

## 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)**

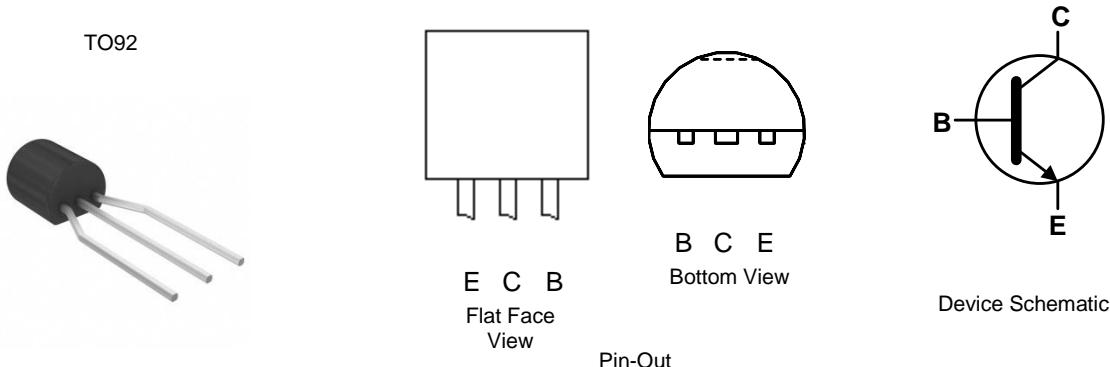
## Application

Low Power AC-DC SMPS for:

- Battery Chargers for Mobile Phone / Tablets / Smartphones
- Power Supply for DVD / STB
- LED Lighting

## 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 (E3)
- Weight: TO92: 200mg (Approximate)



## Ordering Information (Note 4)

Product	Package	Marking	Quantity
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



Flat Face View

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

Characteristic	Symbol	Value	Unit
Collector-Emitter Voltage ( $V_{BE} = 0\text{V}$ )	$V_{CES}$	700	V
Collector-Emitter Voltage	$V_{CEO}$	450	V
Emitter-Base Voltage	$V_{EBO}$	9	V
Continuous Collector Current	$I_C$	0.8	A
Peak Pulse Collector Current	$I_{CM}$	1.6	A
Continuous Base Current	$I_B$	0.4	A
Peak Pulse Base Current	$I_{BM}$	0.8	A

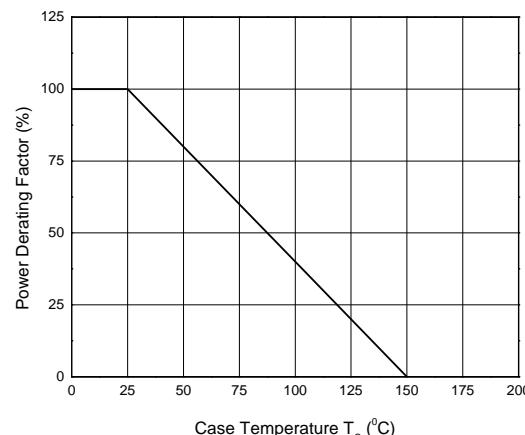
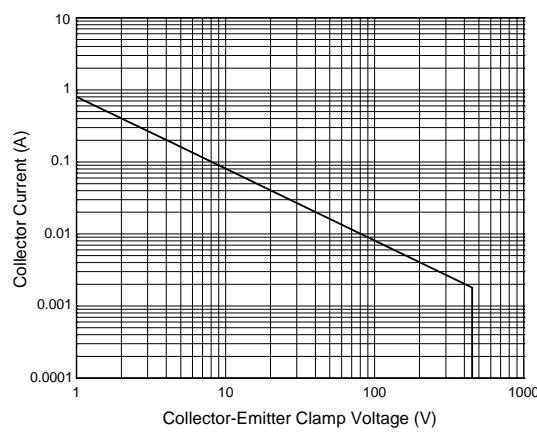
**Thermal Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	$P_D$	0.8	W
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	156.25	°C/W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-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

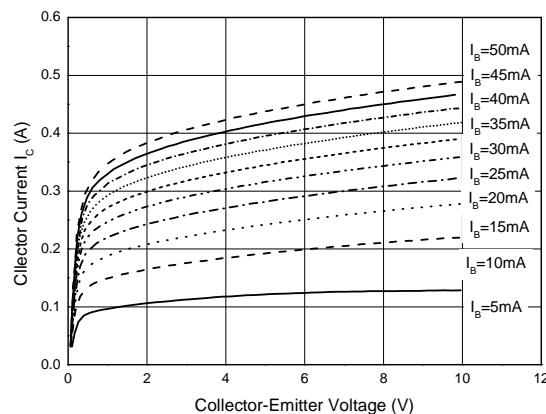
Note: 5. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

**Safe Operating Area and Derating Information** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)


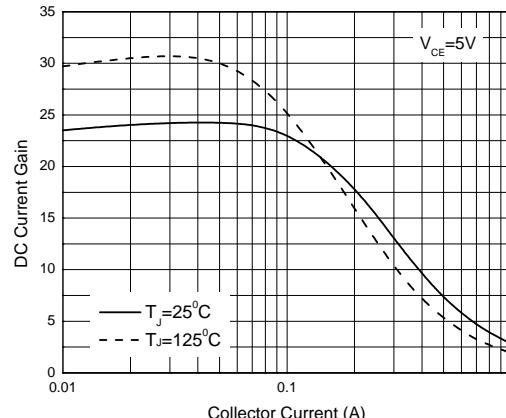
**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Emitter Breakdown Voltage	$\text{BV}_{\text{CES}}$	700	—	—	V	$I_C = 100\mu\text{A}$ , $V_{\text{BE}} = 0\text{V}$
Collector-Emitter Breakdown Voltage	$\text{BV}_{\text{CEO}}$	450	—	—	V	$I_C = 100\mu\text{A}$
Emitter-Base Breakdown Voltage	$\text{BV}_{\text{EBO}}$	9	—	—	V	$I_E = 100\mu\text{A}$
Collector Cutoff Current	$I_{\text{CEV}}$	—	—	10	$\mu\text{A}$	$V_{\text{CE}} = 700\text{V}$ , $V_{\text{BE}} = -1.5\text{V}$
Collector-Emitter Saturation Voltage	$V_{\text{CE}(\text{sat})}$	—	—	0.5	V	$I_C = 200\text{mA}$ , $I_B = 40\text{mA}$
DC Current Transfer Static Ratio (Note 6)	$\text{h}_{\text{FE}}$	15 6	23 15	40 30	—	$I_C = 100\text{mA}$ , $V_{\text{CE}} = 10\text{V}$ $I_C = 300\text{mA}$ , $V_{\text{CE}} = 10\text{V}$

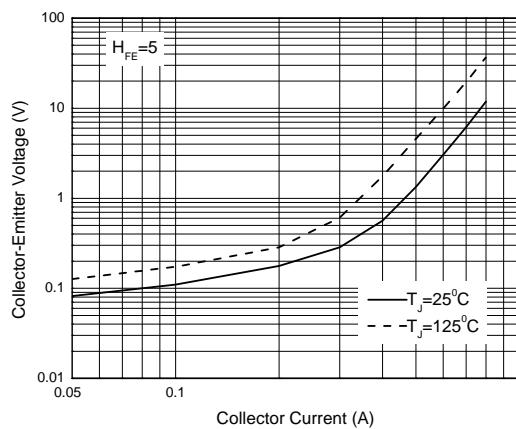
Note: 6. Measured under pulsed conditions. Pulse width  $\leq 300\mu\text{s}$ . Duty cycle  $\leq 2\%$ .

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


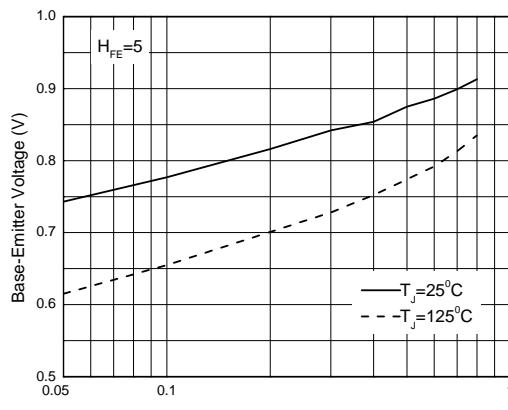
Static Characteristics



DC Current Gain



Collector-Emitter Saturation Region

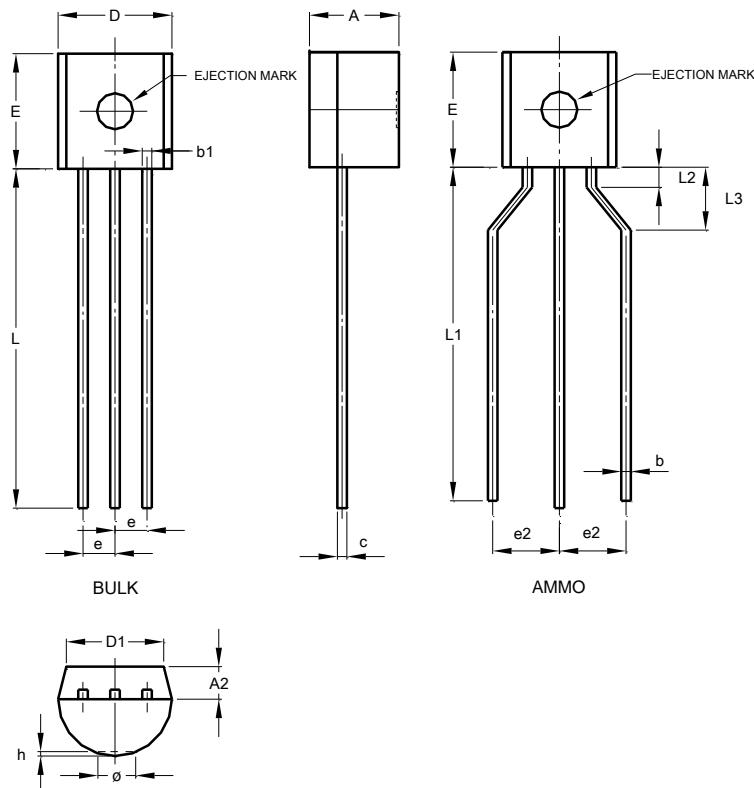


Base-Emitter Saturation Voltage

## Package Outline Dimensions

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

### (1) Package Type: TO92 Type C



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

All Dimensions in mm

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.

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