

APT27ZTR-G1 Datasheet

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DiGi Electronics Part Number	APT27ZTR-G1-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	APT27ZTR-G1
Description	TRANS NPN 450V 0.8A TO92
Detailed Description	Bipolar (BJT) Transistor NPN 450 V 800 mA 800 mW Through Hole TO-92



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Purchase and inquiry

Manufacturer Product Number:

APT27ZTR-G1

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

450 V

Current - Collector Cutoff (Max):

10 μ A

Power - Max:

800 mW

Operating Temperature:

-55°C ~ 150°C (TJ)

Package / Case:

TO-226-3, TO-92-3 (TO-226AA) Formed Leads

Base Product Number:

APT27

Manufacturer:

Diodes Incorporated

Product Status:

Obsolete

Current - Collector (Ic) (Max):

800 mA

Vce Saturation (Max) @ Ib, Ic:

500mV @ 40mA, 200mA

DC Current Gain (hFE) (Min) @ Ic, Vce:

15 @ 100mA, 10V

Frequency - Transition:

-

Mounting Type:

Through Hole

Supplier Device Package:

TO-92

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Affected

HTSUS:

8541.21.0095

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99



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APT27

450V NPN HIGH VOLTAGE POWER TRANSISTOR IN TO92

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)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com/quality/product-definitions/) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

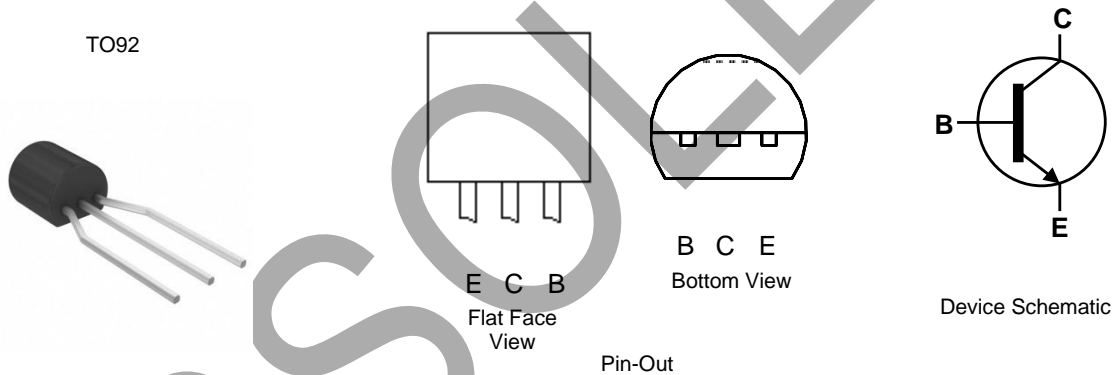
Mechanical Data

- 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)

Application

Low Power AC-DC SMPS for:

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

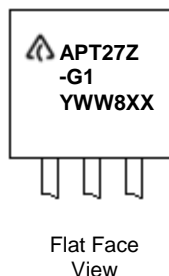


Ordering Information (Note 4)

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) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



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

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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

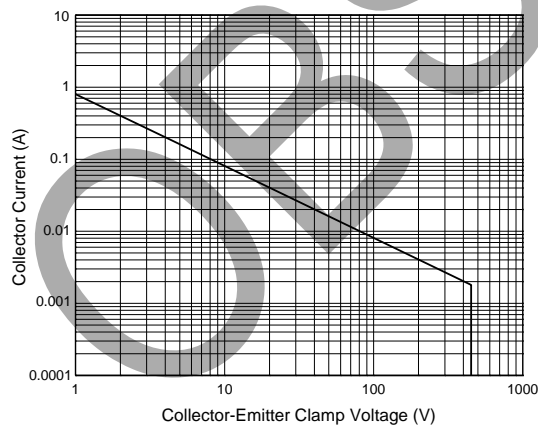
Thermal Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	P_D	0.8	W
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	156.25	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

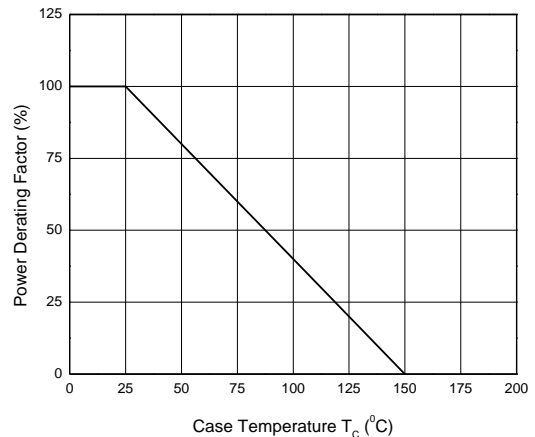
ESD Ratings (Note 5)

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.)


Safe Operating Areas



Power Derating Curve



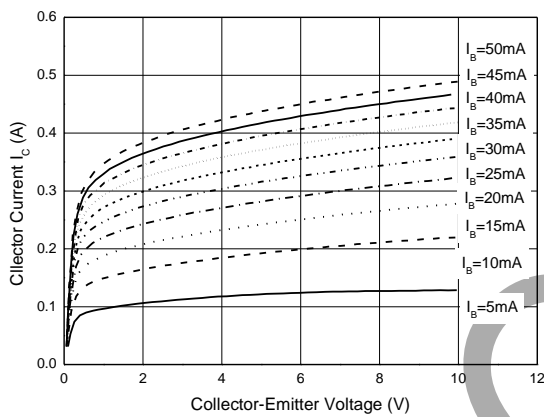
APT27

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

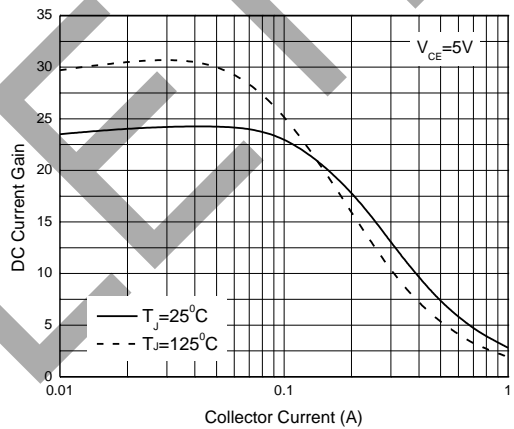
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Emitter Breakdown Voltage	BV _{CES}	700	—	—	V	I _C = 100μA, V _{BE} = 0V
Collector-Emitter Breakdown Voltage	BV _{CEO}	450	—	—	V	I _C = 100μA
Emitter-Base Breakdown Voltage	BV _{EBO}	9	—	—	V	I _E = 100μA
Collector Cutoff Current	I _{CEV}	—	—	10	μA	V _{CE} = 700V, V _{BE} = -1.5V
Collector-Emitter Saturation Voltage	V _{CE(sat)}	—	—	0.5	V	I _C = 200mA, I _B = 40mA
DC Current Transfer Static Ratio (Note 6)	h _{FE}	15	23	40	—	I _C = 100mA, V _{CE} = 10V
		6	15	30	—	I _C = 300mA, V _{CE} = 10V

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

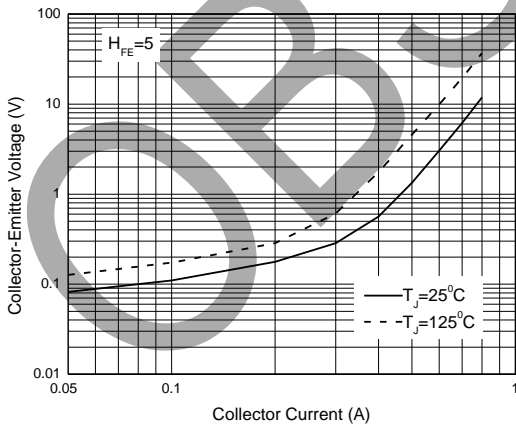
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



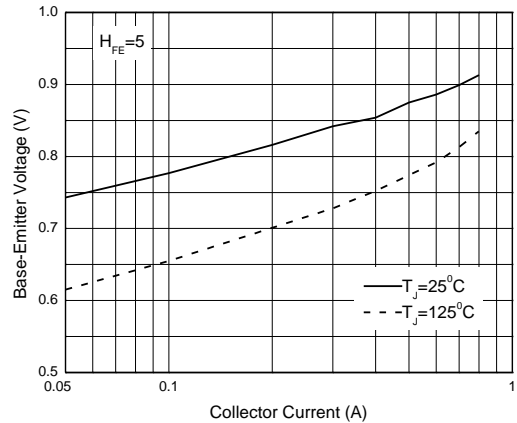
Static Characteristics



DC Current Gain



Collector-Emitter Saturation Region



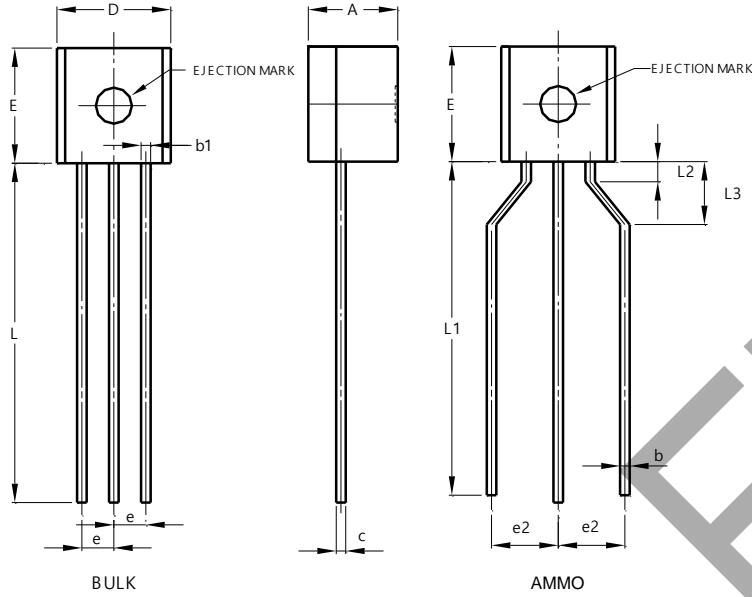
Base-Emitter Saturation Voltage

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Package Outline Dimensions

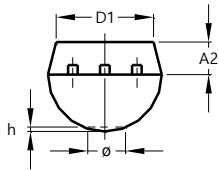
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(1) Package Type: 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 creepage and clearance distances between device Terminals and PCB tracking.

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