

25V NPN SILICON PLANARR MEDIUM POWER TRANSISTOR

Features

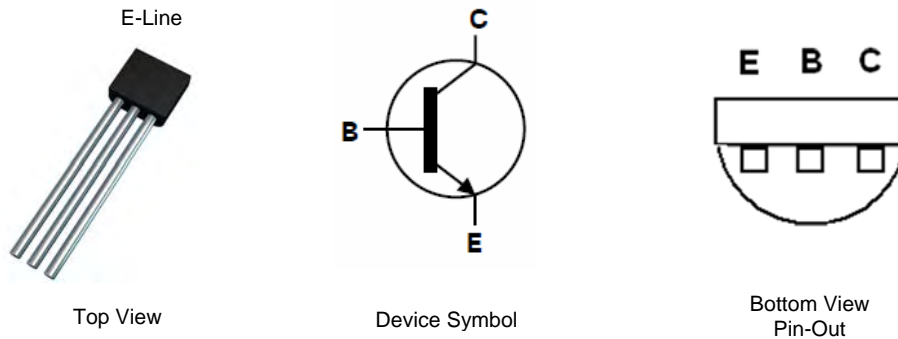
- $BV_{CEO} > 25V$
- Maximum Continuous Current $I_{C(cont)} = 4A$
- Up to 20A Peak Current
- Low Saturation Voltage
- $P_D = 1W$
- **Lead-Free Finish; RoHS compliant (Note 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: E-Line (TO-92 Compatible)
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.159 grams (approximate)

Applications

- LED Backlight Converters
- Emergency Lighting
- DC-DC Converters

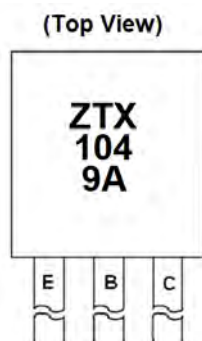


Ordering Information (Note 4)

Part Number	Marking	Case	Quantity
ZTX1049ASTZ	ZTX1049A	E-Line	2,000 per box on tape
ZTX1049A	ZTX1049A	E-Line	4,000 loose

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 2. See <http://www.diodes.com> 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>.

Marking Information



ZTX1049A = Product type Marking Code

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

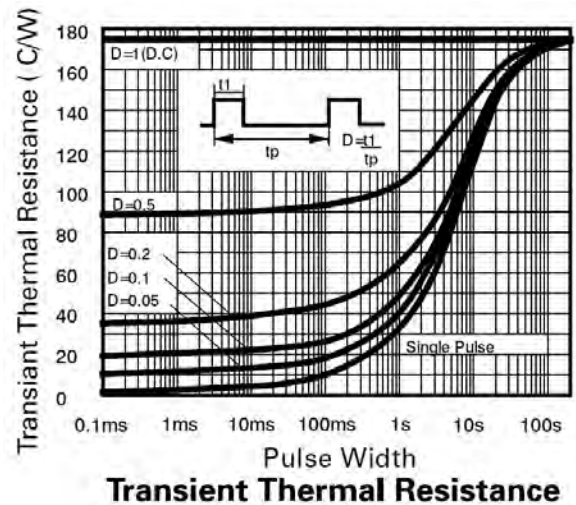
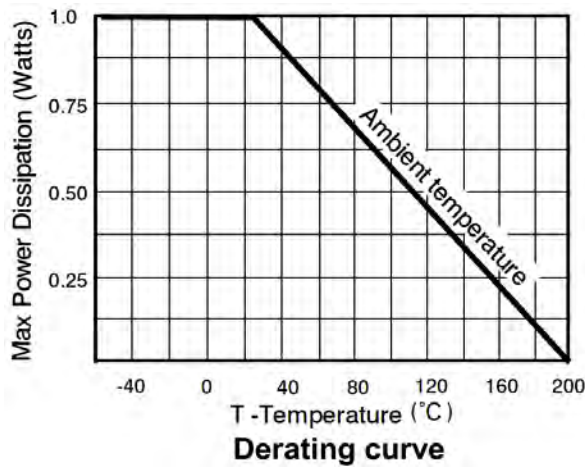
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	5	V
Continuous Collector Current	I_C	4	A
Peak Pulse Current	I_{CM}	20	A
Base Current	I_B	500	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	1	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	175	$^\circ\text{C/W}$
Thermal Resistance, Junction to Leads	$R_{\theta JL}$	63.75	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +200	$^\circ\text{C}$

Notes: 5. For devices mounted in a typical manner on a P.C.B. with copper equal to 1 inch square minimum.

Thermal Characteristics

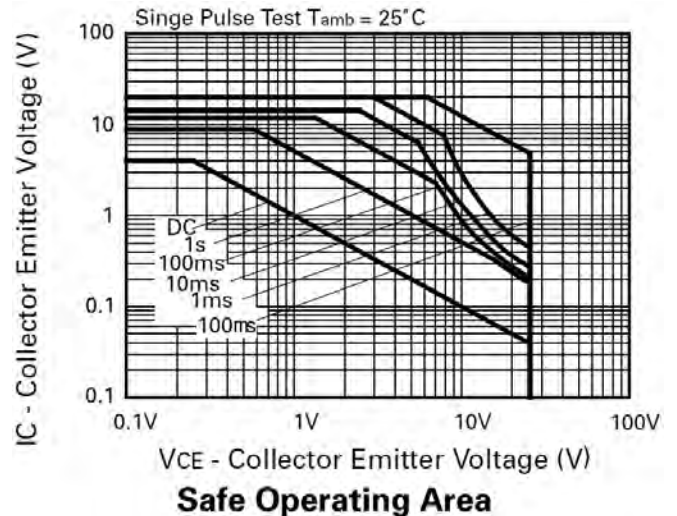
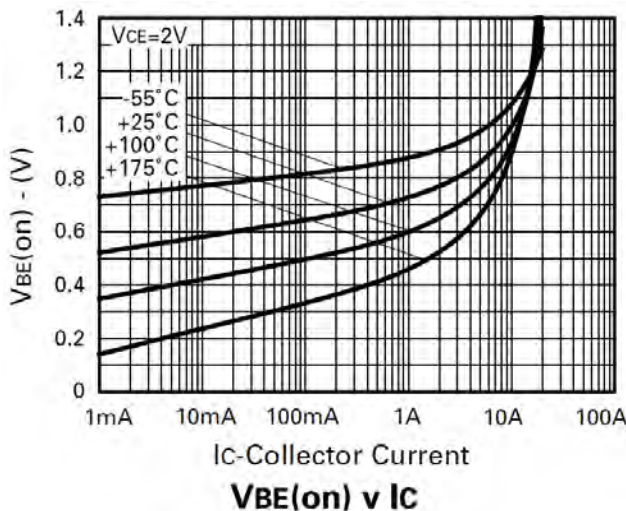
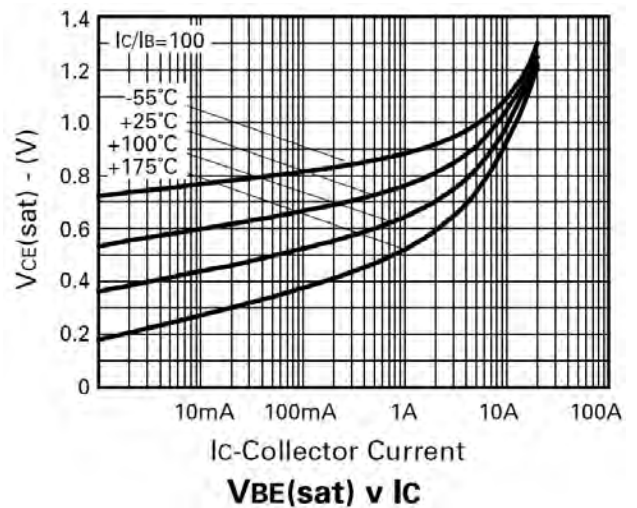
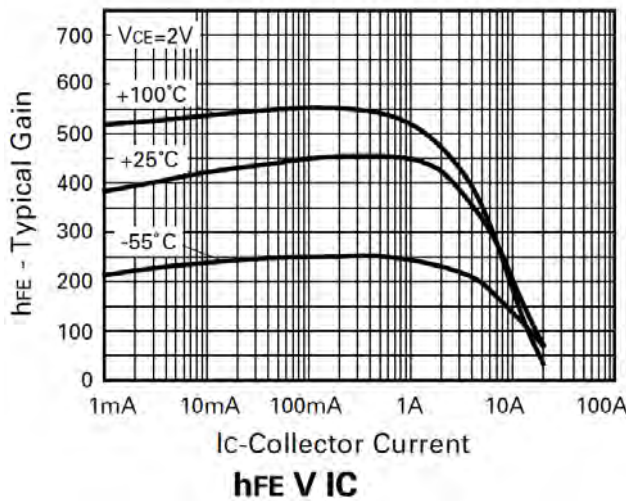
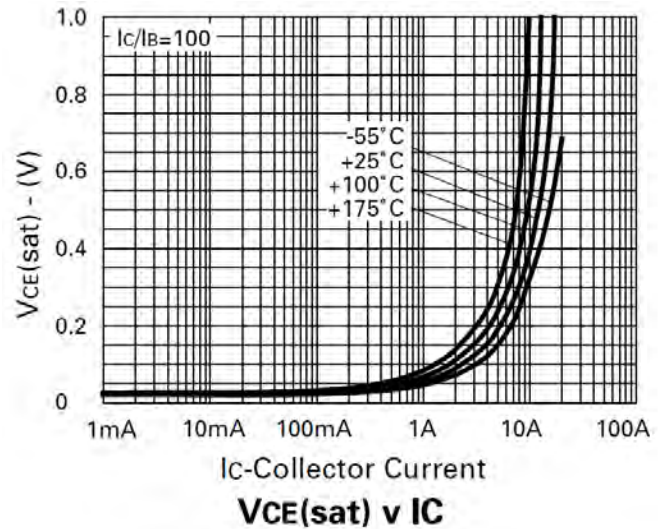
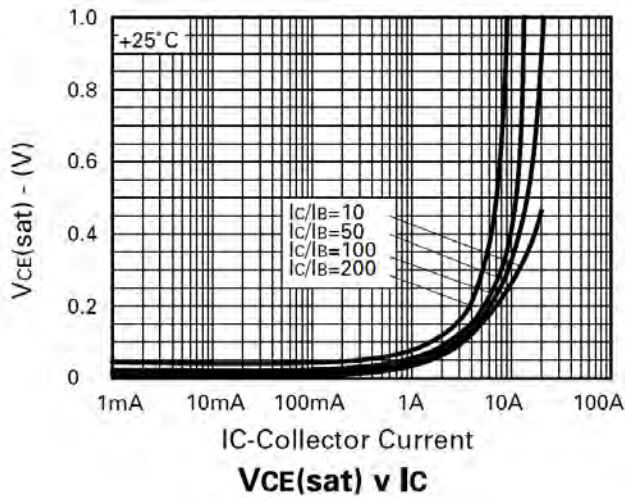


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	80	120	—	V	I _C = 100μA
Collector-Emitter Breakdown Voltage	BV _{CES}	80	120	—	V	I _C = 100μA
Collector-Emitter Breakdown Voltage	BV _{CEO}	25	30	—	V	I _C = 10mA
Collector-Emitter Breakdown Voltage	BV _{CEV}	80	120	—	V	I _C = 100μA, V _{EB} = 1V
Emitter-Base Breakdown Voltage	BV _{EBO}	5	8.75	—	V	I _E = 100μA
Collector Cut-off Current	I _{CBO}	—	0.3	10	nA	V _{CB} = 50V
Collector Emitter Cut-off Current	I _{CES}	—	0.3	10	nA	V _{CES} = 50V
Emitter Cut-off Current	I _{EBO}	—	0.3	10	nA	V _{EB} = 4V
Collector-Emitter Saturation Voltage (Note 6)	V _{CE(sat)}	—	30 60 125 155	45 80 180 220	mV	I _C = 500mA, I _B = 10mA I _C = 1A, I _B = 10mA I _C = 2A, I _B = 10mA I _C = 4A, I _B = 50mA
Base-Emitter Saturation Voltage (Note 6)	V _{BE(sat)}	—	890	950	mV	I _C = 4A, I _B = 50mA
Base-Emitter Turn-On Voltage (Note 6)	V _{BE(on)}	—	820	900	mV	I _C = 4A, V _{CE} = 2V
DC Current Gain (Note 6)	h _{FE}	250 300 300 200 35	430 450 450 350 70	— — 1200 — —	—	I _C = 10mA, V _{CE} = 2V I _C = 0.5A, V _{CE} = 2V I _C = 1A, V _{CE} = 2V I _C = 4A, V _{CE} = 2V I _C = 20A, V _{CE} = 2V
Current Gain-Bandwidth Product (Note 6)	f _T	—	180	—	MHz	V _{CE} = 10V, I _C = 50mA f = 50MHz
Output Capacitance (Note 6)	C _{obo}	—	45	60	pF	V _{CB} = 10V, f = 1MHz
Turn-On Times	t _{on}	—	125	—	ns	I _C = 4A, I _B = 40mA, V _{CC} = 10V
Turn-Off Times	t _{off}	—	380	—	ns	I _C = 4A, I _B = 40mA, V _{CC} = 10V

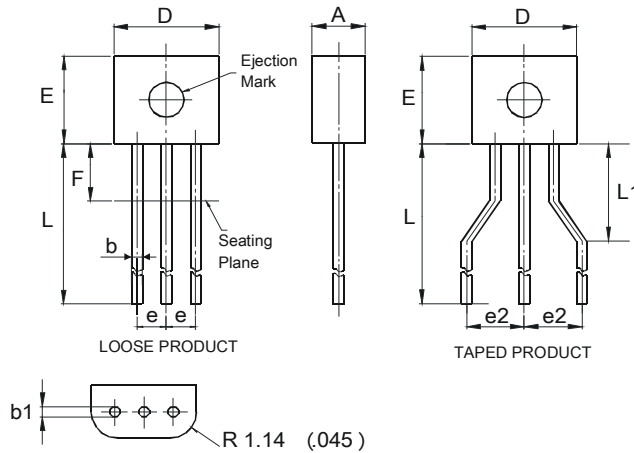
Notes: 6. Measured under pulsed conditions. Pulse width ≤ 300 μs. Duty cycle ≤ 2%

Typical Characteristics



Package Outline Dimensions

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



E-Line			
Dim	Min	Max	Typ
A	2.16	2.41	-
b	0.41	0.495	-
b1	0.41	0.495	-
D	4.37	4.77	-
E	3.61	4.01	-
e	-	-	1.27
e2	-	-	2.54
F	-	2.50	-
L	13.00	13.97	-
L1	2.50	3.50	-
All Dimensions in mm			

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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331