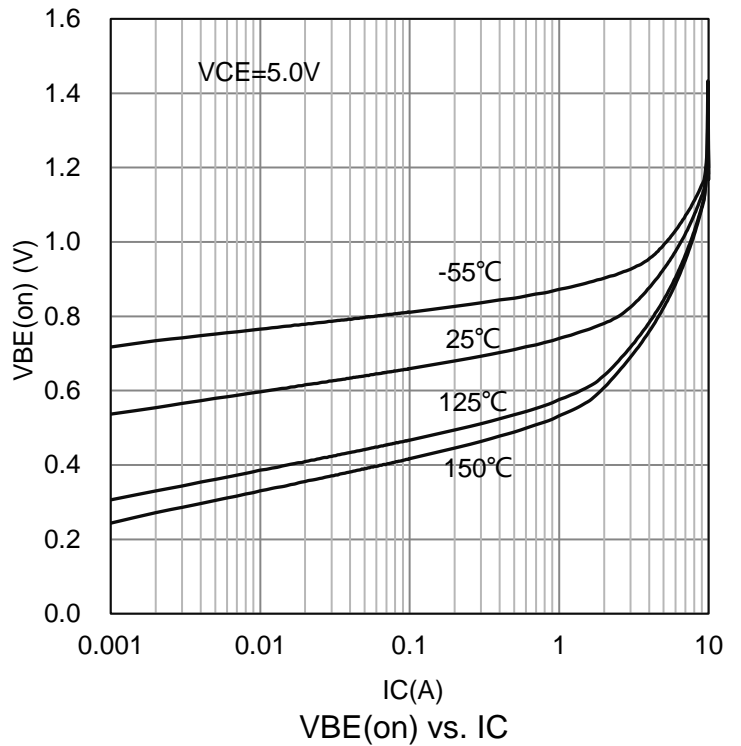
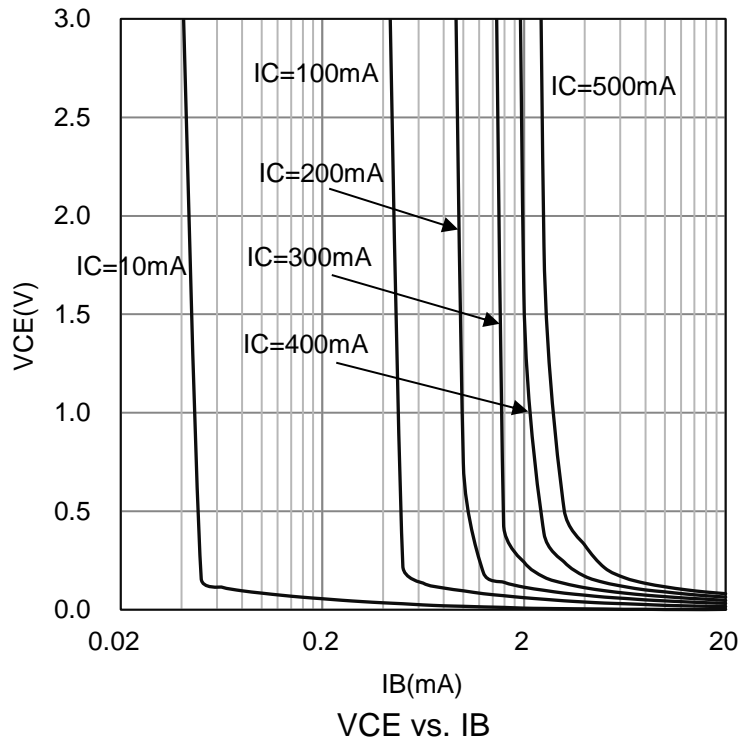
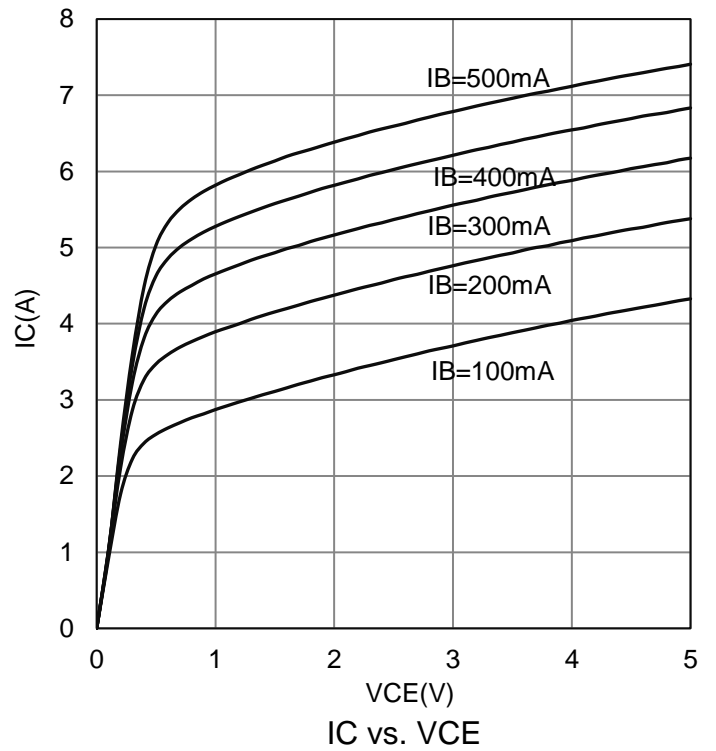
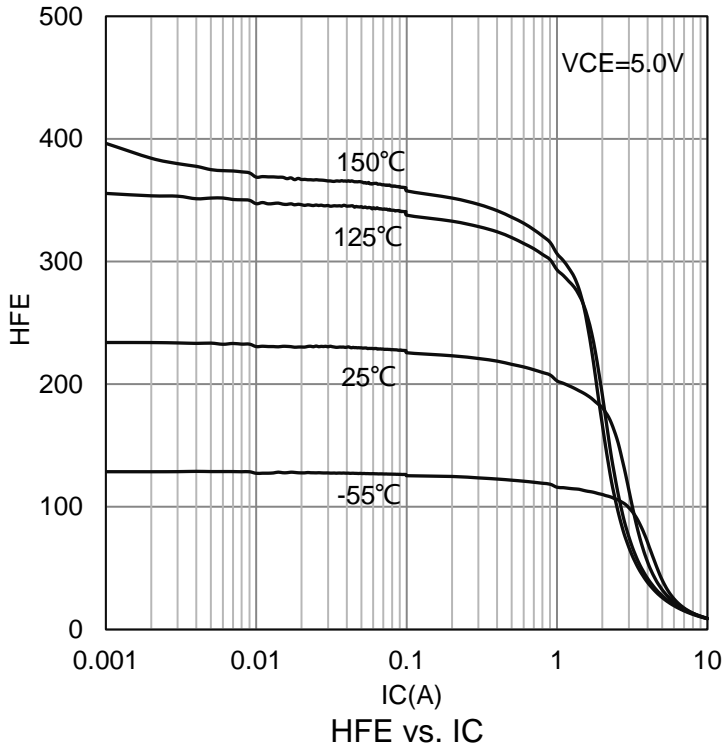
Transitional Frequency (IC = -100mA, VCE = -10V, f = 50MHz)	fT	-	110	-	MHz
Output Capacitance (VCB = -20V, f = 1MHz)	Cobo	-	40	-	pF

**SWITCHING CHARACTERISTICS**

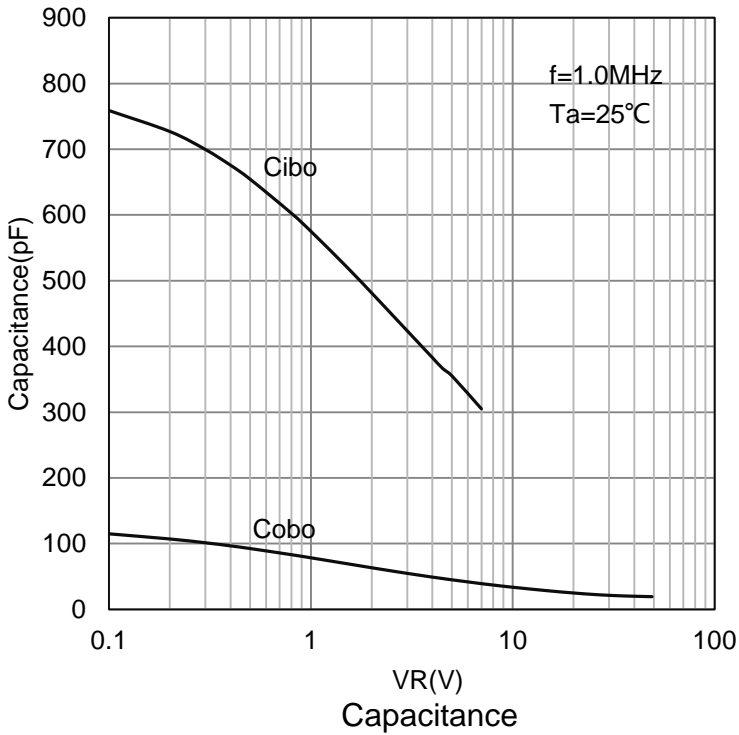
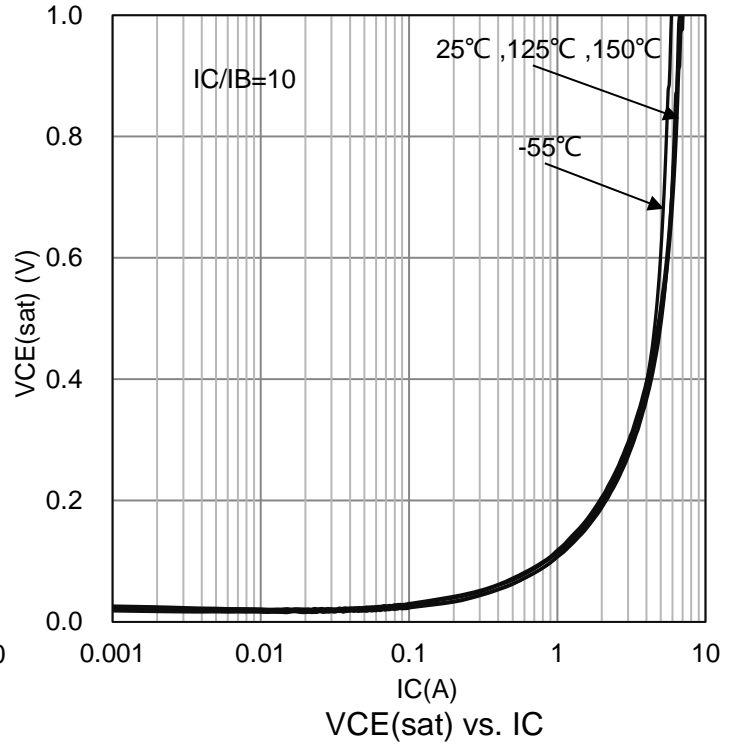
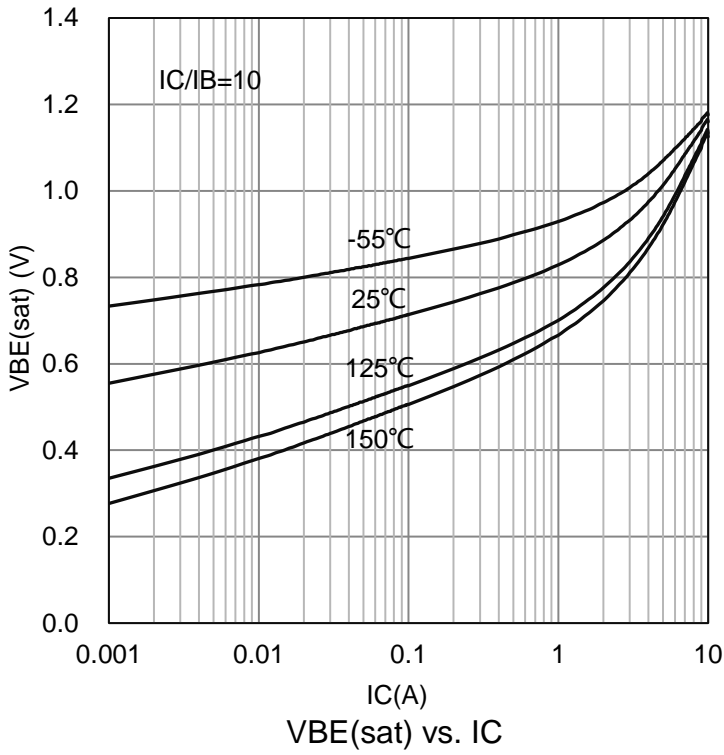
Switching Time	(VCC = -50V, IC = -1A, -IB1 = IB2 = -100mA)	t(on)	-	42	-	ns
		t(off)	-	764	-	

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

**6.ELECTRICAL CHARACTERISTICS CURVES**

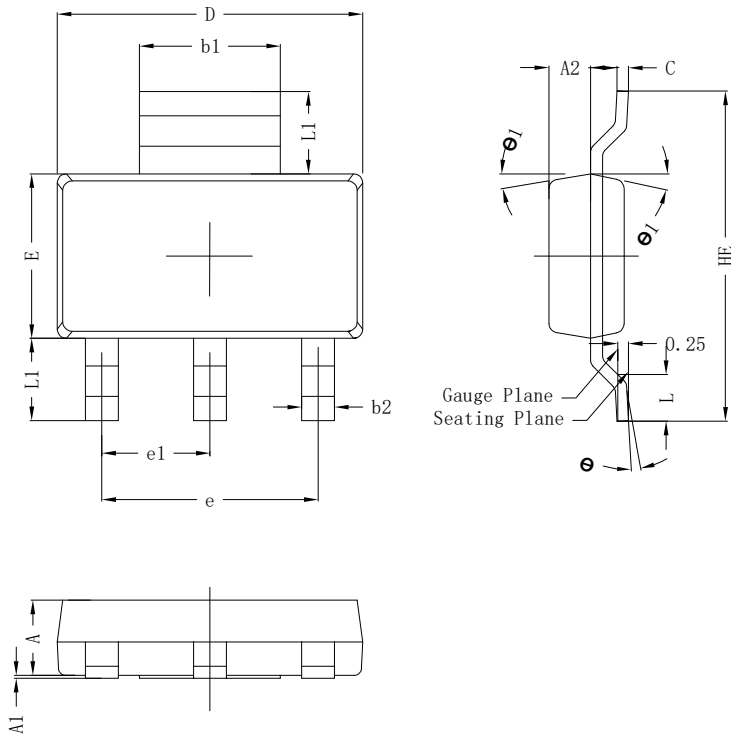


**6.ELECTRICAL CHARACTERISTICS CURVES(Con.)**



## 7. OUTLINE AND DIMENSIONS

### SOT223

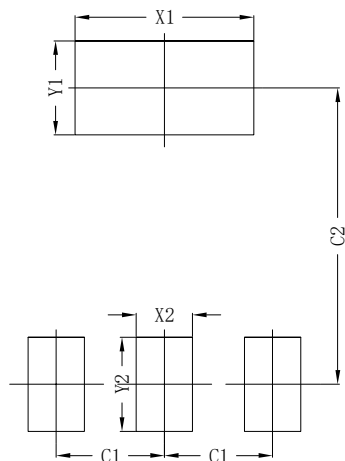


SOT223			
DIM	MIN	NOR	MAX
A	1.50	1.60	1.70
A1	0.00	0.05	0.10
A2	0.80	0.90	1.00
b1	2.90	3.02	3.10
b2	0.60	0.72	0.80
c	0.20	0.27	0.35
D	6.30	6.50	6.70
E	3.30	3.50	3.70
e	4.60BSC		
e1	2.30BSC		
HE	6.80	7.00	7.20
L	0.80	1.00	1.20
L1	1.75(REF)		
θ	0°~8°		
θ 1	8°	10°	12°
All Dimensions in mm			

#### GENERAL NOTES

1. Top package surface finish  $Ra0.4 \pm 0.2 \mu m$
2. Bottom package surface finish  $Ra0.7 \pm 0.2 \mu m$
3. Side package surface finish  $Ra0.4 \pm 0.2 \mu m$
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

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