

**450V NPN HIGH VOLTAGE POWER TRANSISTOR**
**Features**

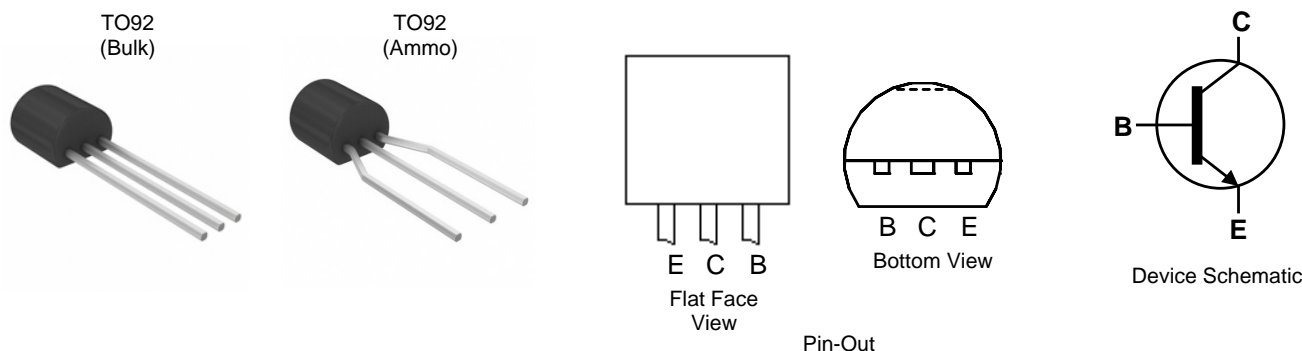
- $BV_{CEO} > 450V$
- $BV_{CES} > 700V$
- $BV_{EBO} > 9V$
- $I_C = 0.8A$  high Continuous Collector Current
- **Lead-Free Finish; RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

**Application**

- Battery Charges for Mobile Phone  
Power Supply for DVD / STB

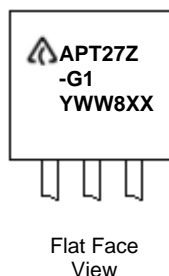
**Mechanical Data**


- Case: TO92
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208 <sup>(e3)</sup>
- Weight: TO92: 200mg (Approximate)


**Ordering Information** (Note 4)

Product	Package	Marking	Quantity
APT27Z-G1	TO92 (Straight Legs)	APT27Z-G1	10,000 Bulk, Loose per Box
APT27ZTR-G1	TO92 (Joggled Legs)	APT27Z-G1	2,000 Taped, per Ammo Box

- 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/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**


 = Manufacturers' code marking  
 APT27Z-G1 = Product Type Marking ID  
 YWW = Date Code Marking  
           e.g 312 = Year 2013, Week 12  
 8 = Assembly site code  
 XX = Batch Number

**Absolute Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Emitter Voltage (V <sub>BE</sub> = 0V)	V <sub>CES</sub>	700	V
Collector-Emitter Voltage	V <sub>CEO</sub>	450	V
Emitter-Base Voltage	V <sub>EBO</sub>	9	V
Continuous Collector Current	I <sub>C</sub>	0.8	A
Peak Pulse Collector Current	I <sub>CM</sub>	1.6	A
Continuous Base Current	I <sub>B</sub>	0.4	A
Peak Pulse Base Current	I <sub>BM</sub>	0.8	A

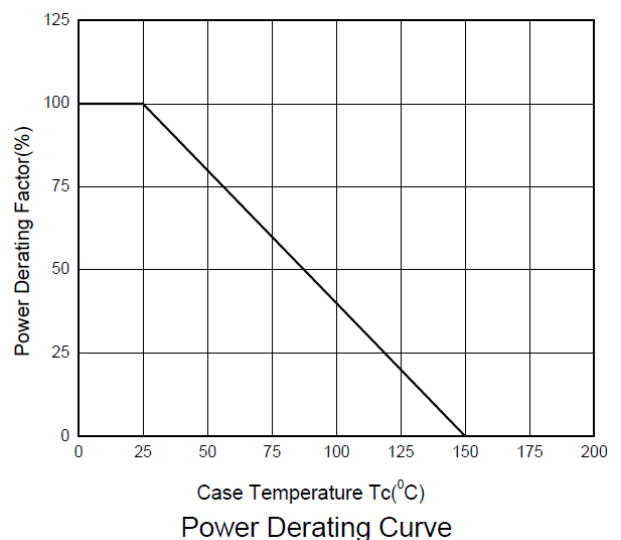
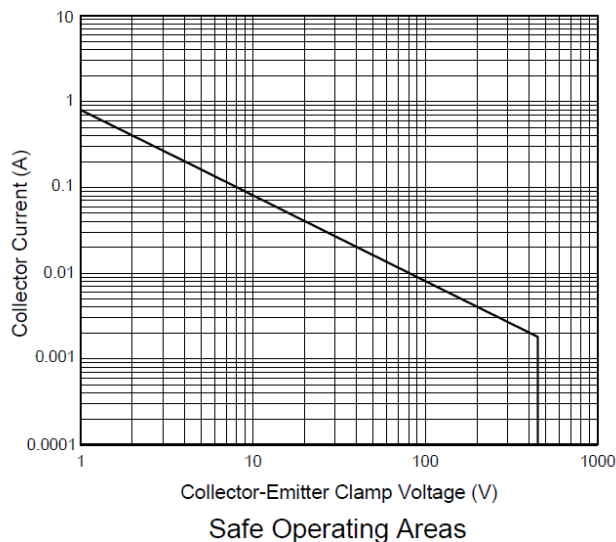
**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	0.8	W
Thermal Resistance, Junction to Ambient Air	R <sub>θJA</sub>	156.25	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**ESD Ratings** (Note 5)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	≥ 8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	C

Note: 5. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

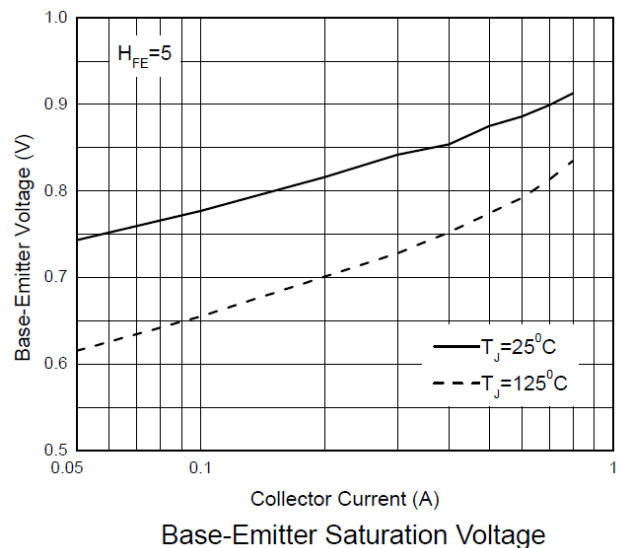
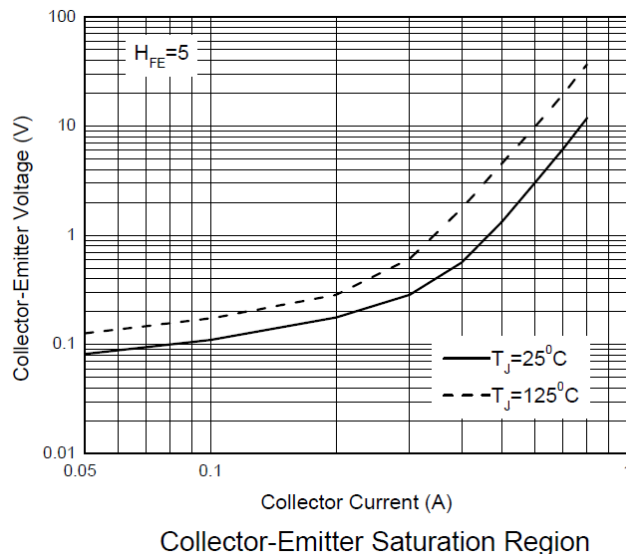
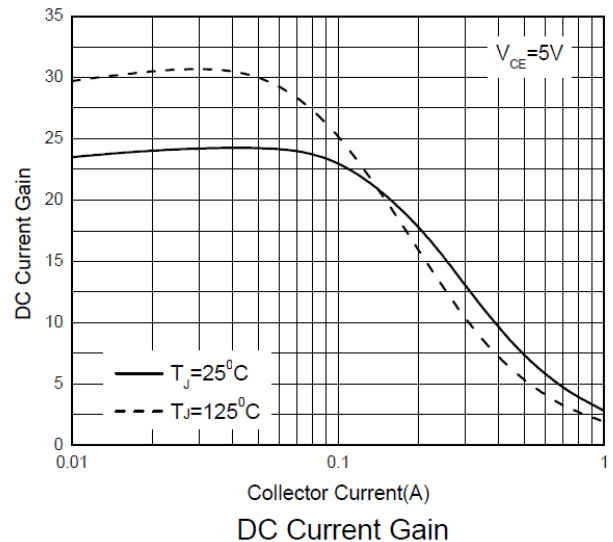
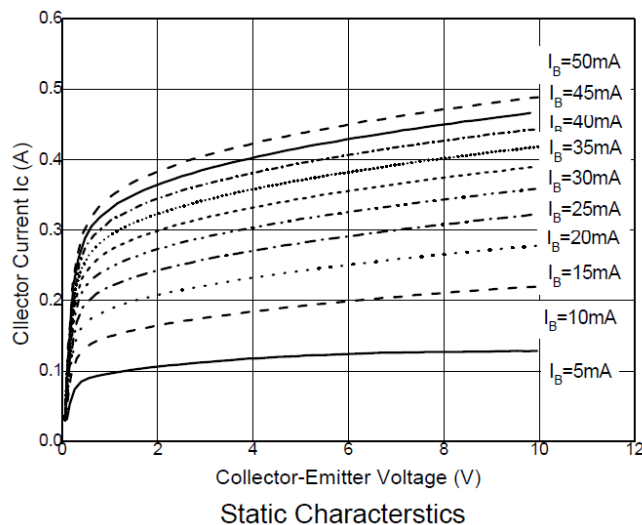
**Safe Operating Area and Derating Information** (@T<sub>A</sub> = +25°C, unless otherwise specified.)


## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Emitter Voltage	BV <sub>CES</sub>	700	—	—	V	I <sub>C</sub> = 100μA, V <sub>BE</sub> = 0V
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	450	—	—	V	I <sub>C</sub> = 100μA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	9	—	—	V	I <sub>E</sub> = 100μA
Collector Cutoff Current	I <sub>CEV</sub>	—	—	10	μA	V <sub>CE</sub> = 700V, V <sub>BE</sub> = -1.5V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	—	—	0.5	V	I <sub>C</sub> = 200mA, I <sub>B</sub> = 40mA
DC current transfer Static ratio (Note 6)	h <sub>FE</sub>	15 6	23 15	40 30	—	I <sub>C</sub> = 100mA, V <sub>CE</sub> = 10V I <sub>C</sub> = 300mA, V <sub>CE</sub> = 10V

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

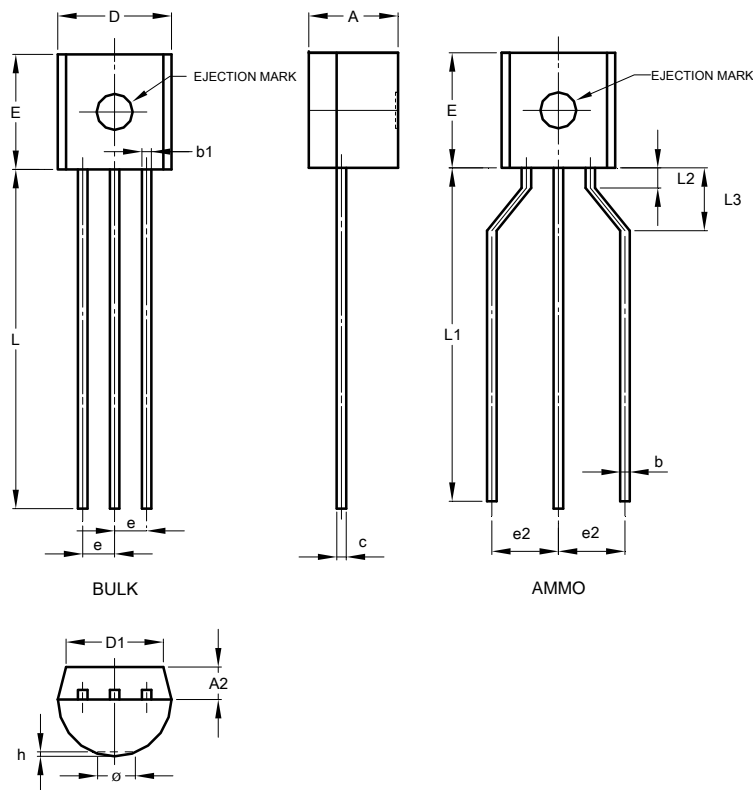
## Typical Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)



## Package Outline Dimensions

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

### TO92 Type C



TO92 Type C			
Dim	Min	Max	Typ
A	3.30	3.70	-
A2	1.10	1.40	-
b	0.38	0.55	-
c	0.36	0.51	-
D	4.40	4.70	-
D1	3.430	-	-
E	4.30	4.70	-
e	-	-	1.27
e2	2.440	2.640	-
h	0.00	0.38	-
L	14.10	14.50	-
L1	12.50	14.50	-
L3	2.50	3.50	-
ø	-	1.60	-
All Dimensions in mm			

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to voltage spacing between terminals.

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