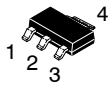
High Voltage Transistor Surface Mount

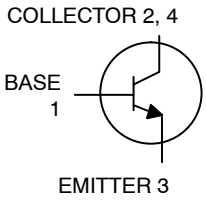
NPN Silicon

PZTA42T1G

SOT−223 PACKAGE
NPN SILICON
HIGH VOLTAGE TRANSISTOR
SURFACE MOUNT



SOT−223
CASE 318E
STYLE 1



Features

- PZTA42T1G is Complement to PZTA92T1G
- 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)

Symbol	Rating	Value	Unit
V_{CEO}	Collector−Emitter Voltage (Open Base)	300	Vdc
V_{CBO}	Collector−Base Voltage (Open Emitter)	300	Vdc
V_{EBO}	Emitter−Base Voltage (Open Collector)	6.0	Vdc
I_C	Collector Current (DC)	500	mAdc
P_D	Total Power Dissipation @ T_A = 25°C (Note 1)	1.5	W
T_{stg}	Storage Temperature Range	−65 to +150	°C
T_J	Junction Temperature	150	°C

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.

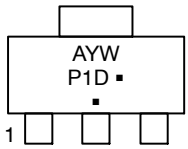
1. Device mounted on a FR−4 glass epoxy printed circuit board 1.575 in x 1.575 in x 0.0625 in; mounting pad for the collector lead = 0.93 sq in.

THERMAL CHARACTERISTICS

Symbol	Characteristic	Max	Unit
$R_{\theta JA}$	Thermal Resistance, Junction−to−Ambient (Note 2)	83.3	°C/W

2. Device mounted on a FR−4 glass epoxy printed circuit board 1.575 in x 1.575 in x 0.0625 in; mounting pad for the collector lead = 0.93 sq in.

MARKING DIAGRAM



P1D = Specific Device Code
A = Assembly Location
Y = Year
W = Work Week
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
PZTA42T1G	SOT−223 (Pb−Free)	1,000 / Tape & Reel
SPZTA42T1G	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 Specification Brochure, BRD8011/D.

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

Symbol	Characteristics	Min	Max	Unit
OFF CHARACTERISTICS				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (Note 3) (I_C = 1.0 mAdc, I_B = 0)	300	–	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	300	–	Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	6.0	–	Vdc
I_{CBO}	Collector-Base Cutoff Current (V_{CB} = 200 Vdc, I_E = 0)	–	0.1	μAdc
I_{EBO}	Emitter-Base Cutoff Current (V_{BE} = 6.0 Vdc, I_C = 0)	–	0.1	μAdc
ON CHARACTERISTICS				
h_{FE}	DC Current Gain (I_C = 1.0 mAdc, V_{CE} = 10 Vdc) (I_C = 10 mAdc, V_{CE} = 10 Vdc) (I_C = 30 mAdc, V_{CE} = 10 Vdc)	 25 40 40	 – – –	–
DYNAMIC CHARACTERISTICS				
f_T	Current-Gain – Bandwidth Product (I_C = 10 mAdc, V_{CE} = 20 Vdc, f = 100 MHz)	50	–	MHz
C_{re}	Feedback Capacitance (V_{CB} = 20 Vdc, I_E = 0, f = 1.0 MHz)	–	3.0	pF
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (I_C = 20 mAdc, I_B = 2.0 mAdc)	–	0.5	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (I_C = 20 mAdc, I_B = 2.0 mAdc)	–	0.9	Vdc

3. Pulse Test Conditions, t_p = 300 μs, δ 0.02.

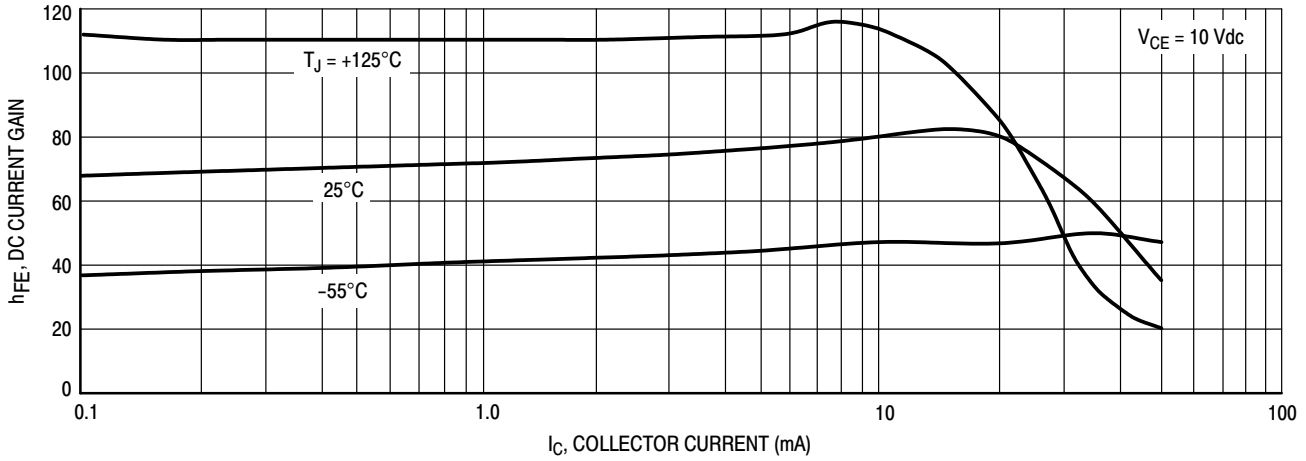


Figure 1. DC Current Gain

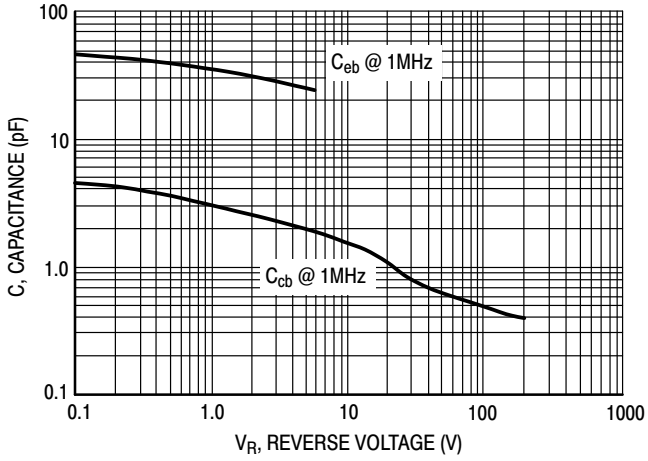


Figure 2. Capacitance

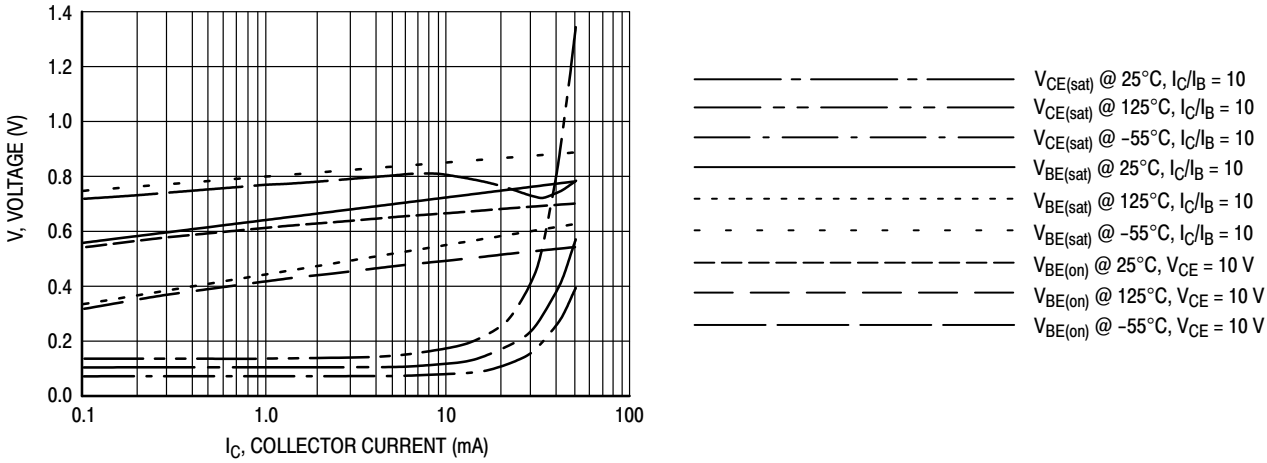


Figure 3. “ON” Voltages

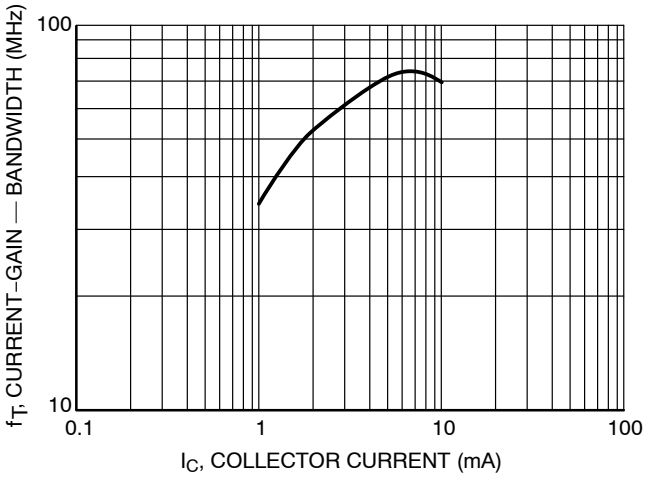


Figure 4. Current Gain Bandwidth Product

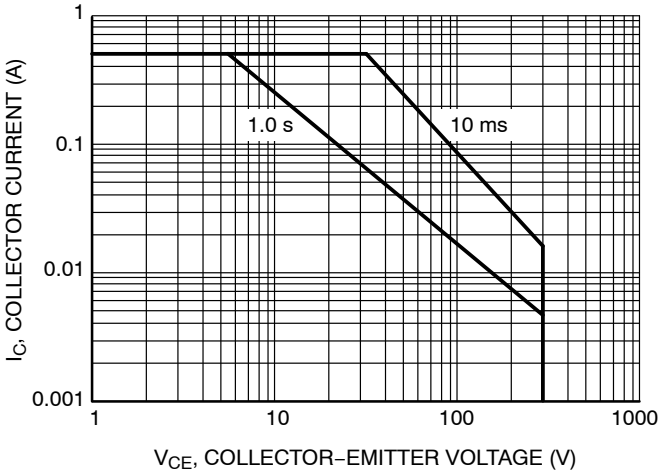


Figure 5. Safe Operating Area

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
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