

## Features

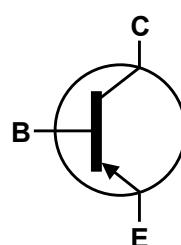
- $BV_{CEO} > -20V$
- $I_C = -1A$  Continuous Collector Current
- $I_{CM} = -3A$  Peak Pulse Current
- Low Saturation Voltage -250mV Max @  $I_C = -1A$ .
- $R_{CE(SAT)} = 200m\Omega$  @ 1A for a Low Equivalent On-Resistance
- 500mW Power Dissipation
- Excellent  $h_{FE}$  Characteristics up to 3A
- Complementary NPN Type: ZUMT618
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

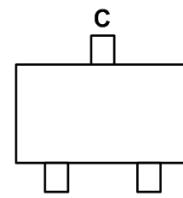
- Case: SOT323
- Case Material: Molded Plastic. "Green" Molding Compound
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.006 grams (approximate)



Top View



Device Symbol


 Top View  
 Pin-Out

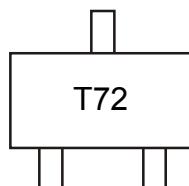
## Ordering Information (Notes 4)

Device	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per reel
ZUMT718TA	AEC-Q101	T72	7	8	3,000

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



T72 = Product Type Marking Code

**Absolute Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-20	V
Collector-Emitter Voltage	$V_{CEO}$	-20	V
Emitter-Base Voltage	$V_{EBO}$	-7	V
Peak Pulse Current	$I_{CM}$	-3	A
Continuous Collector Current	$I_C$	-1	A
Base Current	$I_B$	-200	mA

**Thermal Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	$P_D$	385	mW
(Note 5)	(Note 6)	500	
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	325	°C/W
(Note 5)	(Note 6)	250	
Thermal Resistance, Junction to Leads	$R_{\theta JL}$	350	°C/W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	°C

**ESD Ratings** (Note 8)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Notes:

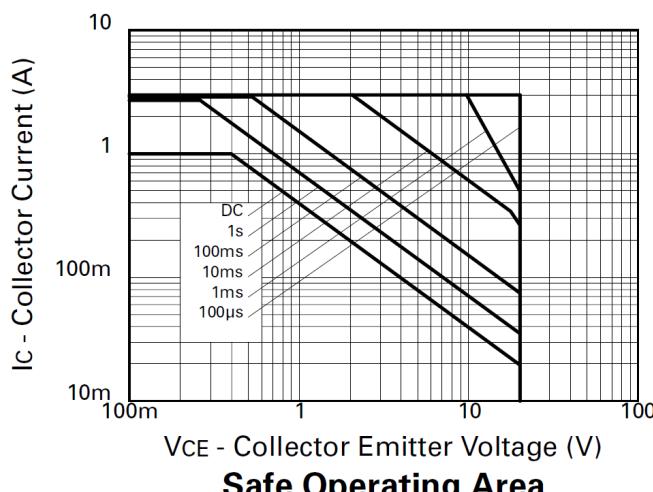
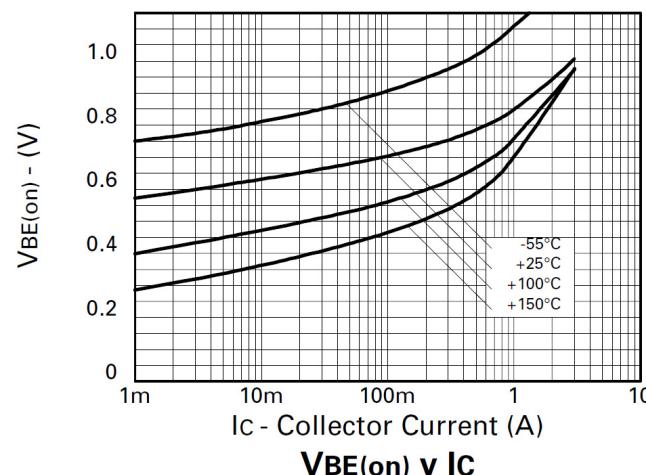
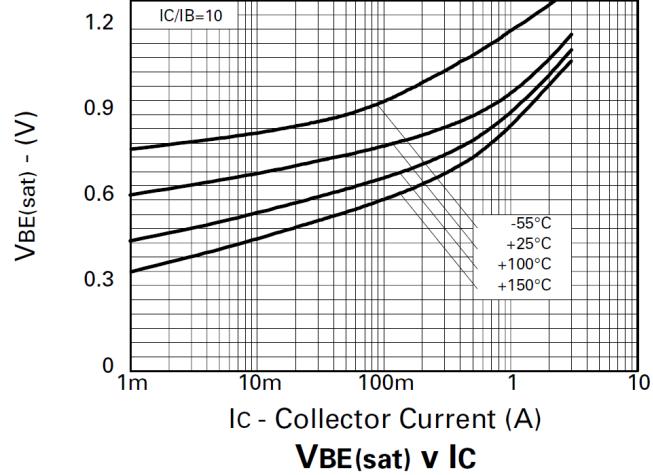
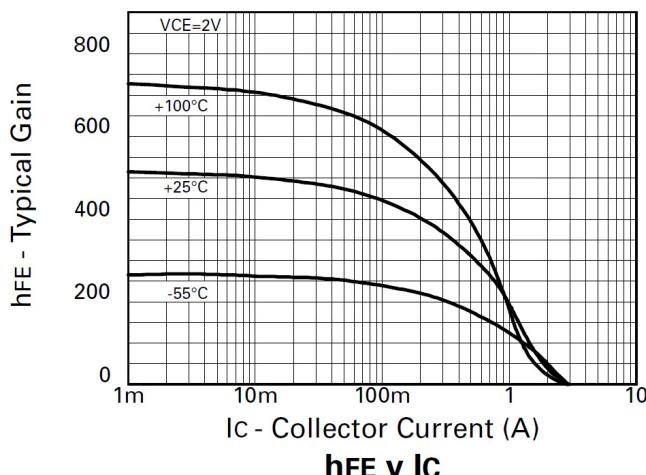
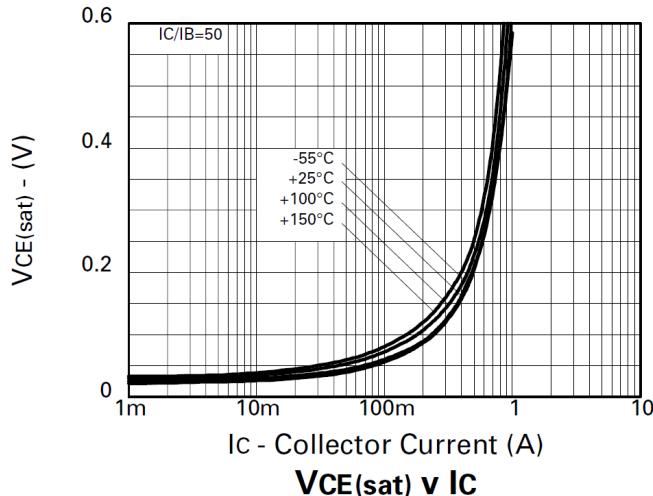
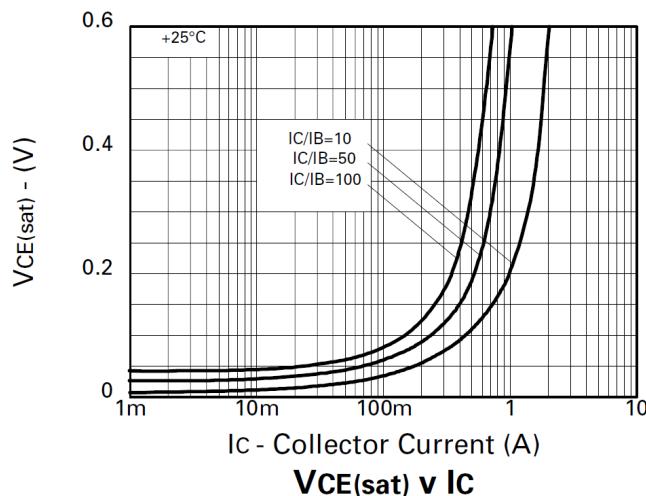
- 5. For a device mounted with collector lead on 10mm x 8mm 1oz copper that is on a single-sided 0.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
- 6. Same as note (5), except the collector lead is on a 25mm x 25mm 1oz copper.
- 7. Thermal resistance from junction to solder-point (at the end of the leads).
- 8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b> (Note 9)						
Collector-Base Breakdown Voltage	$V_{CBO}$	-20	—	—	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{CEO}$	-20	—	—	V	$I_C = -10\text{mA}$
Emitter-Base Breakdown Voltage	$V_{EBO}$	-7	—	—	V	$I_E = -100\mu\text{A}$
Collector-Base Cutoff Current	$I_{CBO}$	—	—	-10	nA	$V_{CB} = -15\text{V}$
Emitter-Base Cutoff Current	$I_{EBO}$	—	—	-10	nA	$V_{EB} = -4.0\text{V}$
Collector-Emitter Cutoff Current	$I_{CES}$	—	—	-10	nA	$V_{CES} = -15\text{V}$
<b>ON CHARACTERISTICS</b> (Note 9)						
DC Current Gain	$h_{FE}$	300 300 200 100 20	490 450 315 160 75	—	—	$I_C = -10\text{mA}, V_{CE} = -2.0\text{V}$ $I_C = -0.1\text{A}, V_{CE} = -2.0\text{V}$ $I_C = -0.5\text{A}, V_{CE} = -2.0\text{V}$ $I_C = -1\text{A}, V_{CE} = -2.0\text{V}$ $I_C = -1.5\text{A}, V_{CE} = -2.0\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(\text{SAT})}$	—	-33.5 -80 -130 -180	-45 -110 -175 -250	mV mV mV mV	$I_C = -0.1\text{A}, I_B = -10\text{mA}$ $I_C = -0.25\text{A}, I_B = -10\text{mA}$ $I_C = -0.5\text{A}, I_B = -20\text{mA}$ $I_C = -1\text{A}, I_B = -100\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(\text{SAT})}$	—	-970	-1100	mV	$I_C = -1\text{A}, I_B = 100\text{mA}$
Base-Emitter Turn-On Voltage	$V_{BE(\text{ON})}$	—	-850	-1100	mV	$I_C = -1\text{A}, V_{CE} = -2.0\text{V}$
<b>SMALL SIGNAL CHARACTERISTICS</b>						
Output Capacitance	$C_{obo}$	—	11	—	pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$
Turn-On Time	$t_{(\text{on})}$	—	60	—	ns	$V_{CC} = -10\text{V}, I_C = -1\text{A},$ $I_{B1} = -I_{B2} = -100\text{mA}$
Turn-Off Time	$t_{(\text{off})}$	—	135	—	ns	
Current Gain-Bandwidth Product	$f_T$	—	210	—	MHz	$V_{CE} = -10\text{V}, I_C = -50\text{mA},$ $f = 100\text{MHz}$

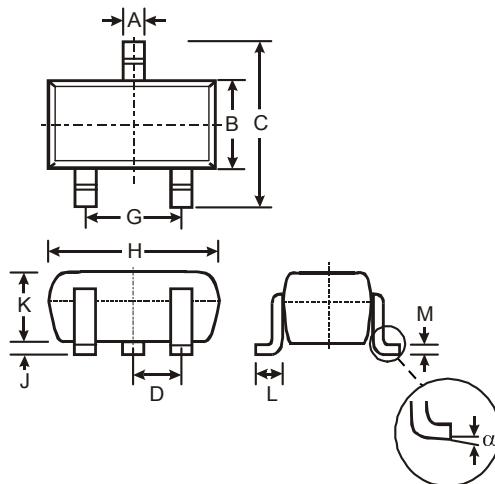
Note: 9. Measured under pulsed conditions. Pulse width  $\leq 300\mu\text{s}$ . Duty cycle  $\leq 2\%$ .

**Typical Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)



## Package Outline Dimensions

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.

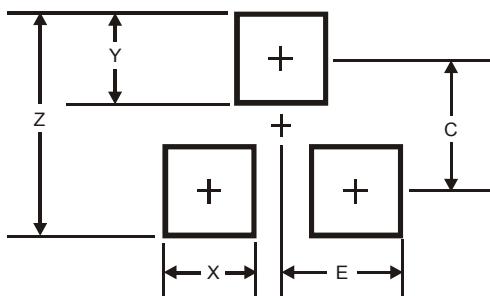


SOT323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
α	0°	8°	-

All Dimensions in mm

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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