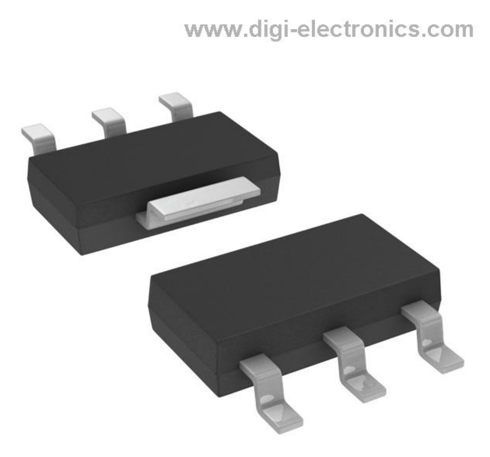
PZT651T1G Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number	PZT651T1G-DG
Manufacturer	onsemi
Manufacturer Product Number	PZT651T1G
Description	TRANS NPN 60V 2A SOT223
Detailed Description	Bipolar (BJT) Transistor NPN 60 V 2 A 75MHz 800 mW Surface Mount SOT-223 (TO-261)

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
PZT651T1G	onsemi
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
NPN	2 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
60 V	500mV @ 200mA, 2A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
100nA (ICBO)	75 @ 1A, 2V
Power - Max:	Frequency - Transition:
800 mW	75MHz
Operating Temperature:	Mounting Type:
150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
TO-261-4, TO-261AA	SOT-223 (TO-261)
Base Product Number:	
PZT651	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0095	

DATA SHEET
www.onsemi.com

NPN Silicon Planar Epitaxial Transistor
PZT651

This NPN Silicon Epitaxial transistor is designed for use in industrial and consumer applications. The device is housed in the SOT−223 package which is designed for medium power surface mount applications.

SOT−223 package ensures level mounting, resulting in improved thermal conduction, and allows visual inspection of soldered joints. The formed leads absorb thermal stress during soldering, eliminating the possibility of damage to the die.

Features

- High Current
- The SOT−223 Package can be Soldered Using Wave or Reflow
- PNP Complement is PZT751T1G
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Collector−Emitter Voltage	V_{CEO}	60	Vdc
Collector−Base Voltage	V_{CBO}	80	Vdc
Emitter−Base Voltage	V_{EBO}	5.0	Vdc
Collector Current	I_C	2.0	Adc
Total Power Dissipation @ T_A = 25°C (Note 1) Derate above 25°C	P_D	 0.8 6.4	W mW/°C
Storage Temperature Range	T_{stg}	−65 to 150	°C
Junction Temperature	T_J	150	°C

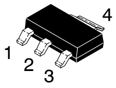
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance from Junction−to−Ambient in Free Air	$R_{\theta JA}$	156	°C/W
Maximum Temperature for Soldering Purposes Time in Solder Bath	T_L	260 10	°C Sec

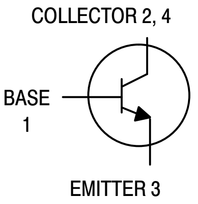
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Device mounted on a FR−4 glass epoxy printed circuit board using minimum recommended footprint.

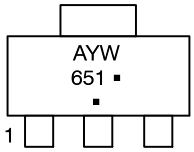
SOT−223 PACKAGE HIGH CURRENT NPN SILICON TRANSISTOR SURFACE MOUNT



SOT−223
CASE 318E−04
STYLE 1



MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping[†]
PZT651T1G	SOT−223 (Pb−Free)	1,000 / Tape & Reel
SPZT651T1G	SOT−223 (Pb−Free)	1,000 / Tape & Reel

[†] For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

June, 2022 − Rev. 11

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

Characteristics	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector−Emitter Breakdown Voltage (I_C = 10 mAdc, I_B = 0)	$V_{(BR)CEO}$	60	–	Vdc
Collector−Emitter Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	$V_{(BR)CBO}$	80	–	Vdc
Emitter−Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)	$V_{(BR)EBO}$	5.0	–	Vdc
Base−Emitter Cutoff Current (V_{EB} = 4.0 Vdc)	I_{EBO}	–	0.1	μAdc
Collector−Base Cutoff Current (V_{CB} = 80 Vdc, I_E = 0)	I_{CBO}	–	100	nAdc
ON CHARACTERISTICS (Note 2)				
DC Current Gain (I_C = 50 mAdc, V_{CE} = 2.0 Vdc) (I_C = 500 mAdc, V_{CE} = 2.0 Vdc) (I_C = 1.0 Adc, V_{CE} = 2.0 Vdc) (I_C = 2.0 Adc, V_{CE} = 2.0 Vdc)	h_{FE}	 75 75 75 40	 – – – –	–
Collector−Emitter Saturation Voltages (I_C = 2.0 Adc, I_B = 200 mAdc) (I_C = 1.0 Adc, I_B = 100 mAdc)	$V_{CE(sat)}$	 – –	 0.5 0.3	Vdc
Base−Emitter Voltages (I_C = 1.0 Adc, V_{CE} = 2.0 Vdc)	$V_{BE(on)}$	–	1.0	Vdc
Base−Emitter Saturation Voltage (I_C = 1.0 Adc, I_B = 100 mAdc)	$V_{BE(sat)}$	–	1.2	Vdc
Current−Gain — Bandwidth (I_C = 50 mAdc, V_{CE} = 5.0 Vdc, f = 100 MHz)	f_T	75	–	MHz

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

TYPICAL CHARACTERISTICS

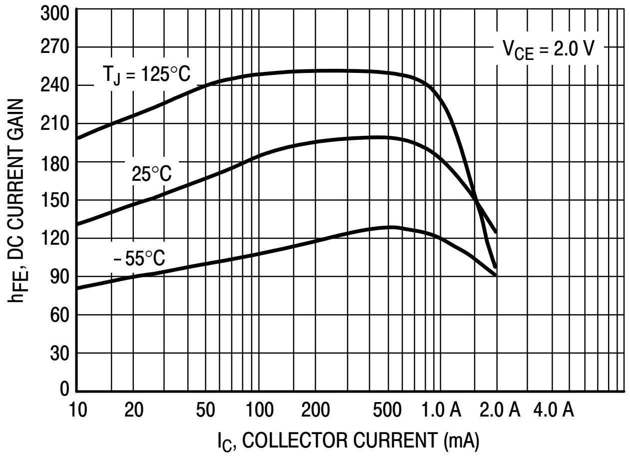


Figure 1. Typical DC Current Gain

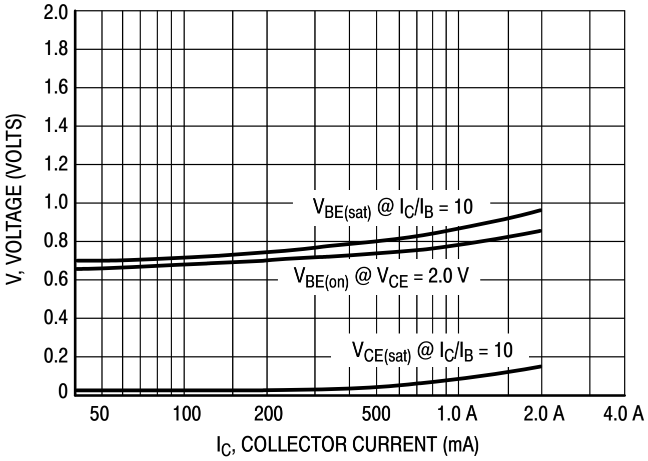


Figure 2. On Voltages

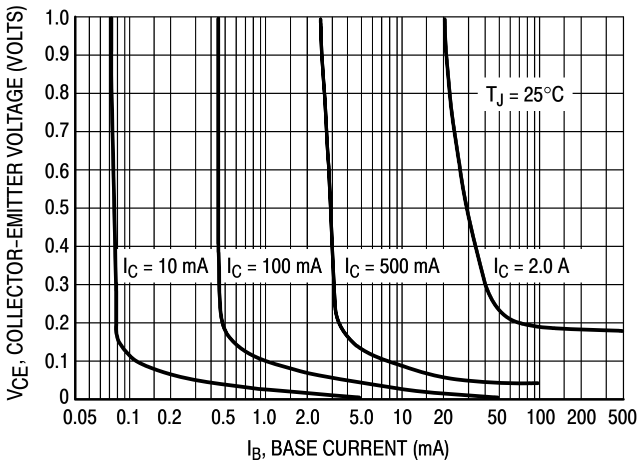


Figure 3. Collector Saturation Region

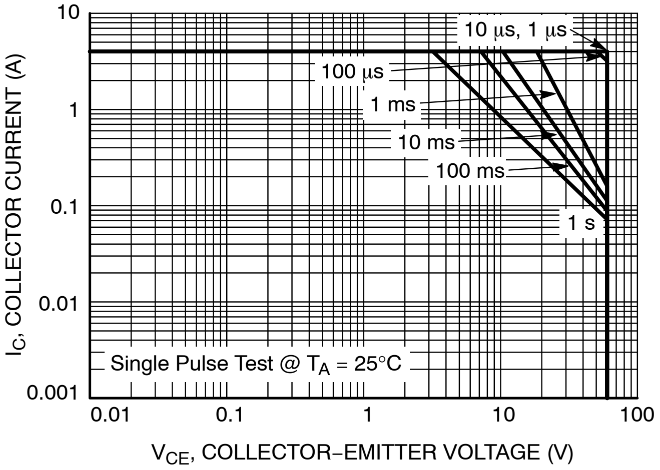


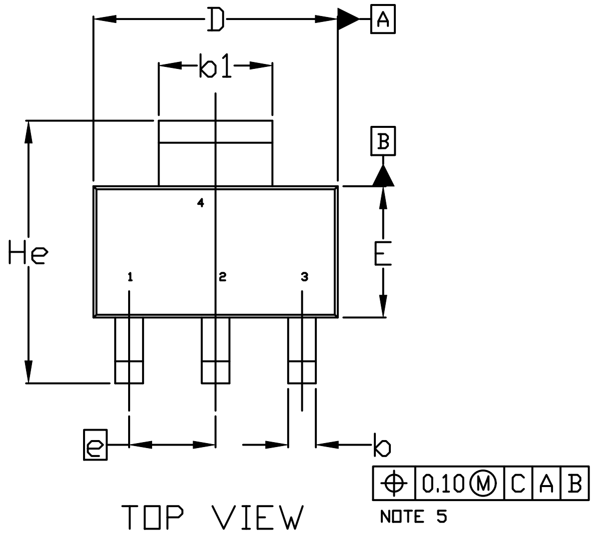
Figure 4. Safe Operating Area

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

SOT−223 (TO−261)
CASE 318E−04
ISSUE R

SCALE 1:1

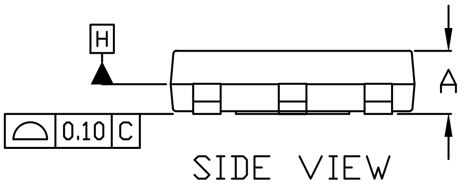
DATE 02 OCT 2018



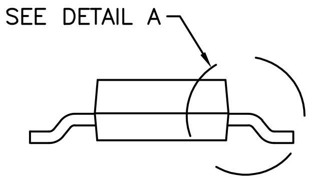
TOP VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. DIMENSIONS D & E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.200MM PER SIDE.
4. DATUMS A AND B ARE DETERMINED AT DATUM H.
5. A1 IS DEFINED AS THE VERTICAL DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT OF THE PACKAGE BODY.
6. POSITIONAL TOLERANCE APPLIES TO DIMENSIONS b AND b1.

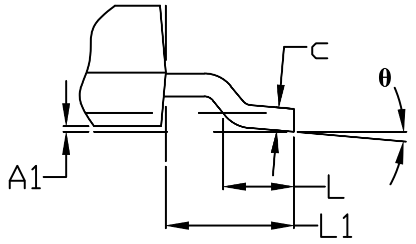
	MILLIMETERS		
DIM	MIN.	NOM.	MAX.
A	1.50	1.63	1.75
A1	0.02	0.06	0.10
b	0.60	0.75	0.89
b1	2.90	3.06	3.20
c	0.24	0.29	0.35
D	6.30	6.50	6.70
E	3.30	3.50	3.70
e	2.30 BSC		
L	0.20	---	---
L1	1.50	1.75	2.00
He	6.70	7.00	7.30
θ	0°	---	10°



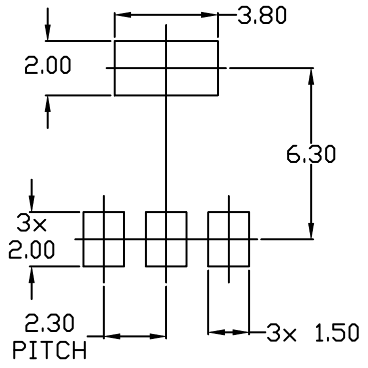
SIDE VIEW



FRONT VIEW



DETAIL A



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DESCRIPTION:	**SOT−223 (TO−261)**	**PAGE 1 OF 2**

SOT−223 (TO−261)

CASE 318E−04
ISSUE R

DATE 02 OCT 2018

STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 2:
PIN 1. ANODE
2. CATHODE
3. NC
4. CATHODE

STYLE 3:
PIN 1. GATE
2. DRAIN
3. SOURCE
4. DRAIN

STYLE 4:
PIN 1. SOURCE
2. DRAIN
3. GATE
4. DRAIN

STYLE 5:
PIN 1. DRAIN
2. GATE
3. SOURCE
4. GATE

STYLE 6:
PIN 1. RETURN
2. INPUT
3. OUTPUT
4. INPUT

STYLE 7:
PIN 1. ANODE 1
2. CATHODE
3. ANODE 2
4. CATHODE

STYLE 8:
CANCELLED

STYLE 9:
PIN 1. INPUT
2. GROUND
3. LOGIC
4. GROUND

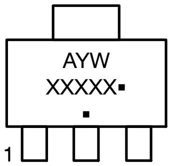
STYLE 10:
PIN 1. CATHODE
2. ANODE
3. GATE
4. ANODE

STYLE 11:
PIN 1. MT 1
2. MT 2
3. GATE
4. MT 2

STYLE 12:
PIN 1. INPUT
2. OUTPUT
3. NC
4. OUTPUT

STYLE 13:
PIN 1. GATE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

GENERIC MARKING DIAGRAM*



A = Assembly Location
Y = Year
W = Work Week
XXXXX = Specific Device Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*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. Some products may not follow the Generic Marking.

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DESCRIPTION:	**SOT−223 (TO−261)**	**PAGE 2 OF 2**

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OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEM CERTIFICATE

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GB/T45001-2020 idt ISO45001:2018

DCI Certification Ltd

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I hereby certify that

Is this day incorporated in Hong Kong under the Companies Ordinance (Chapter 622 of the Laws of Hong Kong), and that this company is a limited company.

Registrar of Companies
Hong Kong Special Administrative Region

MEMBERSHIP
Certificate

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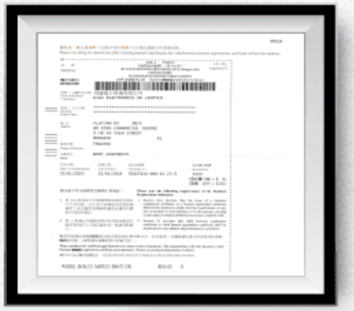

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