

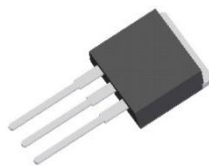
## Product Summary (Per Leg)

$V_{RRM}$ (V)	$I_O$ (A)	$V_F$ Max (V) @ +25°C	$I_R$ Max (μA) @ +25°C
120	20	0.88	120

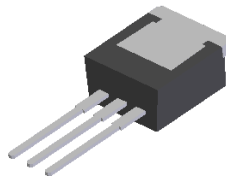
## Description and Applications

The SDT40A120CTE provides very low  $V_F$  and extremely excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

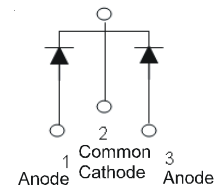
- DC-DC Converters
- AC-DC Adaptors



TO262 (Type HE)  
Top View



TO262 (Type HE)  
Bottom View



Package Pin Out  
Configuration

## Features

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Soft, Fast Switching Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

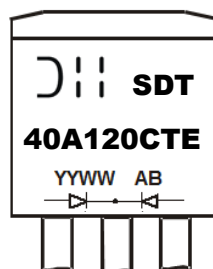
- Case: TO262 (Type HE)
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 @3
- Weight: TO262 (Type HE) –1.355 grams (Approximate)

## Ordering Information (Note 4)

Part Number	Case	Packaging
SDT40A120CTE	TO262 (Type HE)	50 Pieces/Tube

- 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



SDT40A120CTE = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 17 = 2017)  
 WW = Week (01 to 53)

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

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	120	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_{RM}$		
Average Rectified Output Current per Device (Per Leg) (Total)	$I_o$	20 40	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	220	A

**Thermal Characteristics** (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (Note 5) Package = TO262 (Type HE)	$R_{\theta JC}$	3	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	$V_F$	—	0.82	0.88	V	$I_F = 20\text{A}, T_J = +25^\circ\text{C}$
		—	0.68	0.73		$I_F = 20\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 6)	$I_R$	—	5	120	$\mu\text{A}$ $\text{mA}$	$V_R = 120\text{V}, T_J = +25^\circ\text{C}$
		—	4	25		$V_R = 120\text{V}, T_J = +125^\circ\text{C}$

Notes: 5. With 50mm\*50mm\*23mm Al heatsink.  
6. Short duration pulse test used to minimize self-heating effect.

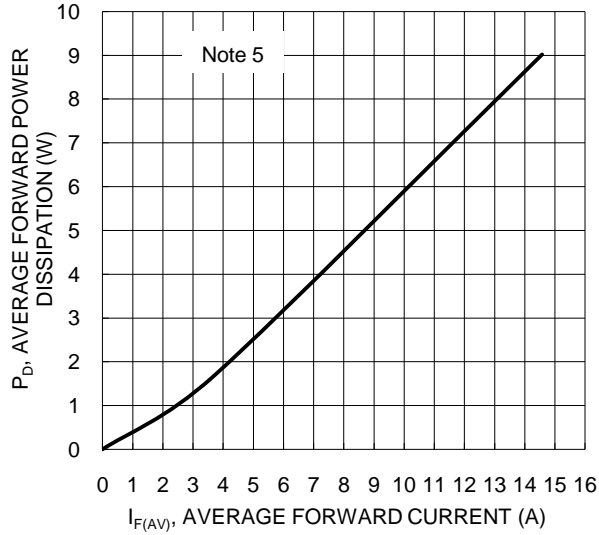


Figure 1. Forward Power Dissipation

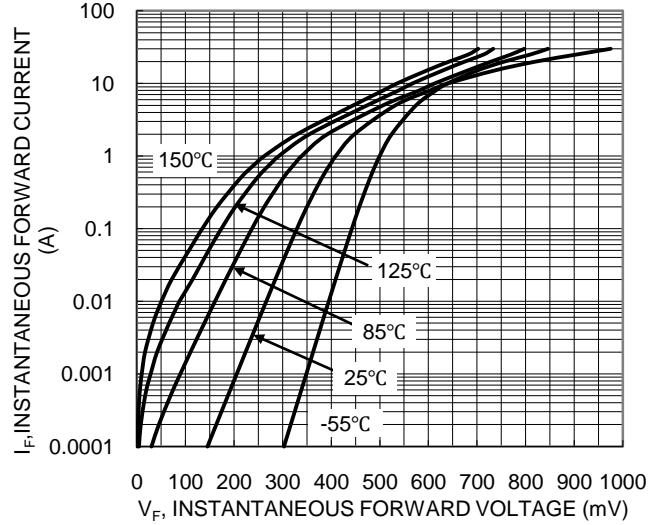


Figure 2. Typical Forward Characteristics

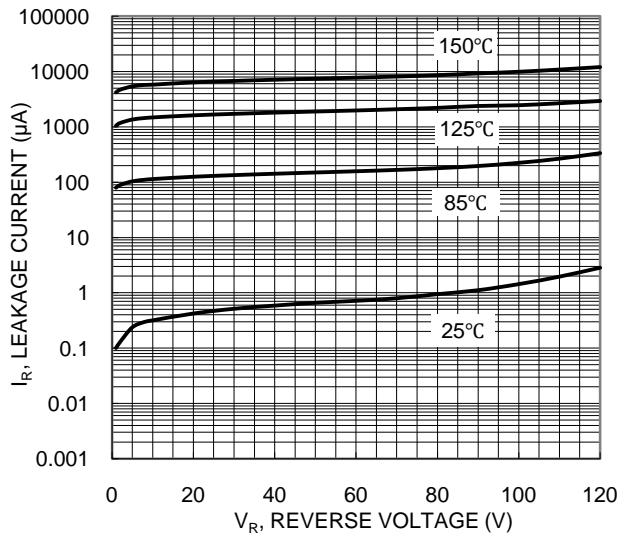


Figure 3. Typical Reverse Characteristics

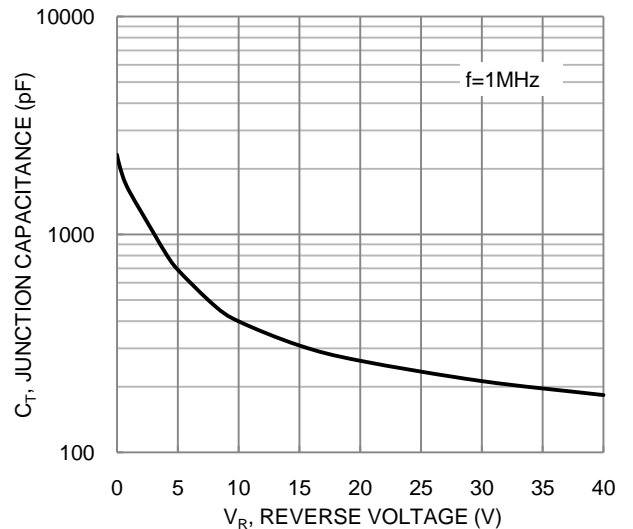


Figure 4. Typical Junction Capacitance

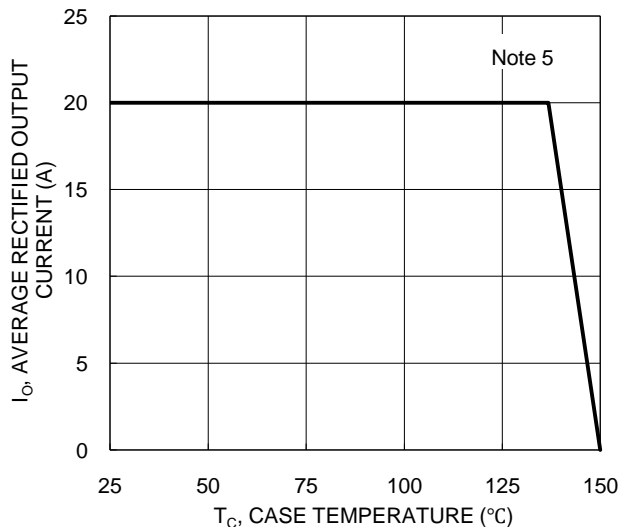
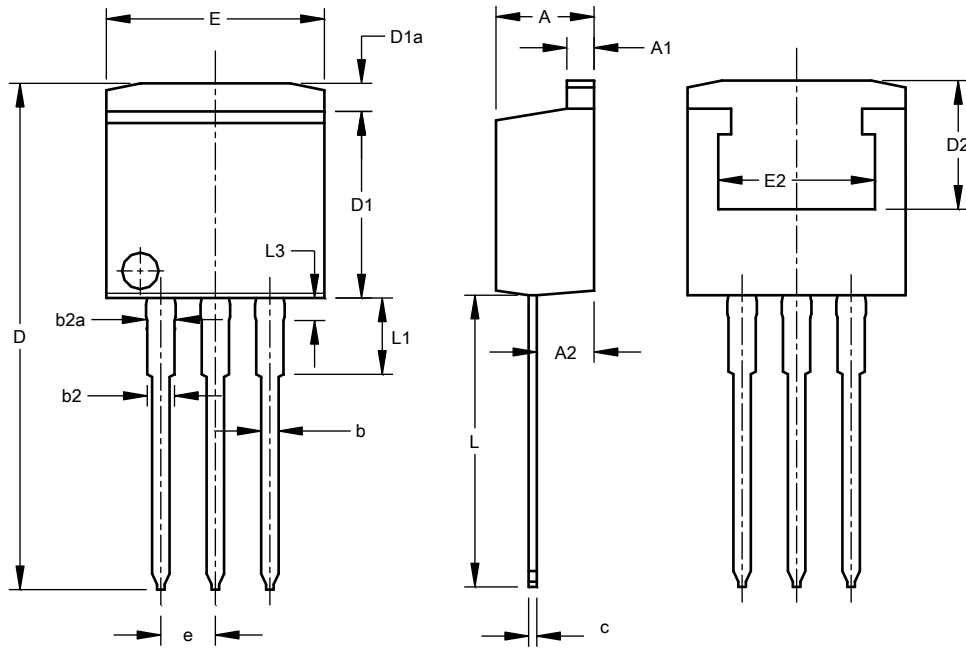


Figure 5. DC Forward Current Derating

**Package Outline Dimensions**

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

**TO262 (Type HE)**



TO262 (Type HE)			
Dim	Min	Max	Typ
A	4.37	4.77	4.57
A1	1.22	1.42	1.27
A2	2.47	2.87	2.67
b	0.70	0.97	0.813
b2	1.17	1.42	1.27
b2a	1.25	1.50	1.35
c	0.28	0.53	0.381
D	23.20	24.02	23.61
D1	8.38	8.90	8.70
D1a	--	1.31	--
D2	6.00	--	--
e	2.54 BSC		
E	9.90	10.39	10.16
E2	7.30	--	--
L	13.34	14.10	13.73
L1	3.30	4.06	3.56
L3	0.95	1.15	1.05
All Dimensions in mm			

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