

480V NPN HIGH VOLTAGE POWER TRANSISTOR

Features

- $BV_{CEO} > 480V$
- $BV_{CES} > 700V$
- $BV_{EBO} > 10V$
- $I_C = 50mA$ High Collector Current
- **Totally Lead-Free & Fully 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) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

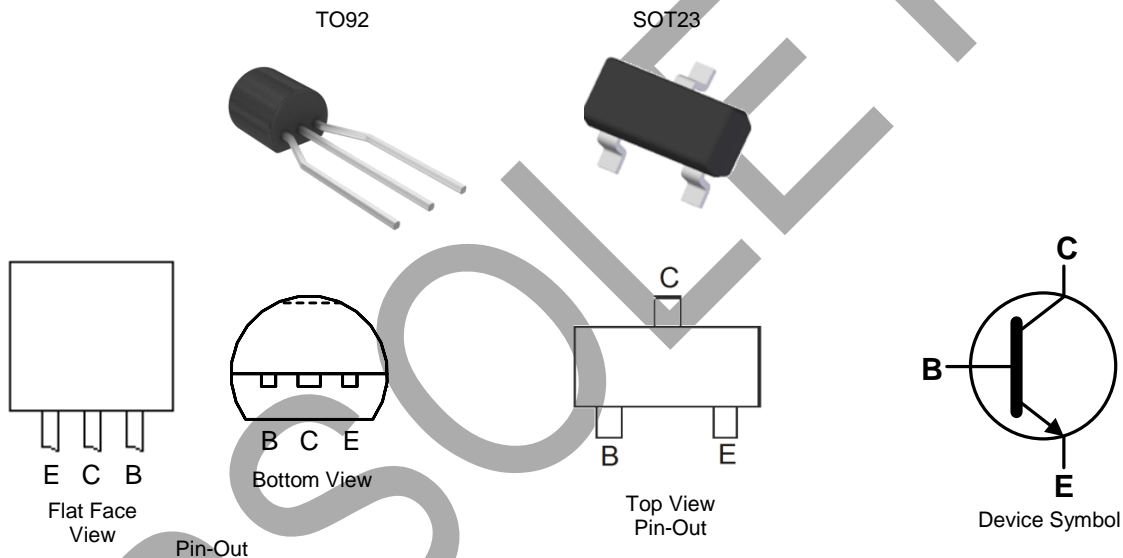
Application

Low Power AC-DC SMPS for:

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

Mechanical Data

- Package: TO92 or SOT23
- Package Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208③
- Weight: TO92: 200mg (Approximate)
SOT23: 8mg (Approximate)

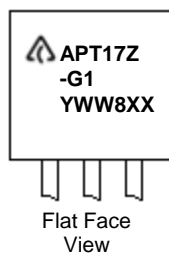


Ordering Information (Note 4)

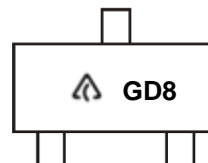
Part Number	Package	Marking	Packing	
			Qty.	Carrier
APT17ZTR-G1	TO92 (Joggled Legs)	APT17Z-G1	2,000 Taped	Per Ammo Box
APT17NTR-G1	SOT23	GD8	3,000 Taped	Per 7" Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 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
 APT17Z-G1 = Product Type Marking Code
 YWW = Date Code Marking
 e.g. 112 = Year 2021, Week 12
 8 = Assembly Site Code
 XX = Batch Number



= Manufacturers' Code Marking
 GD8 = Product Type Marking Code

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}	480	V
Emitter-Base Voltage	V_{EBO}	10	V
Continuous Collector Current	I_C	50	mA
Peak Pulse Collector Current	I_{CM}	100	mA
Continuous Base Current	I_B	25	mA
Peak Pulse Base Current	I_{BM}	50	mA

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

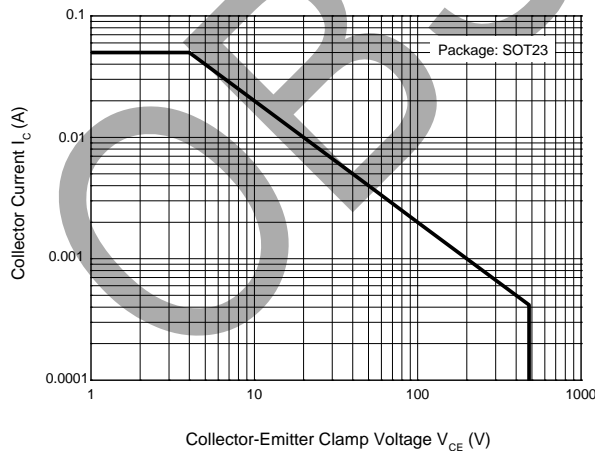
Characteristic	Symbol	Value	Unit
Power Dissipation	P_D	For TO92	0.5
		For SOT23	0.2
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	For TO92	250
		For SOT23	625
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

ESD Ratings (Note 5)

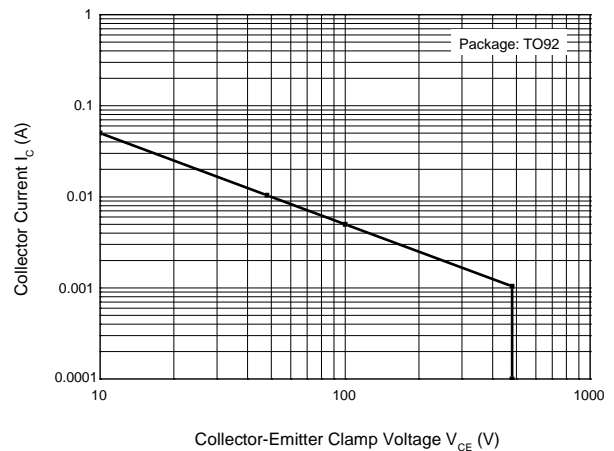
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

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

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



Safe Operating Areas



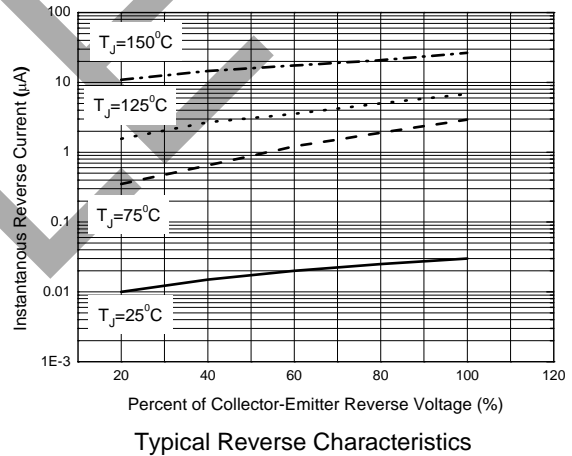
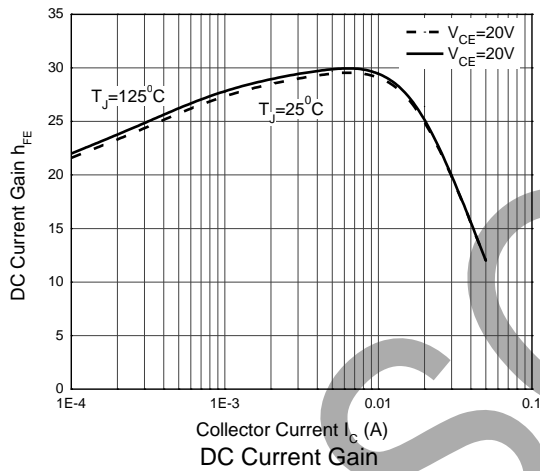
Safe Operating Areas

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

Characteristic	Symbol	Min	Max	Unit	Test Condition
Collector-Emitter Breakdown Voltage	BV _{CES}	700	—	V	I _C = 100μA, V _{BE} = 0V
Collector-Emitter Breakdown Voltage	BV _{CEO}	480	—	V	I _C = 300μA
Emitter-Base Breakdown Voltage	BV _{EBO}	10	—	V	I _E = 100μA
Collector Cutoff Current	I _{CEV}	—	10	μA	V _{CE} = 700V, V _{BE} = -1.5V
DC Current Transfer Static Ratio (Note 6)	h _{FE}	21	36.5	—	I _C = 100μA, V _{CE} = 20V
		24.5	35.5	—	I _C = 500μA, V _{CE} = 20V
		20	45.5	—	I _C = 10mA, V _{CE} = 20V

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

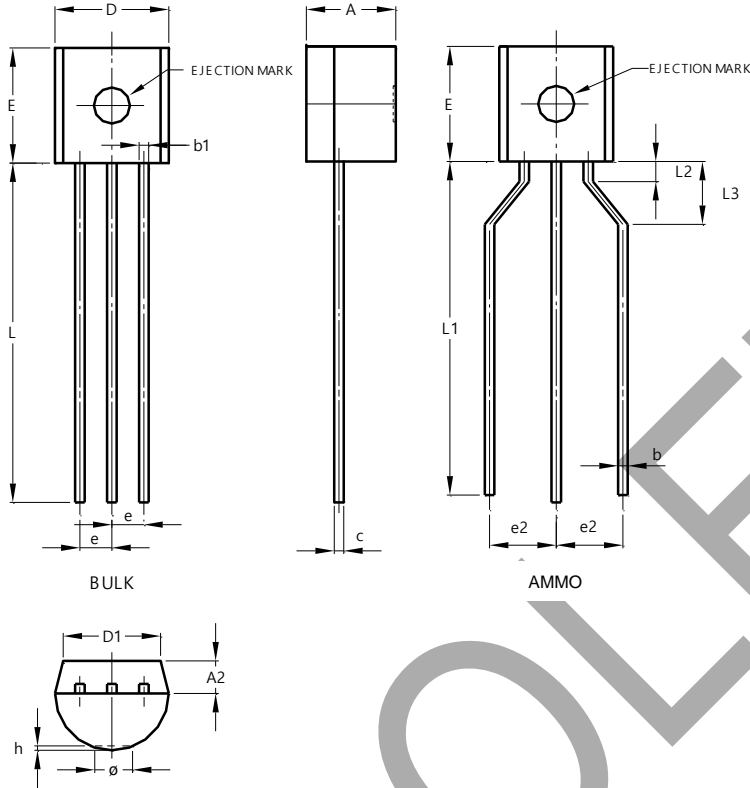
Typical Electrical Characteristics



Package Outline Dimensions

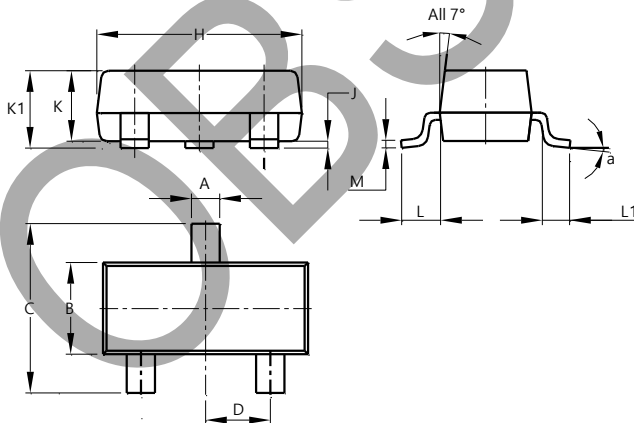
Please see <http://www.diodes.com/package-outlines.html> for the latest version.

(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			

(2) Package Type: SOT23

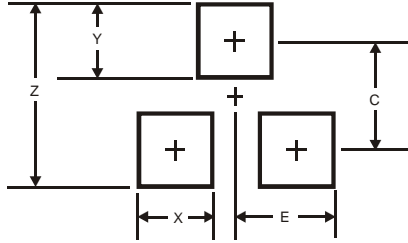


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	8°		
All Dimensions in mm			

Suggested Pad Layout

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

(1) Package Type: SOT23



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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

OBSOLETE - PART DISCONTINUED

OBSOLETE

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